UNITED STATES SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

FORM 10-K

x **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended July 31, 2009
OR

o **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from to

Commission file number: 000-51753

LIGHTLAKE THERAPEUTICS INC.

(Exact name of Registrant as specified in its charter)

Nevada	**N/A**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
230 Queens Quay West, Suite 225, Toronto, ON, Canada	**M5J 2Y7**
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number: **(416)841-5414**

Securities registered pursuant to Section 12(b) of the Act: None
Securities registered pursuant to Section 12(g) of the Act: Common Stock, $0.001 par value

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes o No ☑

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes o No ☑

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☑ No o

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) is not contained herein, and will not be contained herein, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. o

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer o	Accelerated filer o
Non-accelerated filer o	Smaller reporting company ☑

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes ☑ No o

As of July 31, 2009, the registrant had 6,525,000 shares of common stock issued and outstanding. No market value has been computed based upon the fact that no active trading market had been established as of October 8, 2008.

ITEM 1 – Description of Business

PRINCIPAL PRODUCTS OR SERVICES AND MARKETS

GENERAL INFORMATION

We are a development stage company with no revenue and limited assets. Our independent auditor has issued an audit opinion which includes a statement expressing substantial doubt as to our ability to continue as a going concern as the Company has limited its' activities to raising capital.

During the year ended July 31, 2009, the company carried out very limited operations and on June 26, 2009 Belmont Partners (Belmont) acquired a controlling interest of approximately 76.6% of the Company's outstanding shares. (ref: Form 8-K filing date June 26, 2009) On July 31, 2009, the Pelikin Group acquired the 5,000,000 shares from Belmont (see exhibit 4) and will be continuing operations as a pharmaceutical company focusing on developing new and innovative solutions to obesity and eating disorders.

Our plan of operation for the next twelve months is to pursue the Phase 2 clinical trials in Helsinki, Finland on the user patents that were acquired by the company from Dr. David Sinclair, in exchange for 20,333,333 restricted common shares on August 24, 2009. (see Exhibit 5, Sinclair Agreement) The safe and effective treatment is a proprietary patented pharmaceutical medicine-based behaviour program pioneered by Dr. David Sinclair.

We anticipate that additional funding will be required in the form of equity financing from the sale of our common stock or loans from our director. However, we may not be able to raise sufficient funding from the sale of our common stock to fund our operations.

There has been no bankruptcy, receivership or similar proceeding.

There have been no material reclassifications, mergers, consolidations, or purchase or sale of a significant amount of assets not in the ordinary course of business.

We are required to comply with all regulations, rules and directives of governmental authorities and agencies applicable to the clinical testing and manufacturing of pharmaceutical product.

We have one patent application with the US Patent Office (US Patent application, Jan. 10, 2005, Appln. S.N. 11/031,534) (see exhibit 6) We are in the planning stages of branding and naming our future product. We plan to trademark the product name and the overall weight loss program. We have no current plans for any registrations such as franchises, concessions, royalty agreements or labor contracts. We will assess the need for any of these applications on an ongoing basis.

We are required to apply for or have any government approval for our products or services.

We have not expended funds for research and development costs since inception.

EMPLOYEES AND EMPLOYMENT AGREEMENTS

Our only employee is our officer, Seijin Ki who currently devote as much time as the board of directors determines is necessary to manage the affairs of the company. There are no formal employment agreements between the company and our current employees.

REPORTS TO SECURITIES HOLDERS

We will provide an annual report that includes audited financial information to our shareholders. We will make our financial information equally available to any interested parties or investors through compliance with the disclosure rules of Regulation S-K for a small business issuer under the Securities Exchange Act of 1934, including filing Form 10K annually and Form 10Q quarterly. In addition, we will file Form 8K and other proxy and information statements from time to time as required. We do not intend to voluntarily file the above reports in the event that our obligation to file such reports is suspended under the Exchange Act. The public may read and copy any materials that we file with the Securities and Exchange Commission, ("SEC"), at the SEC's Public Reference Room at 100 F Street NE, Washington, DC (space here)20549. The public may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC maintains an Internet site (http://www.sec.gov) that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC.

ITEM 1A. RISK FACTORS

WE ARE A DEVELOPMENTAL STAGE COMPANY AND EXPECT TO INCUR SIGNIFICANT OPERATING LOSSES FOR THE FORESEEABLE FUTURE.

We were incorporated on June 21, 2005 and to date have been involved primarily in organizational activities, the acquisition of a mineral claim which we carried out exploration on and have since abandoned. We are currently changing our business model and have now entered into a new industry. The previous Board of Directors has resigned and new management has been placed. The Company will now operate as a pharmaceutical company focusing on developing new and innovative solutions to obesity and eating disorders. We have not generated any revenues as of the date of this report. The likelihood of success must be considered in light of the problems, expenses, difficulties, complications and delays encountered in connection with the clinical trials that will be conducted and on the development of new solutions to obesity and eating disorders. These potential problems include, but are not limited to, unanticipated problems relating to the clinical trials, and additional costs and expenses that may exceed current budget estimates for the completion of the trials. Prior to completion of our Phase 2 and Phase 3 clinical trials, we anticipate that we will incur increased operating expenses without realizing any revenues. We expect to incur significant losses into the foreseeable future. We recognize that if we are unable to generate funding, we will not be able to earn profits or continue operations. There is no history upon which to base any assumption as to the likelihood that we will prove successful, and it is doubtful that we will generate any operating revenues or ever achieve profitable operations. If we are unsuccessful in addressing these risks, our business will most likely fail.

OUR INDEPENDENT AUDITOR HAS ISSUED AN AUDIT OPINION FOR MADRONA VENTURES INC. WHICH INCLUDES A STATEMENT DESCRIBING OUR GOING CONCERN STATUS. OUR FINANCIAL STATUS CREATES A DOUBT WHETHER WE WILL CONTINUE AS A GOING CONCERN.

As described in Note 3 of our accompanying financial statements, our lack of operations and any guaranteed sources of future capital create substantial doubt as to our ability to continue as a going concern.

BECAUSE MANAGEMENT HAS NO EXPERIENCE IN THE PHARMACEUTICAL INDUSTRY, OUR BUSINESS HAS A HIGHER RISK OF FAILURE

Our management has no professional training or technical credentials in the field of medicine or in research or science. As a result, they may not be able to recognize and take advantage of potential new developments in the solutions to obesity and eating disorders without the aid of qualified pharmacological or medical consultants. Their decisions and choices may not take into account practices and procedures pharmaceutical companies commonly use. Consequently our operations, earnings and ultimate financial success may suffer irreparable harm as a result.

BECAUSE OUR CURRENT OFFICER AND DIRECTOR HAVE OTHER BUSINESS INTERESTS, THEY MAY NOT BE ABLE OR WILLING TO DEVOTE A SUFFICIENT AMOUNT OF TIME TO OUR BUSINESS OPERATIONS, CAUSING OUR BUSINESS TO FAIL.

Mr. Ki our sole officer and director, currently devotes approximately 6-8 hours per week providing management services to us. While he presently possesses the adequate time to attend to our interests, it is possible that the demands on him from his other obligations could increase, with the result that he would no longer be able to devote sufficient time to the management of our business. This could negatively impact our business development.

Dr. David Sinclair will be advising the company through the clinical testing phases and will become one of our chief scientific advisors. David Sinclair, PhD, began alcoholism research as a University of Cincinnati undergraduate, discovering that the usual treatment, forced abstinence, actually increases craving. After getting his doctorate in 1972 at the University of Oregon, he joined what is now the unit on prevention and treatment of addictions of Finland's National Institute for Health and Welfare, looking for a better alcoholism treatment. The solution, pharmacological extinction, became apparent after writing the 1981 book, *The Rest Principle: A Neurophysiological Theory of Behavior.* He subsequently worked on the preclinical studies and clinical trials proving the concept and on practical implementations. His work is featured in Dr. Roy Eskapa's 2008 book, *The Cure for Alcoholism* He currently is doing research on extensions to other addictions and on a new treatment for panic disorders.

THE TRADING IN OUR SHARES IS REGULATED BY SECURITIES AND EXCHANGE COMMISSION RULE 15G-9 WHICH ESTABLISHED THE DEFINITION OF A "PENNY STOCK."

Our shares are defined as a Penny Stock under the Securities and Exchange Act of 1934, and rules of the Commission. The Exchange Act and such penny stock rules generally impose additional sales practice and disclosure than certain accredited investors who are, generally, institutions with assets in excess of $5,000,000 or individuals with net worth in excess of $1,000,000 or annual income exceeding $200,000 ($300,000 jointly with spouse), or in transactions not recommended by the Broker-Dealer. For transactions covered by the penny stock rules, a Broker-Dealer must make a suitability determination for each purchaser and receive the purchaser's written agreement prior to the sale. In addition, the Broker-Dealer must make certain mandated disclosures in penny stock transactions, including the actual sale or purchase price and actual bid and offer quotations, the compensation to be received by the Broker-Dealer and certain associated persons, and deliver certain disclosures required by the Commission. Consequently, the penny stock rules may make it difficult for our shareholders to resell any shares, if at all.

WE WILL INCUR ONGOING COSTS AND EXPENSES FOR SEC REPORTING AND COMPLIANCE. WITHOUT REVENUE WE MAY NOT BE ABLE TO REMAIN IN COMPLIANCE, MAKING IT DIFFICULT FOR INVESTORS TO SELL THEIR SHARES, IF AT ALL.

Our shares are quoted on the OTC Electronic Bulletin Board under the symbol "LLTP". To be eligible for quotation, issuers must remain current in their filings with the SEC. In order for us to remain in compliance we will require cash to cover the cost of these filings, which could comprise a substantial portion of our available cash resources. If we are unable to remain in compliance it may be difficult for our shareholders to resell any shares, if at all.

ITEM 2 - DESCRIPTION OF PROPERTY

We do not currently own any property. We are currently utilizing space at the residence of our president at 225-230 Queens Quay West, Toronto, ON, M5J 2Y7. We believe the current premises are sufficient for our needs at this time.

We currently have no investment policies as they pertain to real estate, real estate interests or real estate mortgages.

ITEM 3 - LEGAL PROCEEDINGS

We are not currently involved in any legal proceedings nor do we have any knowledge of any threatened litigation.

ITEM 4 - SUBMISSION OF MATTERS TO A VOTE OF SECURITIES HOLDERS

No matters were submitted to a vote of security holders during the year ended July 31, 2009.

PART II

ITEM 5. MARKET FOR COMMON EQUITY AND RELATED STOCKHOLDER MATTERS

Since April, 2007 our common stock has been listed for quotation on the Over-the-Counter Bulletin Board under the symbol MDRW and then MDRV. On October 7, 2009 the Company started trading as Lightlake Therapeutics Inc and under the symbol LLTP. There has been no active trading market and thus no high and low sales prices to report.

SHARES AVAILABLE UNDER RULE 144

A total of 5,000,000 shares of our common stock are available for resale to the public after February, 2007, in accordance with the volume and trading limitations of Rule 144 of the Act. In general, under Rule 144 as currently in effect, a person who has beneficially owned shares of a company's common stock for at least six months is entitled to sell within any three month period a number of shares that does not exceed the greater of:

1. 1% of the number of shares of the company's common stock then outstanding; or

2. The average weekly trading volume of the company's common stock during the four calendar weeks preceding the filing of a notice on Form 144 with respect to the sale.

Sales under Rule 144 are also subject to manner of sale provisions and notice requirements and to the availability of current public information about the company.

Under Rule 144(k), a person who is not one of the company's affiliates at any time during the three months preceding a sale, and who has beneficially owned the shares proposed to be sold for at least two years, is entitled to sell shares without complying with the manner of sale, public information, volume limitation or notice provisions of Rule 144.

As of the date of this report, persons who are our affiliates hold all of the 5,000,000 shares that may be sold pursuant to Rule 144.

HOLDERS

As of July 31, 2009, we have 6,525,000 Shares of $0.001 par value common stock issued and outstanding held by 70 shareholders of record. We have no other classes of shares authorized for issuance.

As of the date of this filing, we have 157,358,333 Shares of $0.001 par value common stock issued and outstanding held by 70 shareholders of record. We have no other classes of shares authorized for issuance.

DIVIDENDS

There are no restrictions in our articles of incorporation or bylaws that prevent us from declaring dividends. The Nevada Revised Statutes, however, do prohibit us from declaring dividends where, after giving effect to the distribution of the dividend:

1. We would not be able to pay our debts as they become due in the usual course of business; or

2. Our total assets would be less than the sum of our total liabilities plus the amount that would be needed to satisfy the rights of shareholders who have preferential rights superior to those receiving the distribution.

We have not declared any dividends, and we do not plan to declare any dividends in the foreseeable future.

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

RESULTS OF OPERATIONS

We have generated no revenue since inception on June 21, 2005 and have incurred $98,273 in operating expenses which was offset by a forgiveness of debt in the amount of $43,163 resulting in an overall accumulated losses of $55,210 through July 31, 2009.

The following table provides selected financial data about our company for the years ended July 31, 2009 and 2008.

Balance Sheet Data:	07/31/09	7/31/08
Cash	$ 290	$ 206
Total assets	$ 290	$ 206
Total liabilities	$ - 0 -	$ 28,360
Shareholders' equity	$ 290	$ (28,154)

There was no cash provided by financing activities for the year ended July 31,(space here)2009.

GOING CONCERN

Lightlake Therapeutics Inc. is a development stage enterprise and currently has no operations. Our independent auditor has issued an audit opinion which includes a statement expressing substantial doubt as to our ability to continue as a going concern .

LIQUIDITY AND CAPITAL RESOURCES

Our cash balance at July 31, 2009 was $290 together with no outstanding liabilities. If we experience a shortage of funds prior to generating revenues from operations we may utilize funds from our director, who has informally agreed to advance funds to allow us to pay for operating costs, however he has no formal commitment, arrangement or legal obligation to advance or loan funds to us. Management believes our current cash balance will not be sufficient to fund our operations for the next twelve months.

PLAN OF OPERATION

Our plan of operation for the next twelve months is to pursue the Phase 2 clinical trials in Helsinki, Finland on the user patents that were acquired August 24, 2009. The safe and effective treatment is a proprietary patented pharmaceutical medicine-based behaviour program pioneered by Dr David Sinclair. We anticipate spending approximately $10,000 on professional fees, including fees payable in connection complying with reporting obligations, and general administrative costs during the next twelve months. If we experience a shortage of funds we may utilize funds from our director, however they have no formal commitment, arrangement or legal obligation to advance or loan funds to the company. The Company’s European Patent (Application Number 06396001) EP 1681057B1 and our US patent application 11/031,534. (See exhibits 6 & 7)

We anticipate that additional funding will be required in the form of equity financing from the sale of our common stock or loans from our director. However, we may not be able to raise sufficient funding from the sale of our common stock to fund any future exploration programs. We do not have any arrangements in place for any future equity financing. We anticipate that additional funding will be required in the form of equity financing from the sale of our common stock or loans from our director. However, we may not be able to raise sufficient funding from the sale of our common stock to fund our operations.

OFF-BALANCE SHEET ARRANGEMENTS

We have no off-balance sheet arrangements.

ITEM 8. FINANCIAL STATEMENTS

PS STEPHENSON & CO., P.C.
Certified Public Accountants
1609 N. Richmond Road
Wharton, Texas 77488

September 3, 2009
To the Board of Directors Madrona Ventures, Inc.

We have audited the financial statements of Madrona Ventures, Inc. for the year ended July 31, 2009, and have issued our report thereon dated September 3, 2009. Professional standards require that we provide you with the following information related to our audit.

Our Responsibility under Public Company Accounting Oversight Board Standards
As stated in our engagement letter dated July 31, 2009, our responsibility, as described by professional standards, is to plan and perform our audit to obtain reasonable, but not absolute, assurance that the financial statements are free of material misstatement and are fairly presented in accordance with U.S. generally accepted accounting principles. Because an audit is designed to provide reasonable, but not absolute, assurance and because we did not perform a detailed examination of all transactions, there is a risk that material misstatements may exist and not be detected by us.

Critical Accounting Policies and Practices
Management is responsible for the selection and use of appropriate accounting policies. In accordance with the terms of our engagement letter, we will advise management about the appropriateness of accounting policies and their application. The critical accounting policies used by Madrona Ventures, Inc. are described in Note 2 to the financial statements. No new accounting policies were adopted and the application of existing policies was not changed during fiscal 2009. We noted no transactions entered into by the Company during the year that were both critical and unusual, and of which, under professional standards, we are required to inform you, or transactions for which there is a lack of authoritative guidance or consensus.

Quality of the Company's Accounting Principles
Management is responsible not only for the appropriateness of the accounting policies and practices, but also for the quality of such policies and practices. The quality includes the consistency of the accounting policies and their application, the clarity and completeness of the financial statements, and includes items that have a significant impact on the representational faithfulness, verifiability, and neutrality of the accounting information included in the financial statements.

Management's Judgments and Accounting Estimates
Accounting estimates are an integral part of the financial statements prepared by management and are based on management's knowledge and experience about past and current events and assumptions about future events. Certain accounting estimates are particularly sensitive because of their significance to the financial statements and because of the possibility that future events affecting them may differ significantly from those expected. The most sensitive estimate(s) affecting the financial statements was (were):

Management's estimate of the valuation of a fair value stock price is based on the active market for the common stock, trading volumes, and restrictions on stock sales. We evaluated the key factors and assumptions used to develop the stock price valuation in determining that it is reasonable in relation to the financial statements taken as a whole.

Audit Adjustments
For purposes of this letter, professional standards define an audit adjustment as a proposed correction of the financial statements that, in our judgment, may not have been detected except through our auditing procedures. An audit adjustment may or may not indicate matters that could have a significant effect on the Company's financial reporting process (that is, cause future financial statements to be materially misstated). In our judgment, none of the adjustments we proposed, whether recorded or unrecorded by the Company, either individually or in the aggregate, indicate matters that could have a significant effect on the Company's financial reporting process.

Disagreements with Management
For purposes of this letter, professional standards define a disagreement with management as a matter, whether or not resolved to our satisfaction, concerning a financial accounting, reporting, or auditing matter that could be significant to the financial statements or the auditor's report. We are pleased to report that no such disagreements arose during the course of our audit.

Consultations with Other Independent Accountants
In some cases, management may decide to consult with other accountants about auditing and accounting matters, similar to obtaining a "second opinion" on certain situations. If a consultation involves application of an accounting principle to the Company's financial statements or a determination of the type of auditor's opinion that may be expressed on those statements, our professional standards require the consulting accountant to check with us to determine that the consultant has all the relevant facts. To our knowledge, there were no such consultations with other accountants.

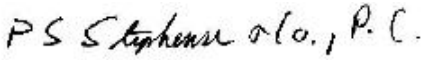
Issues Discussed Prior to Retention of Independent Auditors
We generally discuss a variety of matters, including the application of accounting principles and auditing standards, with management each year prior to retention as the Company's auditors. However, these discussions occurred in the normal course of our professional relationship and our responses were not a condition to our retention.

Difficulties Encountered in Performing the Audit
We encountered no significant difficulties in dealing with management in performing and completing our audit.

(Other Information in Documents Containing Audited Financial Statements)
Our audited financial statements are included in the Company's annual report. Our responsibility for the other information contained in the annual report does not extend beyond the financial information identified in our audit report. We do not have an obligation to perform any procedures to corroborate the other information contained in the annual report. However, we read the other information and considered whether such information, or the manner of its presentation, was materially inconsistent with information, or the manner of its presentation, appearing in the financial statements. Nothing came to our attention that caused us to believe that such information, or its manner of presentation, was materially inconsistent with the information, or manner of its presentation, appearing in the financial statements.

This information is intended solely for the use of the Audit Committee, Board of Directors, and management of Madrona Ventures, Inc. and is not intended to be and should not be used by anyone other than these specified parties.

Very truly yours,



PS Stephenson & Co., PC Wharton, Texas

Madrona Ventures, Inc.

Financial Statements

For the Year Ended

July 31, 2009

PS Stephenson & Co., P.C.

Certified Public Accountants

Wharton, Texas

Madrona Ventures, Inc.
Index to Financial Statements
July 31, 2009

Madrona Ventures
Balance Sheet
July 31, 2009 and 2008

Assets	July 31, 2009	2008
Current assets		
Cash and cash equivalents	$ 290	$ 206
Other current assets	-	-
Total current assets	290	206
Other assets	-	-
Total assets	$ 290	$ 206
Liabilities and Shareholders' Deficit		
Liabilities		
Accounts payable and accrued liabilities	$ -	$ 13,645
Due to related party	-	14,715
Total liabilities	-	28,360
Stockholders' equity (deficit)		
Common stock; par value $0.001; 75,000,000 shares authorized;		
6,525,000 shares issued and outstanding	6,525	6,525
Additional paid-in capital	48,975	48,975
Accumulated deficit during the development stage	(55,210)	(83,654)
Total stockholders' deficit	290	(28,154)
Total liabilities and stockholders' equity	$ 290	$ 206

The accompanying notes are an integral part of these financial statements.

Madrona Ventures, Inc.
Statements of Operations
For the Years Ended July 31, 2009 and 2008 and the Period From Inception (June 21, 2005) to July 31, 2009

	Year Ended July 31,		From Inception (June 21, 2005) to July 31,
	2009	2008	2009
Revenues	$ -	$ -	$ -
Operating expenses			
General and administrative	14,719	17,924	59,358
Mineral interests	-	-	39,015
Total operating expenses	14,719	17,924	98,373
Income (loss) from operations	(14,719)	(17,924)	(98,373)
Other income (expense)			
Debt forgiveness	43,163	-	43,163
Total other income (expense)	43,163	-	43,163
Income (loss) before provision for income taxes	28,444	(17,924)	(55,210)
Provision for income taxes	-	-	-
Net income (loss)	$ 28,444	$ (17,924)	$ (55,210)
Basic and fully diluted loss per common share:			
Earnings (loss) per common share	$ 0.00	$ (0.00)	
Basic and fully diluted weighted average common shares outstanding	6,525,000	6,525,000	

The accompanying notes are an integral part of these financial statements.

Madrona Ventures, Inc.
Statement of Changes in Stockholders' Equity (Deficit)
For the Years Ended July 31, 2009 and 2008 and the Period From Inception (June 21, 2005) to July 31, 2009

	Common Stock Shares	Common Stock Amount	Additional Paid In Capital	Deficit During the Development Stage	Total
Balance at June 21, 2005	-	$ -	$ -	$ -	$ -
Balance at July 31, 2005	-	-	-	-	-
Common shares issued for cash					
March 2006 at $0.001 per share	5,000,000	5,000	-		5,000
March 2006 at $0.01 per share	1,300,000	1,300	11,700		13,000
April 2006 at $0.01 per share	75,000	75	7,425		7,500
May 2006 at $0.01 per share	150,000	150	29,850		30,000
Net income (loss)				(32,125)	(32,125)
Balance at July 31, 2006	6,525,000	6,525	48,975	(32,125)	23,375
Net income (loss)				(33,605)	(33,605)
Balance at July 31, 2007	6,525,000	6,525	48,975	(65,730)	(10,230)
Net income (loss)				(17,924)	(17,924)
Balance at July 31, 2008	6,525,000	6,525	48,975	(83,654)	(28,154)
Net income (loss)	-	-	-	28,444	28,444
Balance at July 31, 2009	6,525,000	$ 6,525	$ 48,975	$ (55,210)	$ 290

The accompanying notes are an integral part of these financial statements.

Madrona Ventures, Inc.
Statements of Cash Flows
For the Years Ended July 31, 2009 and 2008 and the Period From Inception (June 21, 2005) to July 31, 2009

	Year Ended July 31, 2009	Year Ended July 31, 2008	From Inception (June 21, 2005) to July 31, 2009
Cash Flows Provided (Used) By Operating Activities			
Net income (loss)	$ 28,444	$ (17,924)	$ (55,210)
Adjustments to reconcile net income (loss) to net cash provided from (used by) operating activities:			
Increase (decrease) in accounts payable	(13,645)	6,145	-
Increase (decrease) in due to related party	(14,715)	11,715	-
Net cash provided from (used by) operating activities	84	(64)	(55,210)
Cash Flows Provided (Used) By Investing Activities	-	-	-
Cash Flows Provided (Used) By Financing Activities			
Issuance of common stock for cash	-	-	55,500
Net cash provided from (used by) financing activities	-	-	55,500
Net increase (decrease) in cash and cash equivalents	84	(64)	290
Cash and cash equivalents, beginning of year	206	270	-
Cash and cash equivalents, end of year	$ 290	$ 206	$ 290
Supplemental disclosure			
Interest paid during the period	$ -	$ -	$ -

The accompanying notes are an integral part of these financial statements.

	2009	2008
Convertible note payable to an individual date August 29, 2008, interest at 12%, due on or before April 18, 2008, convertible into shares of common stock at a conversion price equal to the 10 day average closing price multiplied by 0.80	$ 250,000	$ -
Convertible note payable to an individual date January 18, 2008, interest at 9%, due on or before April 18, 2008, convertible into shares of common stock at a conversion price equal to the 10 day average closing price multiplied by 0.50	$ -	$ 300,000
Convertible note payable to an individual date January 18, 2008, interest at 9%, due on or before April 18, 2008, convertible into shares of common stock at a conversion price equal to the 10 day average closing price multiplied by 0.50	-	300,000
Convertible note payable to an individual date January 18, 2008, with no specified interest or due date, convertible into shares of common stock at a conversion price equal to the 10 day average closing price multiplied by 0.50	-	530,000
Total	$ -	$ 1,130,000

1. Organization, Description of Business, and Basis of Accounting

Business Organization
Lightlake Therapeutics Inc. (the Company) was originally incorporated as Madrona Ventures Inc. in the State of Nevada on June 21, 2005. The Company's fiscal year end is July 31. The company is currently in the development stage and to date its' activities have been limited to capital formation. The Company has limited assets and no revenue and in accordance with SFAS No.7, is considered a Development Stage Company.

Accounting Basis
These financial statements have been prepared on the accrual basis of accounting following generally accepted accounting principles of the United States of America consistently applied.

2. Summary of Significant Accounting Policies

Cash and Cash Equivalents
For Statement of Cash Flows purposes, the Company considers all cash on hand and in banks, certificates of deposit and other highly-liquid investments with maturities of three months or less, when purchased, to be cash and cash equivalents.

Property and Equipment
Property and equipment are stated at cost. Depreciation has been calculated over the estimated useful lives of the assets ranging from 3 to 5 years. The cost of maintenance and repairs is expensed as incurred. At July 31, 2009, the Company had no property and equipment.

Income Taxes
The Company uses the asset and liability method of accounting for income taxes. At July 31, 2009, respectively, the deferred tax asset and deferred tax liability accounts, as recorded when material to the financial statements, are entirely the result of temporary differences. Temporary differences represent differences in the recognition of assets and liabilities for tax and financial reporting purposes, primarily accumulated depreciation and amortization.

As of July 31, 2009, the deferred tax asset related to the Company's net operating loss carryforward is fully reserved. Due to the provisions of Internal Revenue Code Section 338, the Company may have no net operating loss carryforwards available to offset financial statement or tax return taxable income in future periods as a result of a change in control involving 50 percentage points or more of the issued and outstanding securities of the Company.

Dividends
The Company is a Development Stage Company and has not yet adopted a policy regarding the payment of dividends.

Fair Value of Financial Instruments
The carrying value of cash, accounts payable and amounts due to related party approximates its fair value because of the short maturity of these instruments. Unless otherwise noted, it is managements opinion the Company is not exposed to significant interest, currency or credit risks arising from these financial instruments.

Foreign Currency Translation
The financial statements are presented in United States dollars. In accordance with SFAS No. 52, "Foreign Currency Translation", foreign denominated monetary assets and liabilities are translated into their United States dollar equivalents using foreign exchange rates which prevailed at the balance sheet date. Non monetary assets are translated at the exchange rates prevailing at the transaction date. Revenue and expenses are translated at average rates of exchange during the year. Gains or losses resulting from foreign currency transactions are included in results of operations.

Earnings (Loss) per Share
Basic earnings (loss) per share is computed by dividing the net income (loss) available to common shareholders by the weighted-average number of common shares outstanding during the respective period presented in our accompanying financial statements.

Fully diluted earnings (loss) per share is computed similar to basic income (loss) per share except that the denominator is increased to include the number of common stock equivalents (primarily outstanding options and warrants).

Common stock equivalents represent the dilutive effect of the assumed exercise of outstanding stock options and warrants, using the treasury stock method, at either the beginning of the respective period presented or the date of issuance, whichever is later, and only if the common stock equivalents are considered dilutive based upon the Company's net income (loss) position at the calculation date.

As of July 31, 2009, the Company's has no issued and outstanding warrants or options.

Stock Based Compensation
The Company recognizes stock-based compensation in accordance with the fair value recognition provisions of SFAS No. 123(R), "Share-Based Payment." SFAS No. 123(R) generally requires share-based payments to employees, including grants of employee stock options and other equity awards, to be recognized in the statement of operations based on their fair values. Thus, the Company records compensation expense for all share-based awards granted, based on the grant date fair value estimated in accordance with the provisions of SFAS 123(R). The Company adopted SFAS 123(R) using the modified prospective method, which requires that compensation expense for the portion of awards for which the requisite service has not yet been rendered and that are outstanding as of the adoption date be recorded over the remaining service period. Prior to the adoption of SFAS No. 123(R), the Company had no share-based compensation arrangements. Accordingly, no prior periods have been restated, the impact of SFAS 123(R) is not presented, and no pro forma amounts are presented had the Company recognized stock-based compensation in accordance with SFAS No. 123(R).

Stock-based compensation expense recognized during the period is based on the value of the stock-based payment awards that is ultimately expected to vest. SFAS 123(R) requires forfeitures to be estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates.

The Company has not adopted a stock option plan and has not granted any stock options. Accordingly, no stock-based compensation has been recorded to date.

Use of Estimates
The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Recent Accounting Pronouncements
In May 2009, the Financial Accounting Standards Board ("FASB") issued Statement of Financial Accounting Standards ("SFAS") No. 165, *Subsequent Events* ("SFAS 165"), which provides guidance to establish general standards of accounting for and disclosures of events that occur after the balance sheet date but before financial statements are issued or are available to be issued. SFAS 165 also requires entities to disclose the date through which subsequent events were evaluated as well as the rational as to why the date was selected. SFAS 165 is effective for interim and annual periods ended after June 15, 2009. The Company has adopted the provisions of SFAS 165. The Company has evaluated subsequent events through September 2, 2009.

In July 2009, the FASB issued Statement of Financial Accounting Standards ("SFAS") No. 168, FASB Accounting Standards Codification ™ and the Hierarchy of Generally Accepted Accounting Principles — a replacement of FASB Statement No. 162 ("SFAS 168"). With the issuance of SFAS 168, the FASB Standards Codification ("Codification") becomes the single source of authoritative U.S. accounting and reporting standards applicable for all non-governmental entities, with the exception of guidance issued by the Securities and Exchange Commission. The Codification does not change current U.S. GAAP, but changes the referencing of financial standards and is intended to simplify user access to authoritative U.S. GAAP, by providing all the authoritative literature related to a particular topic in one place. The Codification is effective for interim and annual periods ended after September 15, 2009. At that time, all references made to U.S. GAAP will use the new Codification numbering system prescribed by the FASB.

3. Going Concern

The accompanying financial statements have been prepared assuming the Company will continue as a going concern, which contemplates the realization of assets and the liquidation of liabilities in the normal course of business. However, the Company has incurred significant losses and is a new enterprise. This raises substantial doubt about the Company's ability to continue as a going concern. These financial statements do not include any adjustments that might result from this uncertainty

4. Capital Stock

The Company has 75,000,000 common shares authorized at a par value of $0.001. At July 31, 2009, there were 6,525,000 shares issued and outstanding. The Company has no other classes of shares authorized for issuance.

As of the date of this filing the Company has 200,000,000 common shares authorized at a par value of $0.001 and has 157,358,333 shares issued and outstanding. The Company has no other classes of shares authorized for issuance.

As of July 31, 2009, there were no outstanding stock options or warrants.

5. Common Stock Purchase Agreement

On June 26, 2009, the Company completed a common stock purchase agreement (the Belmont Agreement) whereby Belmont Partners, LLC acquired 5,000,000 common shares of the Company's common stock. Following the transaction, Belmont Partners, LLC controlled approximately 76.6% of the Company's outstanding capital stock. Concurrent with the agreement, Mr. Joseph Meuse, managing member of Belmont Partners, LLC, was named to the Board of Directors as well as President and Secretary of the Company, and the Company's former officers resigned from all positions held in the Company.

In connection with the Belmont Agreement, the Company's former officers forgave amounts advanced to the Company aggregating $28,816 as well as either paid or assumed the remaining other liabilities of the Company aggregating $14,347. Accordingly, the Company recorded a gain on debt extinguishment of $43,163.

On July 31, 2009, the Company completed a common stock purchase agreement (the Pelikin Agreement) whereby Pelikin Group acquired 5,000,000 common shares of the Company's common stock from Belmont Partners. Following the transaction, Pelikin Group controls approximately 76.6% of the Company's outstanding capital stock. Concurrent with the agreement, Mr. Sei Ki was named to the Board of Directors as well as President and Secretary of the Company, and Mr. Joseph Meuse resigned from all positions held in the Company.

On August 24, 2009, the Company completed the purchase of all rights, title and interest in a European Patent (Application Number 06396001) EP 1681057B1 concerning eating disorders and the Applicant for U.S. Patent Application 11/031,534 in exchange for 20,333,333 shares of Restricted Common Stock of the Company.

6. Income Taxes

The Company has net operating loss carryforwards that were derived solely from operating losses from prior years. These amounts can be carried forward to offset future taxable income for a period of 20 years for each tax year's loss. No provision was made for federal income taxes as the Company has significant net operating losses.

The operating losses derive a deferred tax asset of approximately $18,800 and $29,400 at July 31, 2009 and 2008, respectively. At July 31, 2009 and 2008, the Company has established a valuation allowance equal to the deferred tax assets as there is no assurance that the Company will generate future taxable income to utilize these assets.

Due to the provisions of Internal Revenue Code Section 338, the Company may have no net operating loss carryforwards available to offset financial statement or tax return taxable income in future periods as a result of a change in control involving 50 percentage points or more of the issued and outstanding securities of the Company.

7. Key Operating Officer

At July 31, 2009, the Company had one officer. This puts the Company at a high degree of risk if he were no longer able to function in that capacity.

8. Related Party Transactions

Prior to fiscal 2009, and though the date of the Belmont Agreement (Note 5), a former officer of the Company advanced funds to the Company for working capital needs. The amounts were non-interest bearing, unsecured, with no stated terms or repayment. Concurrent with the Belmont Agreement, the former officer forgave the advances aggregating $28,816.

9. Subsequent Event

On August 24, 2009, the Company completed the purchase of all rights, title and interest in a European Patent (Application Number 06396001) EP 1681057B1 concerning eating disorders and the Applicant for U.S. Patent Application 11/031,534 in exchange for 20,333,333 shares of Restricted Common Stock of the Company.

On October 7, 2009 the Company started trading under the name Lightlake Therapeutics inc. and under the symbol "LLTP".

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON FINANCIAL DISCLOSURE

None.

ITEM 9A. CONTROLS AND PROCEDURES

EVALUATION OF DISCLOSURE CONTROLS AND PROCEDURES

Under the supervision and with the participation of our management, including our principal executive officer and the principal financial officer, we have conducted an evaluation of the effectiveness of the design and operation of our disclosure controls and procedures, as defined in Rules 13a-15(e) and 15d-15(e) under the Securities and Exchange Act of 1934, as of the end of the period covered by this report. Based on this evaluation, our principal executive officer and principal financial officer concluded as of the evaluation date that our disclosure controls and procedures were effective such that the material information required to be included in our Securities and Exchange Commission reports is recorded, processed, summarized and reported within the time periods specified in SEC rules and forms relating to our company, particularly during the period when this report was being prepared.

MANAGEMENT'S ANNUAL REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act, for the Company.

Internal control over financial reporting includes those policies and procedures that: (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of our assets; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that our receipts and expenditures are being made only in accordance with authorizations of its management and directors; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on the financial statements.

Management recognizes that there are inherent limitations in the effectiveness of any system of internal control, and accordingly, even effective internal control can provide only reasonable assurance with respect to financial statement preparation and may not prevent or detect material misstatements. In addition, effective internal control at a point in time may become ineffective in future periods because of changes in conditions or due to deterioration in the degree of compliance with our established policies and procedures.

A material weakness is a significant deficiency, or combination of significant deficiencies, that results in there being a more than remote likelihood that a material misstatement of the annual or interim financial statements will not be prevented or detected.

Under the supervision and with the participation of our Chief Executive Officer and Chief Financial Officer, management conducted an evaluation of the effectiveness of our internal control over financial reporting, as of the Evaluation Date, based on the framework set forth in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on its evaluation under this framework, management concluded that our internal control over financial reporting was not effective as of the Evaluation Date.
Management assessed the effectiveness of the Company's internal control over financial reporting as of Evaluation Date and identified the following material weaknesses:

INSUFFICIENT RESOURCES: We have an inadequate number of personnel with requisite expertise in the key functional areas of finance and accounting. We have an inadequate number of personnel to properly implement control procedures.

LACK OF AUDIT COMMITTEE & OUTSIDE DIRECTORS ON THE COMPANY'S BOARD OF DIRECTORS:

We do not have a functioning audit committee and we have no outside directors on the Board of Directors, resulting in ineffective oversight in the establishment and monitoring of required internal controls and procedures.

Management is committed to improving its internal controls and will (1) continue to use third party specialists to address shortfalls in staffing and to assist the Company with accounting and finance responsibilities, (2) increase the frequency of independent reconciliations of significant accounts which will mitigate the lack of segregation of duties until there are sufficient personnel and (3) may consider appointing outside directors and audit committee members in the future.

Management, including our Chief Executive Officer and Chief Financial Officer, has discussed the material weakness noted above with our independent registered public accounting firm. Due to the nature of this material weakness, there is a more than remote likelihood that misstatements which could be material to the annual or interim financial statements could occur that would not be prevented or detected.

This Annual Report does not include an attestation report of our registered public accounting firm regarding internal control over financial reporting. Management's report was not subject to attestation by the our registered public accounting firm pursuant to temporary rules of the SEC that permit us to provide only management's report in this annual report.

CHANGES IN INTERNAL CONTROL OVER FINANCIAL REPORTING

There were no significant changes in our internal controls or in other factors that could significantly affect these controls subsequent to the evaluation date.

CEO AND CFO CERTIFICATIONS

Appearing immediately following the Signatures section of this report there are Certifications of the CEO and the CFO. The Certifications are required in accordance with Section 302 of the Sarbanes-Oxley Act of 2002 (the Section 302 Certifications). This Item of this report, which you are currently reading is the information concerning the Evaluation referred to in the Section 302 Certifications and this information should be read in conjunction with the Section 302 Certifications for a more complete understanding of the topics presented.

PART III

ITEM 10. DIRECTORS AND EXECUTIVE OFFICERS

The officers and directors of Lightlake Therapeutics Inc., whose one year terms will expire on 07/01/10, or at such a time as their successor(s) shall be elected and qualified are as follows:

Name & Address	Age	Position	Date First Elected	Term Expires
Seijin Ki	39	President,	7/31/09	7/01/10
225-230 Queens Quay W.,		Secretary		
Toronto, ON, M5J 2Y7		Treasurer		
		CEO, CFO		
		Director		

Directors are elected to serve until the next annual meeting of stockholders and until their successors have been elected and qualified. Officers are appointed to serve until the meeting of the board of directors following the next annual meeting of stockholders and until their successors have been elected and qualified.

Mr. Seijin Ki is at this time the sole director and officer of the Company. Mr. Ki currently devotes as much time necessary to manage the affairs of the company.

Our sole officer and director has not been the subject of any order, judgment, or decree of any court of competent jurisdiction, or any regulatory agency permanently or temporarily enjoining, barring, suspending or otherwise limiting them from acting as an investment advisor, underwriter, broker or dealer in the securities industry, or as an affiliated person, director or employee of an investment company, bank, savings and loan association, or insurance company or from engaging in or continuing any conduct or practice in connection with any such activity or in connection with the purchase or sale of any securities.

He has neither been convicted in any criminal proceeding (excluding traffic violations) and is not the subject of a criminal proceeding which is currently pending.

RESUMES

SEIJIN KI has been the director and officer of this company since July 31, 2009. Mr. Ki has been an entrepreneur for most of his professional career. He has founded many companies ranging from a motion picture production company to a corporate consulting company. Recently, Mr. Ki has devoted the bulk of his time as a director and officer of Pelikin Group, Inc.. Pelikin Group provides advice and strategy building for companies and individuals. Mr. Ki attended the University of Western Ontario and attained his Bachelor of Arts.

CODE OF ETHICS

We do not currently have a code of ethics, because we have only limited business operations, only one officer and two directors, we believe a code of ethics would have limited utility. We intend to adopt such a code of ethics as our business operations expand and we have more directors, officers and employees.

ITEM 11. EXECUTIVE COMPENSATION

Our current officers receive no compensation. The current Board of Directors is comprised solely of Seijin Ki.

Summary Compensation Table

Name & Principal Position	Year	Salary($)	Bonus($)	Other Annual Compensation($)	Restricted Stock Award(s)($)	Options SARs(#)	LTIP Payouts($)	All Other Compensation($)
Seijin Ki President	2009	-0-	-0-	-0-	-0-	-0-	-0-	-0-

There are no current employment agreements between the company and its executive officers.

Seijin Ki currently devotes approximately 5-7 hours per week to manage the affairs of the company. He has agreed to work with no remuneration until such time as the company receives sufficient revenues necessary to provide management salaries. At this time, we cannot accurately estimate when sufficient revenues will occur to implement this compensation, or what the amount of the compensation will be.

There are no annuity, pension or retirement benefits proposed to be paid to officers, directors or employees in the event of retirement at normal retirement date pursuant to any presently existing plan provided or contributed to by the company or any of its subsidiaries, if any.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The following table sets forth information on the ownership of Lightlake Therapeutics Inc. voting securities by officers, directors and major shareholders as well as those who own beneficially more than five percent of our common stock as of the date of this report:

Name of Beneficial Owner	No. of Shares	Percentage of Ownership:
Seijin Ki	105,000,000*	-0-

* Mr. Ki beneficially owns shares standing in the name of Pelikin Group Inc., Mr. Ki is an officer and director of Pelikin Group.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS

On July 31, 2009, the Company completed a common stock purchase agreement (the Pelikin Agreement) whereby Pelikin Group acquired 5,000,000 common shares of the Company’s common stock from Belmont Partners. Mr. Seijin Ki is a director and officer of Pelikin Group, Inc. All of such shares are "restricted" securities, as that term is defined by the Securities Act of 1933, as amended, and are held by the officers and directors of the Company. (See "Principal Stockholders".)

ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

The total fees charged to the company for audit services were $9,500, for audit-related services were $8,000, for tax services were $nil and for other services were $1,500 during the year ended July 31, 2009.

The total fees charged to the company for audit services were $14,000, for audit-related services were $Nil, for tax services were $Nil and for other services were $Nil during the year ended July 31, 2008.

PART IV

ITEM 15. EXHIBITS

The following exhibits are included with this filing:

Exhibit Number	Description
3(i)	Articles of Incorporation
* 3(ii)	Bylaws
10.4	Pelikin Agreement
10.5	Sinclair Agreement
10.6	US Patent Application
10.7	European Patent
31.1	Sec. 302 Certification of CEO
31.2	Sec. 302 Certification of CFO
32	Sec. 906 Certification of CEO/CFO

---

* Incorporated by reference to our SB-2 Registration Statement filed on 1/11/07

SIGNATURES

In accordance with Section 13 or 15(d) of the Securities Exchange Act, the registrant caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

/s/ Seijin Ki	October 15, 2009
Seijin Ki, President & Director (Principal Executive Officer, Principal Financial Officer, Principal Accounting Officer)	Date

SECRETARY OF STATE

STATE OF NEVADA

CORPORATE CHARTER

I, DEAN HELLER, the duly elected and qualified Nevada Secretary of State, do hereby certify that **MADRONA VENTURES INC.**, did on June 21, 2005, file in this office the original Articles of Incorporation; that said Articles of Incorporation are now on file and of record in the office of the Secretary of State of the State of Nevada, and further, that said Articles contain all the provisions required by the law of said State of Nevada.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the Great Seal of State, at my office on June 27, 2005.

DEAN HELLER
Secretary of State

By
Certification Clerk

DEAN HELLER
Secretary of State
206 North Carson Street
Carson City, Nevada 89701-4299
(775) 684 5708
Website: secretaryofstate.biz

Entity # E0390262005-0
Document Number: 20050240957-64
Date Filed: 6/21/2005 8:00:40 AM
In the office of
Dean Heller
Secretary of State

Articles of Incorporation
(PURSUANT TO NRS 78)

Important. Read attached instructions before completing form. ABOVE SPACE IS FOR OFFICE USE ONLY

1. *Name of Corporation:*	Madrona Ventures Inc.
2. *Resident Agent Name and Street Address:* (must be a Nevada address, where process may be served)	Empire Stock Transfer Inc. (Name) / 7251 West Lake Mead Boulevard Suite 300 (Street Address) Las Vegas (City) NEVADA (State) 89128 (Zip Code) / Optional Mailing Address (City, State, Zip Code)
3. *Shares:* (number of shares corporation is authorized to issue)	Number of shares with par value: 75,000,000 Par value: $ .001 Number of shares without par value:
4. *Names & Addresses of Board of Directors/Trustees:* (attach additional page if there is more than 3 directors/trustees)	1. Darcy Krell (Name) / #3A 199 Drake Street (Street Address) Vancouver (City) BC (State) V6Z 2Y9 (Zip Code) / 2. (Name) / (Street Address, City, State, Zip Code) / 3. Name: / (Street Address, City, State, Zip Code)
5. *Purpose:* (optional)	The purpose of this Corporation shall be: All legal purposes
6. *Names, Address and Signature of Incorporator:* (attach additional page if there is more than 1 incorporator)	Leah Finke (Name) (Signature) / 7251 West Lake Mead Boulevard Suite 300 (Address) Las Vegas (City) NV (State) 8912 (Zip Code)
7. *Certificate of Acceptance of Appointment of Resident Agent:*	I hereby accept appointment as Resident Agent for the above named corporation. / Authorized Signature of R. A. or On Behalf of R. A. Company 6/20/2005 (Date)

This form must be accompanied by appropriate fees. See attached fee schedule.

ARTICLES OF INCORPORATION

OF

MADRONA VENTURES INC

FIRST. The name of the corporation is Madrona Ventures Inc.

SECOND. The registered office of the corporation in the State of Nevada is located at 7251 West Lake Mead Blvd Suite 300, Las Vegas, NV 89128. The corporation may maintain an office, or offices, in such other places within or without the State of Nevada, as may be from time to time designated by the Board of Directors or the By-Laws of the corporation. The corporation may conduct all corporation business of every kind and nature outside the State of Nevada as well as within the State of Nevada.

THIRD. The objects for which this corporation is formed are to engage in any lawful activity.

FOURTH. The total number of common stock authorized that may be issued by the Corporation is seventy five million (75,000,000) shares of common stock with a par value of one tenth of one cent ($0.001) per share and no other class of stock shall be authorized. The corporation may from time issue said shares for such consideration as the Board of Directors may fix.

FIFTH. The governing board of the corporation shall be known as directors, and the number of directors may from time to time be increased or decreased in such manner as shall be provided by the By-Laws of this corporation, providing that the number of directors shall not be reduced to fewer than one (1). The first Board of Directors shall be one (1) in number and the name and post office address of this Director is:

Name:	Darcy Krell
Address:	#3A 199 Drake Street
	Vancouver, BC Canada V6Z 2T9

SIXTH. The capital stock of the corporation, after the amount of the subscription price or par value, has been paid in, shall not be subject to assessment to pay the debts of the corporation.

SEVENTH.The name and post office address of the Incorporator signing the Articles of Incorporation is as follows:

Name:	Leah Finke
Address:	7251 West Lake Mead Blvd Suite 300
	Las Vegas, Nevada 89128

EIGHTH. The Resident Agent for this corporation shall be Empire Stock Transfer Inc. The address of the Resident Agent and the registered or statutory address of this corporation in the State of Nevada shall be: 7251 West Lake Mead Blvd Suite 300 Las Vegas, NV 89128.

NINTH. The corporation is to have perpetual existence.

TENTH. The Board of Directors shall adopt the initial By-laws of the corporation. The Board of Directors shall also have the power to alter, amend or repeal the By-laws, or to adopt new By-laws, except as otherwise may be specifically provided in the By-laws.

ELEVENTH. The Board of Directors shall have the authority to open bank accounts and adopt banking resolutions on behalf of the corporation.

TWELVETH. No Director or Officer of the corporation shall be personally liable to the corporation or any of its stockholders for damages for breach of fiduciary duty as a Director or Officer involving any act or omission of any such Director or Officer; provided, however, that the foregoing provision shall not eliminate or limit the liability of a Director or Officer (i) for acts or omissions which involve intentional misconduct, fraud or a knowing violation of the larw, or (ii) the payment of dividends in violation of Section 78.300 of the Nevada Revised Statutes. Any repeal or modification of this Article by the Stockholders of the corporation shall be prospective only, and shall not adversely aff'ect any limitations on the personal liability of a Director or Officer of the corporation for acts or omissions prior to such repeal or modification.

THIRTEENTH. The corporation reserves the right to amend, alter, change or repeal any provision contained in the Articles of Incorporation, in the manner now or hereafter prescribed by statute, or by the Articles of Incorporation, and all rights conferred upon stockholders herein are granted subject to this reservation.

I, the undersigned, being the Incorporator hereinbefore named for the purpose of forming a corporation pursuant to General Corporation Law of the State of Nevada, do make and file these Articles of Incorporation, hereby declaring and certifying that the facts herein stated are true, and accordingly have hereunto set my hand this June 20, 2005.

/s/ Leah Finke
Leah Finke
Incorporator

MADRONA VENTURES INC.

(the "Company")

RESOLUTIONS CONSENTED TO IN WRITING BY THE SOLE DIRECTOR OF MADRONA VENTURES INC. IN ACCORDANCE WITH THE PROVISIONS OF ITS BYLAWS

APPOINTMENT OF OFFICERS

Whereas the person named below having consented in writing to act as the President, Chief Executive Officer, Secretary and Treasurer of the Company, **BE IT RESOLVED THAT** the following person be and is hereby appointed to the offices set out opposite his name to hold office at the pleasure of the Directors:

Darcy Krell	-	President, C.E.O., Secretary and Treasurer

ADOPTION OF BYLAWS

BE IT RESOLVED THAT the form of Bylaws of the Company as presented to the directors of the Company be adopted and that the Secretary be and is hereby instructed to cause the same to be inserted in the Company's Minute Book immediately following the Articles of Incorporation and the Certificate of Incorporation.

FORM OF SHARE CERTIFICATE

BE IT RESOLVED THAT the form of share certificate included with the Company's minute book be the form of share certificate of the Company.

ISSUANCE OF SHARES

BE IT RESOLVED THAT the Board of Director be and it is hereby is authorized in its discretion to issue shares of the Company to the full number of shares authorized by the Certificate of Incorporation in such number and for such considerations as from time to time shall be determined by the Board of Directors and as may be permitted by law.

BANK AND SIGNING OFFICERS

BE IT RESOLVED THAT the Bank of Montreal be appointed the banker of the Company, and that the Company do adopt as its banking resolutions the form of banking resolutions prescribed by the Company's bankers and that the President be and he is hereby authorized to execute as an act of the Company such banking documents under the corporate seal of the Company where required.

I, the undersigned, being the sole Director of the Company, hereby consent to the foregoing resolutions.

DATED as of this 21st day of June, 2005.

/s/ Darcy Krell
Darcy Krell

Exhibit 10.4

COMMON STOCK PURCHASE AGREEMENT

Private and Confidential

THIS COMMON STOCK PURCHASE AGREEMENT, (the "Agreement") made as of the last executed date below (the "Effective Date"), by and among Pelikin Group an entity with a principle address of 225-230 Queens Quay W, Toronto, ON, M5J 2Y7 (the "Buyer") and Belmont Partners, LLC a Virginia limited liability company with a principal address of 360 Main Street, Washington Virginia 22747 ("Seller"), and Madrona Ventures, Inc. a public vehicle organized in the state of Nevada and traded under the symbol "MDRV" (the "Company").

W I T N E S S E T H:

WHEREAS, the Seller owns a majority of the issued and outstanding capital stock of the Company; and

WHEREAS, the Company currently has six million five hundred twenty five thousand common stock shares issued and outstanding and no preferred stock shares issued and outstanding;

WHEREAS, Seller owns a control block of stock consisting of five million (5,000,000) common stock shares of the Company (the "Stock");

WHEREAS, Buyer wishes to purchase the Stock from Seller;

NOW, THEREFORE, in consideration of the mutual promises, covenants, and representations contained herein, and subject to the terms and conditions hereof, the Parties agree as follows:

1. Agreement to Purchase and Sell. Seller will sell to Buyer and Buyer agrees to purchase the Stock and Consulting Services (as defined in Section 2(f) herein) in exchange for three hundred ninety four thousand seven hundred U.S. dollars ($394,700.00) (the "Purchase Price"), to be paid to Seller according to the terms and conditions set forth in Section 3 herein.

2. Closing. On or about five (5) business days from the Effective Date (the "Closing") the Parties shall perform, **in order**:

a) Buyer shall deliver to Seller a copy of this Agreement executed by Buyer;

b) Seller shall deliver a fully executed copy of this Agreement to Buyer;

c) The Seller shall wire the Purchase Price to Buyer as specified in Section 3 herein;

d) The Company shall execute a resolution approving the terms of this Agreement through which Buyer, or Buyer's designee, is appointed as a Director and Officer of the Company (the "Appointment");

e) Seller shall deliver to Buyer the Appointment;

f) Seller shall provide consulting services to Buyer in order for Buyer to effectuate a forward stock split and company name change through the appropriate regulatory agency and state of incorporation (the "Consulting Services");

g) Seller shall deliver to Buyer, to the extent reasonably available to Seller, and after the full performance of Section 3(a), true and correct copies of the Company's business, financial and corporate records including but not limited to: correspondence files, bank statements, checkbooks, minutes of shareholder and directors meetings, financial statements, shareholder listings, stock transfer records, agreements and contracts; and,

h) Seller shall deliver to Buyer, as soon as practicable after the full performance of Sections 2(a) through 2(d) herein, the stock certificate(s) evidencing the Stock.

3. Payment Terms.

a) Buyer shall wire the Purchase Price to Seller on or before the Closing date.

b) The Purchase Price shall be made by wire transfer of immediately available funds to Seller's account as follows:

Bank Name:	Rappahannock National Bank 7 Bank Road Washington, Virginia 22747
Account Name:	Belmont Partners, LLC
Account Number:	1089129
Routing Number	051402974

c) In consideration of the benefits provided to the Company hereby, Company and Buyer agree to be jointly and severally liable for all amounts due hereunder and all other obligations of this Stock Purchase Agreement.

4. Transfer Agent. Buyer agrees that Pacific Stock Transfer, LLC (the "Transfer Agent") shall act as the Company's sole transfer agency, and Transfer Agent shall have full power and authority to act on behalf of the Company in connection with the issuance, transfer, exchange and replacement of all of the Company's stock certificates.

5. Representations and Warranties of Seller. Seller hereby represents and warrants, for a period of twelve (12) months from the Effective Date, to Buyer that the statements in the following paragraphs of this Section 5 are all true and complete as of the date hereof:

a) Title to Stock. Seller is the record and beneficial owner and has sole managerial and dispositive authority with respect to the Stock and has not granted any person a proxy that has not expired or been validly withdrawn. The sale and delivery of the Stock to Buyer pursuant to this Agreement will vest in Buyer the legal and valid title to the Stock, free and clear of all liens, security interests, adverse claims or other encumbrances of any character whatsoever ("Encumbrances") (other than Encumbrances created by Buyer and restrictions on resales of the Stock under applicable securities laws).

b) Liabilities of the Company. Seller makes no representation as to the existence or non-existence of liabilities of the Company except as explicitly stated in this Agreement. Buyer is solely responsible for conducting its own due diligence with respect to the Company and its liabilities and for gathering enough information upon which to base an investment decision in the Stock. Buyer acknowledges that:

(i) Seller has made no representations with respect to the Company or its status except as explicitly stated in this Agreement; and,

(ii) the Company is being sold "as is".

c) Full Power and Authority. Seller represents that it has full power and authority to enter into this Agreement.

6. Representations and Warranties of Buyer. Buyer hereby represents and warrants to Seller that the statements in the following paragraphs of this Section 6 are all true and complete as of the date hereof:

a) Affidavit of Source of Funds. Prior to **any** wire transfer to Seller of funds, Buyer shall execute an Affidavit of Source of Funds (attached hereto as Exhibit 5), which attests that the funds to be transferred are not the proceeds of nor are intended for or being transferred in the furtherance of any illegal activity or activity prohibited by federal or state laws. Such activity may include, but is not limited to: tax evasion; financial misconduct; environmental crimes; activity involving drugs and other controlled substances; counterfeiting; espionage; kidnapping; smuggling; copyright infringement; entry of goods into the United States by means of false statements; terrorism; terrorist financing or other material support of terrorists or terrorism; arms dealing; bank fraud; wire fraud; mail fraud; concealment of assets or any effort by conspiracy or otherwise to defeat, defraud or otherwise evade, any party or the Court in a bankruptcy proceeding, a receiver, a custodian, a trustee, a marshal, or any other officer of the court or government or regulatory official; bribery or any violation of the Foreign Corrupt Practices Act; trading with enemies of the United States; forgery; or fraud of any kind. Buyer further warrants that all transfers of monies will be in accordance with the Money Laundering Control Act of 1986 as amended.

b) Exempt Transaction. Buyer understands that the offering and sale of the Stock is intended to be exempt from registration under the Securities Act of 1933, as amended (the "Act") and exempt from registration or qualification under any state law.

c) Full Power and Authority. Buyer represents that it has full power and authority to enter into this Agreement.

d) Stock. The Stock to be purchased by Buyer hereunder will be acquired for investment for Buyer's own account, not as a nominee or agent, and not with a view to the public resale or distribution thereof, and Buyer has no present intention of selling, granting any participation in, or otherwise distributing the same.

e) Information Concerning the Company. Buyer has conducted its own due diligence with respect to the Company and its liabilities and believes it has enough information upon which to base an investment decision in the Stock. Buyer acknowledges that Seller has made no representations with respect to the Company, its status, or the existence or non-existence of liabilities in the Company except as explicitly stated in this Agreement. Buyer is taking the Company "as is" and acknowledges and assumes all liabilities of the Company.

f) Investment Experience. The Buyer understands that purchase of the Stock involves substantial risk. The Buyer:

(i) has experience as a purchaser in securities of companies in the development stage and acknowledges that he can bear the economic risk of Buyer's investment in the Stock; and,

(ii) has such knowledge and experience in financial, tax, and business matters so as to enable Buyer to evaluate the merits and risks of an investment in the Stock, to protect Buyer's own interests in connection with the investment and to make an informed investment decision with respect thereto.

g) No Oral Representations. No oral or written representations have been made other than or in addition to those stated in this Agreement. Buyer is not relying on any oral statements made by Seller, Seller's representatives, employee's or affiliates in purchasing the Stock.

h) Restricted Securities. Buyer understands that the Stock is characterized as "restricted securities" under the Act inasmuch as they were acquired from the Company in a transaction not involving a public offering.

i) Opinion Necessary. Buyer acknowledges that if any transfer of the Stock is proposed to be made in reliance upon an exemption under the Act, the Company may be required to obtain an opinion of counsel that such transfer may be made pursuant to an applicable exemption under the Act. Buyer acknowledges that a restrictive legend appears on the Stock and must remain on the Stock until such time as it may be removed under the Act.

j) Shareholder Value. Buyer represents that Buyer intends to implement a business plan designed to return value to the shareholders of the Company.

k) Compliance. Buyer shall comply with all applicable securities laws, rules and regulations regarding this Agreement, the Merger and all related transactions, including but not limited to filing any forms required by the U.S. Securities and Exchange Commission.

7. Covenant Not to Sue; Indemnification.

a) In consideration of this Agreement and the consideration to Buyer and Company granted herein, Buyer and Company covenant and agree, for themselves and for their agents, employees, legal representatives, heirs, executors or assigns (the "Buyer Covenantors"), to refrain from making, directly or indirectly, any claim or demand, or to commence, facilitate commencement or cause to be prosecuted any action in law or equity against Seller, its members, officers, directors, agents, employees, attorneys, accountants, consultants subsidiaries, successors, affiliates and assigns (collectively the "Seller Covenantees"), on account of any damages, real or imagined, known or unknown, which Buyer Covenantors ever had, has or which may hereafter arise with respect to any and all disputes, differences, controversies or claims arising out of or relating to this Agreement and the transactions contemplated hereby, including but not limited to any question regarding the existence, content, validity or termination of this Agreement. The terms and conditions of this Section 7(a) shall be a complete defense to any action or proceeding that may be brought or instituted by Buyer Covenantors against the Seller Covenantees, and shall forever be a complete bar to the commencement or prosecution of any action or proceeding with regard to this Agreement by Buyer Covenantors against the Seller Covenantees.

b) Indemnification. Buyer Covenantors shall indemnify and hold harmless the Seller Covenantees from and against any and all losses, damages, expenses and liabilities (collectively "Liabilities") or actions, investigations, inquiries, arbitrations, claims or other proceedings in respect thereof, including enforcement of this Agreement (collectively "Actions") (Liabilities and Actions are herein collectively referred to as "Losses"). Losses include, but are not limited to all reasonable legal fees, court costs and other expenses incurred in connection with investigating, preparing, defending, paying, settling or compromising any suit in law or equity arising out of this Agreement or for any breach of this Agreement notwithstanding the absence of a final determination as to a Buyer's obligation to reimburse any of Seller Covenantees for such Losses and the possibility that such payments might later be held to have been improper.

8. Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Virginia, U.S.A. without giving effect to any other choice or conflict of law provision that would cause the application of the laws of any other jurisdiction other than the Commonwealth of Virginia.

9. Merger and Exchange of Stock. Buyer shall, as soon as practicable, and in no case later than ten (10) days from the Closing, effect a merger (the "Merger") between the Company and a target corporation (the "Sub"). The Company shall be the surviving corporation of the Merger, and shall continue unimpaired by the Merger. Upon Merger, the Company shall succeed to and shall possess all the assets, properties, rights, privileges, powers, franchises, immunities and purposes, and be subject to all the debts, liabilities, obligations, restrictions and duties of the Sub.

10. Term / Survival. The terms of this Agreement shall be effective as of the Effective Date, and continue until such time as the payment of the Purchase Price and all other amounts due hereunder are fully satisfied, however; the terms, conditions, and obligations of Sections 5, 6, 7, 21 and 22 hereof shall survive the termination of this Agreement.

11. Successors and Assigns. The terms and conditions of this Agreement shall inure to the benefit of and be binding upon the respective successors and assigns of the parties, except that Buyer may not assign or transfer any of its rights or obligations under this Agreement.

12. Counterparts. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same agreement. A telefaxed copy of this Agreement shall be deemed an original.

13. Headings. The headings used in this Agreement are for convenience of reference only and shall not be deemed to limit, characterize or in any way affect the interpretation of any provision of this Agreement.

14. Costs, Expenses. Each party hereto shall bear its own costs in connection with the preparation, execution and delivery of this Agreement.

15. Modifications and Waivers. No change, modification or waiver of any provision of this Agreement shall be valid or binding unless it is in writing, dated subsequent to the Effective Date of this Agreement, and signed by both the Buyer and Seller. No waiver of any breach, term, condition or remedy of this Agreement by any party shall constitute a subsequent waiver of the same or any other breach, term, condition or remedy. All remedies, either under this agreement, by law, or otherwise afforded the Buyer shall be cumulative and not alternative.

16. Severability. If one or more provisions of this Agreement are held to be unenforceable under applicable law, such provision(s) shall be excluded from this Agreement and the balance of the Agreement shall be interpreted as if such provision(s) were so excluded and shall be enforceable in accordance with its terms.

17. Termination. Buyer or Seller may, upon written notice to the other party, terminate this Agreement upon their own discretion prior to any funds being received by the Seller. Upon Seller's receipt of any funds, this termination clause is null and void.

18. Entire Agreement. This Agreement constitutes the entire agreement and understanding of the Parties with respect to the subject matter hereof and supersedes any and all prior negotiations, correspondence, agreements, understandings duties or obligations between the parties with respect to the subject matter hereof.

19. Further Assurances. From and after the date of this Agreement, upon the request of the Buyer or Seller, Buyer and Seller shall execute and deliver such instruments, documents or other writings as may be reasonably necessary or desirable to confirm and carry out and to effectuate fully the intent and purposes of this Agreement.

20. Notices. All notices or other communications required or permitted by this Agreement shall be in writing and shall be deemed to have been duly received:

a) if given by telecopier, when transmitted and the appropriate telephonic confirmation received if transmitted on a business day and during normal business hours of the recipient, and otherwise on the next business day following transmission,

b) if given by certified or registered mail, return receipt requested, postage prepaid, three business days after being deposited in the U.S. mails and

c) if given by courier or other means, when received or personally delivered, and, in any such case, addressed as indicated herein, or to such other addresses as may be specified by any such Person to the other Person pursuant to notice given by such Person in accordance with the provisions of this Section 20.

21. Insider Trading. Seller and Buyer hereby certify that they have not themselves, nor through any third parties, purchased nor caused to be purchased in the public marketplace any publicly traded shares of the Company. Seller and Buyer further certify they have not communicated the nature of the transactions contemplated by the Agreement, are not aware of any disclosure of non public information concerning said transactions, and are not a party to any insider trading of Company shares.

22. Binding Arbitration. In the event of any dispute, claim, question, or disagreement arising from or relating to this agreement or the breach thereof, the Parties hereto shall use their best efforts to settle the dispute, claim question, or disagreement. To this effect, they shall consult and negotiate with each other in good faith and, recognizing their mutual interests, attempt to reach a just and equitable solution satisfactory to both parties. If they do not reach such a solution within a period of sixty (60) days, then, upon notice by either party to the other, all disputes, claims, questions, or disagreements shall be settled by arbitration administered by the American Arbitration Association in accordance with its Commercial Arbitration Rules including the Optional Rules for Emergency Measures of Protection, and judgment on any award rendered by the arbitrator(s) may be entered in any court having jurisdiction thereof.

[Balance of Page Intentionally Left Blank]
[Signature Page Follows]

In Witness Whereof, the Parties hereto have executed this Agreement as of the last date written below.

SELLER

BELMONT PARTNERS, LLC

/s/ Joseph Meuse
_____
By: Joseph Meuse, Managing Member
Date: _____7/31/09_____

BUYER

PELIKIN GROUP

/s/ Seijin Ki
_____
By: Seijin Ki, _____
Date: ____7/31/09_____

COMPANY

MADRONA VENTURES, INC.

/s/ Joseph Meuse
_____
By: Joseph Meuse, Director
Date: _____7/31/09_____

EXHIBIT 1
UNANIMOUS WRITTEN CONSENT
OF THE BOARD OF DIRECTORS
IN LIEU OF A SPECIAL MEETING

In lieu of a Special Meeting of the Board of Directors of Madrona Ventures, Inc., a corporation organized in the State of Nevada (the "Company"), the undersigned, being all of the Directors of the Company, take the following actions by unanimous written consent; said actions to have the same force and effect as if adopted at a meeting of the Board of Directors duly called and held:

WHEREAS, the Company has determined that it is in the best interests of the Company to transfer a control block of stock of the Company's capital stock to Pelosini Group.

NOW, THEREFORE, IT IS HEREBY RESOLVED AS FOLLOWS:

(a) it is in the best interests of the Company to undertake the transaction contemplated hereby; and,

(b) the transactions are hereby approved, ratified and confirmed; and,

(c) any transfer agent acting for or on behalf of the Company or a Surviving Company (a "Transfer Agent") shall be entitled to rely upon these resolutions to execute the issuance of the shares as aforesaid; and,

(d) the effective date of all Shares transferred pursuant to this Board Resolution shall be the Effective Date of the Stock Purchase Agreement and shall be memorialized on the face of the certificates evidencing such shares; and,

(e) the Company agrees to indemnify and hold harmless the Transfer Agent from and against any and all claims, liabilities, losses, damages and expenses, including fees and expenses of counsel, accountants and other advisors (collectively, "Losses"), related thereto or arising out of or in connection therewith the issuance of shares; and,

(f) the value of all shares hereby transferred shall be par value.

Each Director, by signing this Unanimous Written Consent of the Board of Directors in Lieu of a Special Meeting, waives notice of the time, place and purpose of a special Board of Directors' meeting and agrees to the transaction of the business set forth in this unanimous written consent in lieu of such meeting.

IN WITNESS WHEREOF, we have each signed this Unanimous Written Consent of the Board of Directors in Lieu of a Special Meeting, which may be signed in one or more counterparts, each of which, when taken together, shall constitute one and the same instrument, effective as of the date executed below.

;

_____

Joseph Meuse, Director
Date:

_____

STATE OF _____ COUNTY OF _____
On this the ____ day of _____, 2009, Joseph Meuse personally appeared and is known by me or has satisfactorily proven to be the person whose name is subscribed within this instrument and acknowledged that he executed the same for the purposes therein contained. In witness whereof I hereunto set my hand and official seal.

_____
Notary Public, Reg # _____, My Commission Expires:_____

EXHIBIT 2
WRITTEN SHAREHOLDERS CONSENT
IN LIEU OF A SPECIAL MEETING

In lieu of a Special Meeting of the Shareholders of Madrona Ventures, Inc., a corporation organized in the State of Nevada (the "Company"), the undersigned, being the majority shareholder(s) of the Company, take the following actions by unanimous written consent; said actions to have the same force and effect as if adopted at a meeting of the majority shareholders duly called and held:

WHEREAS, the Shareholder(s) wish to approve the transfer a control block of the Company's capital stock to Pelosini Group.

NOW, THEREFORE, IT IS HEREBY RESOLVED AS FOLLOWS:

(a) the transactions contemplated above are hereby approved, ratified and confirmed; and,

(b) the Shareholder(s) approve the transfer a control block of the Company's capital stock to Pelosini Group.

Each Shareholder, by signing this Written Consent of the Shareholders in Lieu of a Special Meeting, waives notice of the time, place and purpose of a special Majority Shareholders meeting and agrees to the transaction of the business set forth in this unanimous written consent in lieu of such meeting.

IN WITNESS WHEREOF, we have each signed this Written Consent of the Shareholders in Lieu of a Special Meeting, which may be signed in one or more counterparts, each of which, when taken together, shall constitute one and the same instrument, effective as of the date executed below.

By: _____

Joseph Meuse, Managing Member of

Belmont Partners, LLC, Majority Shareholder

Date: _____

STATE OF _____ COUNTY OF _____
On this the ____ day of _____, 2009, Joseph Meuse personally appeared and is known by me or has satisfactorily proven to be the person whose name is subscribed within this instrument and acknowledged that he executed the same for the purposes therein contained. In witness whereof I hereunto set my hand and official seal.

_____
Notary Public, Reg # _____, My Commission Expires:_____
Date: _____

EXHIBIT 3
UNANIMOUS WRITTEN CONSENT
OF THE BOARD OF DIRECTORS
IN LIEU OF A SPECIAL MEETING

In lieu of a Special Meeting of the Board of Directors of Madrona Ventures, Inc., a corporation organized in the State of Nevada (the "Company"), the undersigned, being all of the Directors of the Company, take the following actions by unanimous written consent; said actions to have the same force and effect as if adopted at a meeting of the Board of Directors duly called and held:

WHEREAS, the Board wishes to appoint Seijin Ki as the Director and President of the Company.

NOW, THEREFORE, IT IS HEREBY RESOLVED AS FOLLOWS:

(a) it is in the best interests of the Company to undertake the transactions contemplated hereby; and,

(b) the transactions are hereby approved, ratified and confirmed; and,

(c) the Company appoints Seijin Ki as the Director, President and Secretary of the Company.

Each Director, by signing this Unanimous Written Consent of the Board of Directors in Lieu of a Special Meeting, waives notice of the time, place and purpose of a special Board of Directors' meeting and agrees to the transaction of the business set forth in this unanimous written consent in lieu of such meeting.

IN WITNESS WHEREOF, we have each signed this Unanimous Written Consent of the Board of Directors in Lieu of a Special Meeting, which may be signed in one or more counterparts, each of which, when taken together, shall constitute one and the same instrument, effective as of the date executed below.

; _____

Joseph Meuse, Director
Date:

_____

STATE OF _____ COUNTY OF _____
On this the ____ day of _____, 2009, Joseph Meuse personally appeared and is known by me or has satisfactorily proven to be the person whose name is subscribed within this instrument and acknowledged that he executed the same for the purposes therein contained. In witness whereof I hereunto set my hand and official seal.

_____
Notary Public, Reg # _____, My Commission Expires:_____
Date: _____

EXHIBIT 4
WRITTEN SHAREHOLDERS CONSENT
IN LIEU OF A SPECIAL MEETING

In lieu of a Special Meeting of the Shareholders of Madrona Ventures, Inc., a corporation organized in the State of Nevada (the "Company"), the undersigned, being the majority shareholder(s) of the Company, take the following actions by unanimous written consent; said actions to have the same force and effect as if adopted at a meeting of the majority shareholders duly called and held:

WHEREAS, the Shareholder(s) wish to nominate of Seijin Ki as the Director, President and Secretary of the Company.

NOW, THEREFORE, IT IS HEREBY RESOLVED AS FOLLOWS:

(a) the transactions contemplated above are hereby approved, ratified and confirmed; and,

(b) the Shareholder(s) approve the nomination of Seijin Ki as the Director, President and Secretary of the Company.

Each Shareholder, by signing this Written Consent of the Shareholders in Lieu of a Special Meeting, waives notice of the time, place and purpose of a special Majority Shareholders meeting and agrees to the transaction of the business set forth in this unanimous written consent in lieu of such meeting.

IN WITNESS WHEREOF, we have each signed this Written Consent of the Shareholders in Lieu of a Special Meeting, which may be signed in one or more counterparts, each of which, when taken together, shall constitute one and the same instrument, effective as of the date executed below.

By: _____

Joseph Meuse, Managing Member of

Belmont Partners, LLC, Majority Shareholder

Date: _____

STATE OF _____ COUNTY OF _____
On this the ____ day of _____, 2009, Joseph Meuse personally appeared and is known by me or has satisfactorily proven to be the person whose name is subscribed within this instrument and acknowledged that he executed the same for the purposes therein contained. In witness whereof I hereunto set my hand and official seal.

_____
Notary Public, Reg # _____, My Commission Expires:_____

EXHIBIT 5
AFFIDAVIT OF SOURCE OF FUNDS

Fax form to: 540-675-3369

The undersigned, Seijin Ki ("Transferor"), who being first duly sworn upon oath, deposes and states as follows:

1. Transferor hereby swears, warrants and affirms under pain and penalty of perjury that the information in the following Affidavit of Source of Funds is true and accurate, and all funds referenced herein are free of all claims, debts, liens or contingent liabilities immediately prior to any transfer by Transferor to the accounts of Belmont Partners, LLC, its agents or assigns (collectively "Belmont").

2. Transferor does not contemplate filing for relief under the provision of any applicable Bankruptcy Code, nor is Transferor involved in any situation that Transferor reasonably anticipates would cause Transferor to file for relief under any Chapter of any applicable Bankruptcy Code in the future. Transferor further sears, warrants and affirms that any funds which Transferor may transfer to the accounts of Belmont are not the proceeds of nor are intended for or being transferred in the furtherance of any concealment of assets or any effort by conspiracy or otherwise to defeat, defraud or otherwise evade, any party or the Court in any bankruptcy proceeding, a receiver, a custodian, a trustee, a marshal, or any other officer of the Court or government or regulatory official of any kind.

3. Transferor is not transferring assets in an attempt to defeat the collection of any U.S. government obligation(s), U.S. government-backed obligation(s), or any state, local, or national government (be it foreign or domestic) obligation(s) and Transferor is aware that doing so may be a crime.

4. Transferor hereby swears, warrants, and affirms that any funds which Transferor may transfer to the accounts of Belmont are not the proceeds of nor are they intended for or being transferred in the furtherance of any illegal activity or activity prohibited by federal, state, local or foreign laws. Such activity may include, but is not limited to: securities fraud or other financial misconduct of any kind; tax evasion; environmental crimes; activity involving drugs or other controlled substances; counterfeiting; espionage; kidnapping; piracy; smuggling; copyright infringement; entry of goods into the United States by means of false statements; terrorism; terrorist financing or other material support of terrorists or terrorism; arms dealing; bank fraud; wire fraud; mail fraud; bribery or any violation of the Foreign Corrupt Practices Act; theft; embezzlement; misappropriation of public funds; violations of export or import controls of the United States or any other nation; any crime of violence; computer fraud and abuse; trading with enemies of the United States; forgery; or fraud of any kind. Transferor further warrants that all transfers of funds will be in accordance with the Money Laundering Control Act of 1986, as amended; the Bank Secrecy Act of 1970, as amended; the International Money Laundering Abatement and Anti-Terrorist Financing Act of 2001, as amended; and all other applicable federal, state, local and foreign laws, rules and regulations.

5. Transferor understands that Belmont acts in compliance with various laws and regulations intended to detect and report unlawful financial transactions relating, but not limited, to money laundering and terrorist financing. Transferor understands that Belmont may disclose personal financial information relating to customers and transactions to appropriate law enforcement agencies without providing notice to the individual or object of any such investigation.

6. This Affidavit applies to the Deposit of four hundred thousand ($400,000.00) which will be transferred by Transferor to accounts of Belmont by (*please check one*) □wire transfer or □check; and this Affidavit applies to the Balance of the Purchase Price which will be transferred by Transferor to the accounts of Belmont by (*please check one*) □wire transfer or □check.

I HEREBY SWEAR, WARRANT AND AFFIRM, UNDER PAIN AND PENALTY OF PERJURY THAT THE FOREGOING STATEMENTS ARE TRUE AND CORRECT.

_____
Signature

Seijin Ki
Print Name

STATE OF _____ COUNTY OF _____
On this the ____ day of _____, 2009, Seijin Ki personally appeared and is known by me or has satisfactorily proven to be the person whose name is subscribed within this instrument and acknowledged that he executed the same for the purposes therein contained. In witness whereof I hereunto set my hand and official seal.

_____
Notary Public, Reg # _____, My Commission Expires:_____

MADRONA VENTURES, INC.

PURCHASE AGREEMENT

THIS PURCHASE AGREEMENT (as amended, modified, supplemented or restated in accordance with its terms from time to time, this "Agreement"), dated this 24th day of August, 2009, is between MADRONA VENTURES, INC., a Nevada corporation and its affiliates, as hereinafter defined (the "Purchaser"), and John David Sinclair, his successors and assigns (individually, a "Seller" and together, the "Sellers"). Capitalized terms used but not otherwise defined herein shall have the respective meanings set forth in Article VI.

RECITALS

A. WHERAS The Purchaser is a Nevada Corporation currently listed for quotation on the Over-The-Counter Bulletin Board (OTC:BB) under the symbol "MDRV"; and

B. WHERAS the Seller is the owner of a European Patent (Application Number 06396001) EP 1681057B1 concerning eating disorders, a copy of which has been attached hereto and incorporated herein by reference as "Exhibit 1" and the Applicant for U.S. Patent Application 11/031,534 a copy of which has been attached hereto and incorporated herein by reference as "Exhibit 2"; and

C. Subject to the terms and conditions set forth herein, the Purchaser desire to purchase from the Seller, and the Seller desires to sell to the Purchaser, all rights title and interest in the Patent and Patent Applications including but not limited to all Intellectual Property and knowhow and use associated therewith for shares of stock in MDRV.

AGREEMENTS

In consideration of the recitals and the mutual promises, covenants and agreements contained herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto hereby agree as follows:

ARTICLE I

AUTHORIZATION AND ISSUANCE TO PURCHASE

1. 1 Authorization. The Purchaser has, prior to the date of this Agreement, (i) authorized the purchase of the Patents, and (ii) authorized the issuance of, and reserved for issuance shares of Common Stock for the purchase of the patents.

1.2 Issuance of shares to the Sellers. Subject in all respects to the satisfaction of the terms and conditions herein set forth and in reliance upon the respective representations and warranties of the parties set forth herein or in any document delivered pursuant hereto, the Purchaser agrees to issue to Seller (and such Seller agrees by executing and delivering a signature page hereto to accept said shares) 20,333,333 shares of Restricted Common Stock of MDRV, par value .001, in exchange for all rights, title and interest in European Patent (Application Number 06396001) EP 1681057B1 concerning eating disorders, a copy of which has been attached hereto and incorporated herein by reference as "Exhibit 1" and the Applicant for U.S. Patent Application 11/031,534 a copy of which has been attached hereto and incorporated herein by reference as "Exhibit 2".

ARTICLE II

CONDITIONS TO ISSUANCE

The obligation of the Sellers to accept the shares is subject to the fulfillment to Seller's satisfaction, each of the following conditions:

2.1 Representations and Covenants. The representations and warranties made by the Purchaser in Article III shall be true and correct, and all covenants, agreements and conditions contained in this Agreement to be performed or complied with by the Purchaser shall have been performed or complied with.

2.2 Corporate Authorization. At or prior to the Closing, the Purchaser shall have delivered to the Sellers copies of the resolutions of the Board of Directors of the Purchaser approved by the directors of the Purchaser, authorizing, (i) the execution, delivery and performance of this Agreement and the Related Agreements, and the transactions contemplated hereby and thereby, and (ii) the reservation of shares of Common Stock issuable upon execution if this Agreement.

2.3 Corporate Documents. At or prior to the Closing, the Purchaser shall have delivered to the Sellers copies of the Articles of Incorporation for the Purchaser, certified by the Nevada Secretary of State on, or within five business days prior to, the Closing, and copies of the By-Laws of the Purchaser certified by an officer of the Purchaser as of the date of the Closing.

2.4 Legal Compliance. As of the Closing, the issuance of the shares shall be legally permitted by all laws and regulations to which the Sellers and the Purchaser are subject.

2.5 Qualifications. As of the Closing, all authorizations, approvals or permits of, or filings with, any governmental authority that are required by law in connection with the lawful sale and issuance of the Shares by the Purchaser shall have been duly obtained by the Purchaser and shall be effective on and as of the Closing.

2.6 Proceedings and Documents. All corporate and other proceedings in connection with the transactions contemplated hereby and by the Related Agreements, and all documents and instruments incident to such transactions, shall be satisfactory in form and substance to the Sellers, and each Seller shall have received at or prior to the Closing all such documents as such Seller shall have requested.

ARTICLE III

REPRESENTATIONS AND
WARRANTIES OF THE PURCHASER

The Purchaser hereby represents and warrants to the Sellers as set forth below, and the Purchaser acknowledges that the Sellers are entering into this Agreement in reliance on the truth and accuracy of such representations and warranties.

3.1 Organization and Standing. The Purchaser is a corporation duly organized, validly existing and in good standing under the laws of the State of Nevada. The Purchaser has the requisite legal and corporate power to own all the properties owned by it, and to conduct its business as presently being and as proposed to be conducted by it.

3.2 Corporate Power. The Purchaser has all requisite legal and corporate power to enter into this Agreement and the Related Agreements to which it is a party and to carry out and perform its obligations under the terms of this Agreement and the Related Agreements to which it is a party. The Purchaser has the legal and corporate power to issue the shares of Common Stock issuable upon execution of this Agreement and transfer of ownership of the Patents and all rights title and interest therein.

3.3 Authorization: Enforceability. All corporate action on the part of the Purchaser, and its directors and shareholders, necessary for the authorization, execution, delivery and performance by the Purchaser of this Agreement and the Related Agreements to which it is a party, and the consummation of the transactions contemplated hereby and thereby, for the authorization, issuance and delivery of the shares of Common Stock issuable upon execution of this Agreement and transfer of ownership of the Patents and all rights title and interest therein, has been taken. This Agreement and the Related Agreements are legal, valid and binding obligations of the Purchaser enforceable against the Purchaser in accordance with their respective terms, except as such enforceability may be limited by applicable bankruptcy, insolvency or other laws affecting creditors' rights generally or by the availability of equitable remedies.

3.4 Capitalization. As of the Closing, the Purchaser's authorized capital stock will consist of 200,000,000 shares of Common Stock and ZERO shares of Preferred Stock. There are no outstanding securities of the Purchaser which are convertible into or exchangeable for any shares of the Purchaser's capital stock or containing any capital appreciation or profit participation features, there is no existing contract, option, warrant, call or other commitment or right of any character granted or issued by the Purchaser calling for or relating to the issuance or transfer of shares of capital stock or any other securities of the Purchaser. The Purchaser is not subject to any obligation (contingent or otherwise) to repurchase or otherwise acquire or retire any shares of its capital stock or any Notes, options or other rights to acquire its capital stock. There are no statutory or contractual preemptive rights or rights of refusal with respect to (i) the issuance of the Shares of Common Stock hereunder, and there are no statutory or contractual preemptive rights or rights or rights of first refusal with respect to the issuance of any other shares of capital stock or other securities or rights of the Purchaser.

3.5 Validity of Shares. The shares of Common Stock issuable upon execution of this Agreement and transfer of ownership of the Patents and all rights title and interest therein, have been duly and validly reserved by the Purchaser and, upon issuance will be duly and validly issued, fully paid, non-assessable and free and clear of all Liens.

3.6 Financial Statements. The financial statements of the Company are available for review and examination on the Securities and Exchange Commission's ("SEC") website at www.sec.gov, EDGAR filing system.

3.7 Absence of Material Undisclosed Liabilities. The Purchaser does not have any material liabilities (fixed or contingent, except for payroll tax liabilities due or to become due) which are, or indebtedness which is, not fully reflected or provided for in the Balance Sheet, other than trade payables and accruals incurred in the ordinary course of business since the date of the Balance Sheet and executory contracts entered into in the ordinary course of business.

3.8 Litigation. There are no material actions, suits, proceedings or investigations pending or, to the Purchaser's knowledge, threatened against or affecting the Purchaser at law or in equity, or before or by any federal, state, municipal or other governmental department, commission, board, agency or instrumentality, domestic or foreign. The Purchaser is not operating under or subject to, nor in default with respect to, any order, writ, injunction or decree of any court or federal, state, municipal or other governmental department, commission, board, agency or instrumentality, foreign or domestic, and the Purchaser has not been charged or, to the Purchaser's knowledge, threatened with a charge of violation, or under investigation with respect to possible violation, of any provision of any federal, state or local law or administrative ruling or regulation relating to the Purchaser or its business, affairs, assets, prospects, operations, employee relations, rights or condition, financial or otherwise.

3.9 Consents. All material consents, approvals, qualifications, orders or authorizations of, or filings with, any governmental authority, including state securities commissions, required in connection with the Purchaser's valid execution, delivery or performance of this Agreement and the Related Agreements to which it is a party, the offer, sale and issuance of the Shares and the consummation of any other transaction contemplated on the part of the Purchaser hereby or thereby have been obtained or made.

3.10 Compliance with Law and Other Instruments. The Purchaser is not in violation of any term of its Articles of Incorporation or By-Laws. The Purchaser is not in violation of the provisions of any material note, bond, mortgage, indenture, loan, factoring arrangement, license, agreement, lease or other instrument or obligation to which the Purchaser is a party or by which it or any of its assets may be bound. To the knowledge of the Purchaser, the Purchaser has all material franchises, permits, licenses and approvals necessary to conduct its respective business as presently conducted. To the knowledge of the Purchaser, the Purchaser is not in violation of any term or provision of any such material franchise, permit, license or approval, or any-material law, judgment, order, writ, injunction, decree, statute, rule or regulation of any court, administrative agency, bureau, board, commission, office, authority, department or other governmental entity applicable to the Purchaser, or any of its assets.

3.11 No Violation. None of the execution and delivery of this Agreement and the Related Agreements, the consummation of the transactions provided for herein and therein or contemplated hereby and thereby, the fulfillment by the Purchaser of the terms hereof or thereof, will (a) conflict with or result in a breach of any provision of the Articles of Incorporation or By-Laws of the Purchaser, (b) result in a default or breach, give rise to any right of termination, cancellation or acceleration, or require any consent or approval, under any of the terms, conditions or provisions of any material note, bond, mortgage, indenture, loan, factoring arrangement, license, agreement, lease or other instrument or obligation to which the Purchaser is a party or by which it or any of its respective assets may be bound or (c) to the knowledge of the Purchaser, violate any material law (including, but not limited to, any Environmental Law), judgment, order, writ, injunction, decree, statute, rule or regulation of any court, administrative agency, bureau, board, commission, office, authority, department or other governmental entity applicable to the Purchaser or any of its assets.

ARTICLE IV

REPRESENTATIONS AND WARRANTIES OF THE SELLERS

Each Seller represents and warrants to the Purchaser with respect to itself as follows:

4.1 Enforceability. This Agreement and the Related Agreements are legal, valid and binding obligations of the Seller, enforceable against such Seller in accordance with their terms.

4.2 Shares for Investment. The Seller will acquire the Common Stock issuable upon execution of this Agreement and transfer of ownership of the Patents and all rights title and interest therein, for investment, and not with a view to distributing all or any part thereof in any transaction, which would constitute a “distribution” within the meaning of the Securities Act. The Seller acknowledges that the Common Stock to be issued to Seller has not been registered under the Securities Act and, except as provided in Article VII hereto, the Purchaser is under no obligation to file a registration statement with the Securities and Exchange Commission with respect to the Common Stock issuable upon execution of this Agreement.

4.3 Purchaser Qualifications. The Seller (a) has such knowledge and experience in financial and business matters that it is capable of evaluating the merits and risks inherent in the shares to be issued hereunder; (b) is able to bear the complete loss of its value, if any; and (c) has had the opportunity to ask questions of, and receive answers from, the Purchaser and its management concerning the terms and conditions of the transaction contemplated herein, and to obtain additional information. The Seller is not relying upon any statements or instruments made or issued by any other person other than the Purchaser and its officers in making its decision to enter into this agreement. The Seller is an “accredited Purchaser” as such term is defined in Rule 501 of the Securities Act.

4.4 Restricted Securities. The Seller represents and warrants that they are aware that the shares to be issued in exchange for the Patents and Patent Application and Intellectual Property surrounding said Patents and Applications for Patent, and all rights title and interest therein are deemed to be “Restricted Securities”. The Shareholder is and was aware that the Shares shall bear a restrictive legend. The Shares are deemed to be “restricted securities” as defined in Rule 144. The Shareholder acknowledges that the Company shall refuse to register for transfer any of these Shares unless the transfer is in accordance with United States Federal Securities laws, pursuant to a registration, or pursuant to an available exemption from registration.

(i) That a legend may be placed on any certificate representing the Shares substantially to the following effect:

THE SECURITIES REPRESENTED BY THIS CERTIFICATE HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933 (THE "ACT"). THE SECURITIES HAVE BEEN ACQUIRED FOR INVESTMENT AND MAY NOT BE SOLD, TRANSFERRED, ASSIGNED OR OTHERWISE DISPOSED OF IN THE ABSENCE OF A CURRENT AND EFFECTIVE REGISTRATION STATEMENT UNDER THE ACT WITH RESPECT TO SUCH SECURITIES, OR AN OPINION OF THE ISSUER'S COUNSEL TO THE EFFECT THAT REGISTRATION IS NOT REQUIRED UNDER THE ACT.

4.5 Title to Patents and Applications. Seller hereby further represents and warrants that he is true and sole owner of European Patent (Application Number 06396001) EP 1681057B1 concerning eating disorders, a copy of which has been attached hereto and incorporated herein by reference as “Exhibit 1” and the Applicant for U.S. Patent Application 11/031,534 a copy of which has been attached hereto and incorporated herein by reference as “Exhibit 2”; and possesses the absolute and ultimate authority to sell the Patents and Intellectual Property and knowhow and use of all proprietary information associated therewith. Seller further represents that the Patents and all processes associated with the patents and uses thereto, does not infringe upon nor does it violate any other patent or intellectual property previously established. Seller further represents and warrants that he shall defend and hold harmless Purchaser from any claim from any source claiming an infringement of another’s intellectual property.

ARTICLE V

COVENANTS

5.1 Insurance. The Purchaser will maintain or cause to be maintained with financially sound and reputable insurers, insurance with respect to its assets and business against loss or damage covering risks of such types and in such amounts which are customary for similarly situated corporations of established reputation engaged in the same or similar businesses, in adequate amounts, and at the request of any Seller shall furnish such Seller with evidence of the same.

5.2 Payment of Taxes and Other Obligations. The Purchaser will pay or cause to be paid all material taxes, assessments and other governmental charges levied upon any of its assets or in respect of its franchises, businesses, income or profits, all trade accounts payable in accordance with usual and customary business terms, and all claims for work, labor or materials, which if unpaid might become a Lien upon any asset of the Purchaser before the same become delinquent, except that (unless and until foreclosure, restraint, sale or other similar proceedings shall have been commenced) no such charge need be paid if being contested in good faith and by appropriate measures promptly initiated and diligently conducted if (a) such reserve or other appropriate provision, if any, as shall be required by sound accounting practice consistent with GAAP shall have been made therefor, and (b) such contest does not have a material adverse effect on the financial condition of the Purchaser or the ability of the Purchaser to pay any Indebtedness and no assets are in imminent danger of forfeiture.

5.3 Compliance With Laws. The Purchaser will comply, and will cause each of its Affiliates to comply, with all material laws (including, but not limited to, Environmental Laws), rules, regulations, judgments, orders and decrees of any governmental or regulatory authority applicable to its and their respective assets.

5.4 Corporate Existence. Property and Shares. The Purchaser will preserve, protect, and maintain, (a) its corporate existence, and (b) all rights, franchises, accreditations, privileges, and properties, the failure of which to preserve, protect, and maintain might have a material adverse effect on the business, affairs, assets, prospects, operations, employee relations, rights or condition, financial or otherwise, of the Purchaser taken as a whole.

5.5 Maintenance. The Purchaser will, and will cause each of its Affiliates to, maintain and keep its properties in good repair, working order and condition, subject to normal wear and tear, and from time to time make all necessary repairs, renewals and replacements so that its businesses may be properly and advantageously conducted at all times.

5.6 Other Obligations. The Purchaser will comply with, and cause each of its Affiliates to comply with, all obligations which it incurs pursuant to any contract or agreement, whether oral or written, express or implied, as such obligations become due to the extent to which the failure to so comply could be expected to have a material adverse effect upon the business, affairs, assets, prospects, operations, employee relations, rights or condition, financial or otherwise, of the Purchaser and its Affiliates taken as a whole, unless and to the extent that the same are being contested in good faith and by appropriate proceedings and adequate reserves have been established on its books with respect thereto.

5.7 No Restrictions. The Purchaser will not enter into or become subject to any agreement or instrument, which by its terms would (under any circumstances) restrict the Purchaser's right to perform the provisions of this Agreement or the Related Agreements.

5.8 Dividends and Stock Redemptions. Other than in connection with any future financing involving preferred stock or the retirement/surrender of founder's shares presently contemplated, the Purchaser will not (i) purchase or otherwise retire any of its shares of capital stock or (ii) declare or pay dividends on, or make any other distribution on or in respect of, any shares of its capital stock.

5.9 Public Disclosures. The Purchaser will not disclose the Seller's name or identity in any press release or other public announcement or in any document or material filed with any governmental entity, without the prior written consent of the Seller, unless such disclosure is required by applicable law or governmental regulations or by order of a court of competent jurisdiction, in which case prior to making such disclosure the Purchaser will give written notice to the Seller describing in reasonable detail the proposed content of such disclosure and will permit such Seller two business days to review and comment upon the form and substance of such disclosure.

5.10 Fees and Expenses. The Purchaser will bear all of its own expenses in connection with the preparation, execution and negotiation of this Agreement and the Related Agreements, and the transactions contemplated hereby and thereby.

ARTICLE VI

DEFINITIONS

6.1 Definitions. In addition to the capitalized terms defined elsewhere in this Agreement, the following capitalized terms shall have the following meanings when used in this Agreement:

"Closing" means the closing of the sale and issuance of the Shares to the Sellers pursuant to this Agreement and the transfer of al rights title and interest from Seller to Purchaser of "Exhibits 1 and 2" attached hereto.

"Common Stock" means the shares of Common Stock, $.001 par value per share, of the Purchaser.

"Environmental Laws" means all federal, state and local laws, ordinances and rules of common law relating to environmental, safety, or health matters, including those relating to fines, orders, injunctions, penalties, damages, contribution, cost recovery compensation, losses, or injuries resulting from the release or threatened release of Hazardous Substances and the generation, use, storage, transportation, or disposal of Hazardous Substances in any manner applicable to the Parent or its assets, including the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (42 U.S.C. §§ 9601 et seq.), the Hazardous Materials Transportation Act (49 U.S.C. §§ 1801 et seq the Resource Conservation and Recovery Act of 1976 (42 U.S.C. §§6901 et seq.), the Federal Water Pollution Control Act (33 U.S.C. §§ 1251 et seq.), the Clean Air Act (42 U.S.C. §§ 7401 et seq.), the Toxic Substances Control Act of 1976 (15 U.S.C. §§ 2601 et seq.), the Safe Drinking Water Act (42 U.S.C. §§ 300f- §§ 300j-11 et seq, the Occupational Safety and Health Act of 1970 (29 U.S.C. §§ 651 et seq.), and the Emergency Planning and Community Right-to-Know Act (42 U.S.C. §§ 11001 et seq.), each as heretofore and hereafter amended or supplemented, and any analogous present or future federal, state, or local statutes, rules, and regulations promulgated thereunder or pursuant thereto, and any other present or future law, ordinance, rule, regulation, permit, order, or directive addressing environmental, safety or health issues, of or by the federal government, any state or political subdivision thereof, or any agency, court, or body of the federal government or any state or political subdivision thereof.

"Indebtedness" of any Person means the principal of, premium, if any, and unpaid interest on (a) indebtedness for borrowed money, (b) indebtedness guaranteed, directly or indirectly, in any manner by such Person, or in effect guaranteed, directly or indirectly, in any manner by such Person through an agreement, contingent or otherwise, to supply funds to, or in any other manner invest in, the debtor, or to purchase indebtedness, or to purchase and pay for property if not delivered or pay for services if not performed, primarily for the purpose of enabling the debtor to make payment of the indebtedness or to assure the owners of the indebtedness against loss, (c) all indebtedness secured by any mortgage, lien, pledge, charge or other encumbrance upon property owned by such Person, even though such Person has not in any manner become liable for the payment of such indebtedness, (d) all indebtedness of such Person created or arising under any conditional sale, lease (intended primarily as a financing device) or other title retention or security agreement with respect to property acquired by such Person even though the rights and remedies of the seller, lessor or lender under such agreement or lease in the event of default may be limited to repossession or sale of such property, and (e) renewals, extensions and refunding of any such indebtedness.

"Lien" means any mortgage, deed of trust, lien, security interest, pledge, lease, conditional sale contract, claim, charge, easement, right of way, assessment, restriction and other encumbrance of every kind.

"Person" means an individual, a partnership, a corporation, a limited liability company, an association, a joint stock company, a trust, a joint venture, an unincorporated organization or a governmental entity or any department, agency or political subdivision thereof.

"Related Agreements" means the Shares and any other instruments or documents related hereto.

"Securities Act" means the Securities Act of 1933, as amended.

6.2 Rules of Construction. The following provisions shall be applied wherever appropriate herein:

(a) "herein," "hereby," "hereunder," "hereof" and other equivalent words shall refer to this Agreement as an entirety and not solely to the particular portion of this Agreement in which any such word is used;

(b) all definitions set forth herein shall be deemed applicable whether the words defined are used herein in the singular or the plural;

(c) wherever used herein, any pronoun or pronouns shall be deemed to include both the singular and plural and to cover all genders;

(d) neither this Agreement nor any other agreement, document or instrument referred to herein or executed and delivered in connection herewith shall be construed against either party as the principal draftsperson hereof or thereof;

(e) all references or citations in this Agreement to statutes or regulations or statutory or regulatory provisions shall generally be considered citations to such statutes, regulations or provisions as in effect on the date hereof, except that when the context otherwise requires, such references shall be considered citations to such statutes, regulations or provisions as in effect from time to time, including any successor statutes, regulations or provisions directly or indirectly superseding such statutes, regulations or provisions;

(f) any references herein to a particular Section, Article, Exhibit or Schedule means a Section or Article of, or an Exhibit or Schedule to, this Agreement unless another agreement is specified; and

(g) the Exhibits and Schedules attached hereto are incorporated herein by reference and shall be considered part of this Agreement.

ARTICLE VII

REGISTRATION RIGHTS

7.1 "Piggyback" Registration Rights. Seller shall be entitled to include the Shares of common stock issued under the terms of this agreement in a registration of the Purchaser's common stock under the Act (including, but not limited to, registration statements relating to secondary offerings of the Company's securities, but excluding registration statements relating to any employee benefit plan or corporate reorganization), unless, in the event of an underwritten offering, the underwriter, if any, advises that the Shares should not be included. The Purchaser/Company shall not be required to keep any such registration statement effective for more than one hundred and eighty (180) days.

7.2 Expenses. All expenses in connection with the preparation and filing of a registration statement filed pursuant to Section 7.1 shall be borne solely by the Company, except for any transfer taxes payable with respect to the disposition of such Shares, and any underwriting discounts and selling commissions applicable solely to such sales of Shares, which shall be paid by the Holders of the Shares being registered.

ARTICLE VIII

MISCELLANEOUS

8.1 Consent to Amendments; Waivers. The provisions of this Agreement may be amended, and the Purchaser may take any action herein prohibited, or omit to perform any act herein required to be performed by it, only if the Purchaser has obtained the written consent of the Seller. No other course of dealing between the Purchaser and Seller or any delay in exercising any rights hereunder or under any of the Related Agreements shall operate as a waiver of any rights of any such Seller. If the Purchaser pays any consideration to any Person for such consent to any amendment, modification or waiver hereunder or under any of the Related Agreements, the Purchaser shall also pay each Seller granting its consent equivalent consideration computed on a pro rata basis. Any waiver, permit, consent or approval of any kind or character on the part of any party of any provisions or conditions of this Agreement or any of the Related Agreements must be made in writing and shall be effective only to the extent specifically set forth in such writing.

8.2 Representations and Warranties: Indemnification.

(a) All representations and warranties contained herein or in any of the Related Agreements or made in writing by any party in connection herewith or therewith will survive the execution and delivery of this Agreement and any investigation made at any time by or on behalf of the Sellers.

(b) The Purchaser will defend, indemnify and hold the Sellers or any other holder of all or any part of the Shares harmless from and against any and all actions, suits, losses, damages, liabilities, claims, obligations and expenses (including, but not limited to, legal fees and court costs) (“Losses”), whether or not resulting from judgments or arbitration awards, that shall be suffered or incurred by such Sellers, resulting from or arising out of any breach of any of the representations, warranties or covenants of the Purchasers contained in this Agreement or in any Related Agreement or in any schedule, certificate, exhibit or other instrument furnished or to be furnished by the Purchaser hereunder or thereunder.

(c) Each Seller will, jointly and severally, defend, indemnify and hold the Purchaser harmless from and against any and all Losses, whether or not resulting from judgment or arbitration awards, that shall be suffered or incurred by the Purchaser resulting from or arising out of any breach of any of the representations, warranties or covenants of the Sellers contained in this Agreement or in any Related Agreement or in any schedule, certificate, exhibit or other instrument furnished or to be furnished by the Sellers hereunder or thereunder.

8.3 Successors and Assigns. Except as otherwise expressly provided herein, all covenants and agreements contained in this Agreement by or on behalf of any of the parties hereto will bind and inure to the benefit of the respective successors and assigns of the parties hereto, whether so expressed or not, provided, however, that neither party shall assign (by operation of law or otherwise) this Agreement or any part hereof or any obligation hereunder without the prior written consent of the Purchaser or Seller, as the case may be. The Shares may not be transferred unless such transfer is registered under the Securities Act or unless an exemption from such registration is available, which exemption shall be established either by an opinion of counsel delivered by the Seller of the Shares being transferred or by other customary means.

8.4 Descriptive Headings. The descriptive headings of this Agreement are inserted for convenience of reference only and do not constitute a part of and shall not be utilized in interpreting this Agreement.

8.5 Notices. Any notices required or permitted to be sent hereunder shall be delivered personally or mailed, by certified mail, return receipt requested, or delivered by overnight courier service to the following addresses, or such other address as any party hereto designates by written notice to the Purchaser, and shall be deemed to have been given upon delivery, if delivered personally, five days after mailing, if mailed, or one business day after delivery to the courier, if delivered by overnight courier service.

If to the Purchaser, to: MADRONA VENTURES, Inc.
350 Queens Quay W., Ste. 611
Toronto, ONT M5V 3A7
Attn: Seijin Ki, President

If to the Sellers, to the addresses specified upon the Signature Page attached hereto.

8.6 Governing Law. This Agreement and the rights and duties of the parties hereto shall be governed by the laws of the State of Nevada (without regard to principles of conflicts of law).

8.7 Execution in Counterparts. This Agreement may be executed in any number of counterparts, each of which when so executed and delivered shall be deemed an original, and such counterparts together shall constitute one instrument.

8.8 Consent to Jurisdiction. The Purchaser and the Sellers hereby irrevocably agree that any suit, action, proceeding or claim against it arising out of or in any way relating to this agreement or any of the related agreements, or any judgment entered by any court in respect thereof, may be brought or enforced in the state or federal courts located in Las Vegas, Nevada and hereby irrevocably waives, to the fullest extent permitted by law, any objection which they may now or hereafter have to the venue of any proceeding brought in Las Vegas, Nevada and further irrevocably waives any claims that any such proceeding has been brought in an inconvenient forum.

[The remainder of this page intentionally left blank.]

The parties hereto have executed this Purchase Agreement as of the ___ day of August, 2009.

PURCHASER:

MADRONA VENTURES, INC.

By: ***/s/ Seijin Ki***
Seijin Ki, President

SELLER/SELLERS:

/s/John David Sinclair
Signature

John David Sinclair
Print Name

Kylmalantie 172A, Evitskog,

Finland, 02550
Address

Ph: +358 40 741 5505
Telephone

Soc. Sec. No _____

EXHIBIT 1

EXHIBIT 2

US Patent application, Jan. 10, 2005, Appln. S.N. 11/031,534.

METHOD FOR TREATING EATING DISORDERS

BY SELECTIVE EXTINCTION WITH TRANSDERMAL NALOXONE

Inventor: **John David Sinclair**, Vilniementie 4K42, FIN 02940 Espoo, Finland

References cited

UNITED STATES PATENTS

4,217,353	August 12, 1980	Dewey H. Smith, Jr.
4,477,457	October 16, 1984	Dewey H. Smith, Jr.
4,546,103	October 8, 1985	Hans F. Huebner
4,882,335	November 21, 1989	J. D. Sinclair
5,096,715	March 17, 1992	J. D. Sinclair
5,587,381	December 24, 1996	J. D. Sinclair
5,780,479	July 14, 1998	Suck Won Kim

OTHER PUBLICATIONS

"Naloxone in the Treatment of Anorexia Nervosa: Effect on Weight Gain and Lipolysis" R. Moore, I.H Mills, A. Forster**,** Journal of the Royal Society of Medicine 1981, 74, 129-31.

"Targeted Use of Naltrexone Without Prior Detoxification in the Treatment of Alcohol Dependence: A Factorial Double-Blind Placebo-Controlled Trial." P Heinälä, H. Alho, K. Kiianmaa, J. Lönnqvist, K. Kuoppasalmi, and J.D. Sinclair, Journal of Clinical Psychopharmacology, 2001. 21, 287-292.

"Evidence about the Use of Naltrexone and for Different Ways of Using It in the Treatment of Alcoholism" J. D. Sinclair, Alcohol and Alcoholism 2001,36, 2-10.

"The Rest Principle: A Neurophysiological Theory of Behavior" J. D. Sinclair, Lawrence Erlbaum Associates, Hillsdale, NJ, 1981.

"Rats Learning to Work for Alcohol" J. D. Sinclair, Nature 1974, 249, 590-592.

"Drugs to Decrease Alcohol Drinking", J.D.Sinclair, Annals of Medicine, 1990, 22, 357-362.

"Alcohol and Opioid Peptides: Neuropharmacological Rational for Physical Craving of Alcohol" M.C. Tractenberg, and K. Blum. American Journal of Drug and Alcohol Abuse 1987,13, 365-372.

"Naltrexone and the Treatment of Alcohol Dependence" J.R. Volpicelli, C.P.O'Brien, A.I.Alterman, and M. Hayashida, In Opioids, Bulimia, and Alcohol Abuse & Alcoholism, L.D.Reid, ed. Springer-Verlag, New York, 1990, pp 195-214.

"Opioids Modulate Rats' Propensities to Take Alcoholic Beverages" L. D. Reid, and C. L. Hubbell, in Novel Pharmacological Interventions for Alcoholism. C.A. Naranjo and E.M. Sellers (eds) New York: Springer-Verlag, pp.121-134,1992

"Uso Efficace del Naltrexone: Ciò Che Non è Stato Detto a Medici e Pazienti" (Effective use of naltrexone: What doctors and patients have not been told) D. Sinclair, F. Fantozzi, and J. Yanai, The Italian Journal of the Addictions, 2003, 41,15-21.

"La Ricaduta Nell'Alcol: un Concetto Vincente, Ma in Via di Estinzione?" F. Fantozzi, and D. Sinclair, Personalit Dipendenze 2004,10, 219-243.

"Naltrexone and Brief Counselling to Reduce Heavy Drinking" M. J. Bohn, H.R. Kranzler, D. Beazoglou, and B.A. Staehler, The American Journal on Addictions 1994, 3, 91-99.

“A Randomized 6 Month Double-Blind Placebo-Controlled Study of Naltrexone and Coping Skills Education Programme” J. Balldin, M. Berglund, S. Borg, M. Månsson, P. Berndtsen, J. Franck, L. Gustafsson, J. Halldin, C. Hollstedt, L-H. Nilsson, and G. Stolt, Alcohol and Alcoholism 1997, 32, 325.

“The Effect of Naltrexone on Taste Detection and Recognition Threshold” P.A. Arbisi, C.J. Billington, A.S. Levine, Appetite 1999, 32, 241-249.

“Long-Term Follow Up of Continued Naltrexone Treatment” J. D. Sinclair, K. Sinclair, and H. Alho, Alcoholism: Clinical and Experimental Research 2000, 24, suppl. 182A.

“Double-Blind Naltrexone and Placebo Comparison Study in The Treatment of Pathological Gambling” S. W. Kim, J. E. Grant, D. E. Adson, and Y. C. Shin, Biological Psychiatry 2001, 49:914-921.

"Basic Mechanisms of Opioids' Effects on Eating and Drinking", S.J. Cooper and T.C. Kirkham, in Opioids, Bulimia, and Alcohol Abuse & Alcoholism, L.D. Reid, ed. Springer-Verlag, New York, 1990, 91-110.

"Naltrexone and Bulimia: Initial Observations", J.M. Jonas, in Opioids, Bulimia, and Alcohol Abuse & Alcoholism, L.D. Reid, ed., Springer-Verlag, New York, 1990, 123-130.

"Obesity, Anorexia Nervosa, and Bulimia: A General Overview", K.D. Wild and L.D. Reid, in Opioids, Bulimia, and Alcohol Abuse & Alcoholism, L.D. Reid, ed., Springer-Verlag, New York, 1990, 3-21.

"Opioids Modulate Rats' Intake of Alcoholic Beverages", C.L. Hubbell and L.D. Reid, in Opioids, Bulimia, and Alcohol Abuse & Alcoholism, L.D. Reid, ed., Springer-Verlag, New York, 1990, 145-174.

"Using Drugs to Manage Binge-Eating among Obese and Normal Weight Patients", S.A.Alger, M.J.Schwalberg, J.M. Bigaoutte, L.J. Howard, and L.D. Reid, in: Opioids, Bulimia, and Alcohol Abuse & Alcoholism, L.D.Reid, ed., Springer-Verlag, New York, 1990, 131-142.

“Pharmacologic Treatment Of Binge Eating Disorder” W.P. Carter, J.I. Hudson, J.K. Lalonde, L. Pindyck, S.L. McElroy, and H.G. Pope Jr., International Journal of Eating Disorders 2003, 34, Suppl:S74-88.

"Naloxone Decreases Food Intake in Obese Humans", R. L. Atkinson, Journal of Clinical Endocrinology and Metabolism, 1982, 55, 196-198.

"The Endogenous Opioidergic Systems" E.M.Unterwald and R.S.Zukin, in, Opioids, Bulimia, and Alcohol Abuse & Alcoholism, L.D. Reid, ed., Springer-Verlag, New York, 1990, 49-72.

“Reduction of Alcohol Drinking and Upregulation of Opioid Receptors by Oral Naltrexone in AA Rats” J. H. Parkes and J.D.Sinclair. Alcohol, 2000, 21, 215-221.

"Potential Toxicities of High Doses of Naltrexone in Patients with Appetitive Disorders", C.J. Morgan and T.R. Kosten, in Opioids, Bulimia, and Alcohol Abuse & Alcoholism, L.D. Reid, ed. Springer-Verlag, New York, 1990, 261-273.

"Flavor Enhances the Antidipsogenic Effect of Naloxone", A. S. Levine, S. S. Murray, J. Kneip, M. Grace and J. E. Morley, Physiology and Behavior, 1982, 28, 23-25.

"The Effect of Naltrexone on Alcohol Consumption after Alcohol Deprivation in Rhesus Monkeys", M. Kornet, C. Goosen, and J.M. Van Ree, Abstracts of the XXth Nordic Meeting on Biological Alcohol Research, Espoo, Finland, May 13-15, 1990, abstract 20

"Pattern of Onset of Bulimic Symptoms in Anorexia Nervosa", J.A. Kassett, H.E. Gwirtsman, W.H. Kaye, H.A. Brandt, and D.C. Jimerson, American Journal of Psychiatry, 1988, 145, 1287-1288.

"Case Reports: Treatment of Chronic Anorexia Nervosa with Opiate Blockade", E.D. Luby, M.A. Marrazzi, and J. Kinzie, Journal of Clinical Psychopharmacolgy, 1987, 7, 52-53.

"An Auto-Addiction Opioid Model of Chronic Anorexia Nervosa", M.A. Marrazzi and E.D. Luby, International Journal of Eating Disorders, 1986, 5, 191-208.

“Transdermal Delivery of Naloxone: Effect of Water, Propylene Glycol, Ethanol and Their Binary Combinations on Permeation Through Rat Skin” R. Panchagnula, P.S. Salve, N.S. Thomas, A.K. Jain, and P. Ramarao, International Journal of Pharmacology 2001, 219, 95-105.

“Nasal Administration of Naloxone is as Effective as the Intravenous Route in Opiate Addicts” N. Loimer, P. Hofmann, and H.R. Chaudhry, International Journal of Addictions, 1994, 29, 819-827.

“The Genetic Epidemiology of Bulimia Nervosa” K.S. Kendler, C. MacLean, M. Neale, R. Kessler, A. Heath, and L. Eaves, American Journal of Psychiatry, 1991,148, 1627-1637.

“Selective Extinction of Alcohol Drinking in Rats with Decreasing Doses of Opioid Antagonists” J.D. Sinclair, L. Vilamo, and B. Jakobson. Alcoholism: Clinical and Experimental Research 1994, 18, 489.

ABSTRACT

Various eating disorders, including binge eating, bulimia, and stimulus-induced over-eating, develop because the behaviors are reinforced by the opioidergic system so often and so well that the person no longer can control the behavior. Thus eating disorders resemble opiate addiction and alcoholism. Eating disorders cannot, however, be treated effectively by continual daily administration of opiate antagonists because normal healthy eating behavior is also reinforced by the opioidergic system. Instead, a selective extinction method is provided that that weakens the eating disorder while strengthening healthy eating. Extinction sessions in which the eating disorder responses are emitted while an opiate antagonist blocks reinforcement are interspersed with learning sessions in which healthy eating responses are made while free of antagonist. In between extinction and learning sessions there must be a wash-out period in which the antagonist is allowed to be eliminated from the body, and during which neither problem eating nor healthy eating should occur. Consequently, long-lasting antagonists such as naltrexone and nalmefene with wash-out periods of a day or more are not suitable, but naloxone with a half life of only about an hour is excellent. Naloxone cannot be taken orally. Instead it is administered transdermally. This provides the additional advantages with bulimia that purging does not affect the dosage, that the gastrointestinal tract is not further disturbed by the antagonist administration, and that altering eating responses does not affect taking the medication.

METHOD FOR TREATING EATING DISORDERS
BY SELECTIVE EXTINCTION WITH TRANSDERMAL NALOXONE

Background from treating addictions

Opioid antagonists have been patented for inducing anorexia (Smith, US Patent 4,217,353, 1980; US Patent 4,477,457, 1984), and they also have been patented for treating anorexia (Huebner, US Patent 4,546,103, 1985). Both results are valid. The antagonists can also reduce binge eating and also the purging associated with bulimia, but normal eating, too. Narrowly limited experiments have found evidence for each of these effects. When put into long term practice, however, the different effects counteract each other and cause complications. For example, as Smith pointed out, the only clinical trial using naloxone for anorexia was inconclusive because they coupled the treatment with giving a hypercaloric diet (Moore et al., 1981).

Unfortunately, the methods used and previously proposed for the treatment of eating disorders are unable to separate these various actions. Consequently, the antagonists have produced mixed clinical results, have not received FDA approval for use with eating disorders, and currently are not being used clinically for such purposes.

In contrast, in the field of alcoholism and drug addiction treatment, I proposed a method in which the antagonists specifically remove the addictive behavior (Sinclair, U.S. Patent 4,882,335, Nov. 21, 1989; US Patent 5,587,381, Dec. 24, 1996). Our double-blind placebo-controlled clinical trial has shown naltrexone is effective when used in accord with this method but not when use otherwise (Heinälä et al., 2001). Similar results have been obtained in nearly all trials (Sinclair, 2001). Naltrexone has been approved by the FDA for use in alcoholism treatment. Going one step further, I improved the method into a procedure of “selective extinction” that not only removes alcoholism and drug addiction but also enhances other competing behaviors (Sinclair, US Patent 5,587,381, 1996; Sinclair et al., 1994; Sinclair, 2001). Especially here in Finland where naltrexone is used in this selective manner, it has become a major factor in the treatment of alcoholism.

The present invention takes this selective extinction method for separating the actions of opioid antagonists on different behaviors and contemplates applying it to the treatment of eating disorders. In addition, several innovations are proposed to optimize the method to the eating disorder field and which then differentiate the method from all previously proposed treatments.

The key for how to separate the actions of the antagonists comes from an understanding of how the antagonists act in the nervous system to produce benefits.

There are two basic processes through which long-term change is made in the organization of the nervous system as a result of experience: one causes learning by strengthening synapses; the other causes habituation and extinction by weakening synapses (see Sinclair, 1981). Experimental results also show that the two occur under different circumstances and follow different rules. Thus, extinction is not simply learning to do something else but rather a separate phenomenon. It also is distinct from forgetting; it is an active process for removing unsuccessful responses and requires the emission of the response in the absence reinforcement.

Our preclinical experimental results had shown that alcohol drinking is a learned behavior (Sinclair, 1974), and that opioid antagonists suppress alcohol drinking by mechanism of extinction (Sinclair, U.S. Patent 4,882,335, Nov. 21, 1989; Sinclair, 1990). Extinction weakens only those responses that are made while reinforcement is blocked. There the method I proposed for treating alcoholism had the antagonist being administered just before the alcoholic drank alcohol.

Others in the field, however, believed that opioid antagonists block the craving for alcohol caused by an imbalance, either a deficiency in opioid receptor activity (Tractenberg and Blum, 1987; Volpicelli et al., 1990) or having too much opioid receptor activity (Reid and Hubbell, 1922). According to these theories, the antagonists would be effective if given during abstinence; they would block craving and the onset of drinking.

Our preclinical experiments had shown that giving opioid antagonists during abstinence not only failed to reduce subsequent drinking, but actually tended to increase subsequent drinking above control levels (Sinclair et al., 2003). The same result was found in our dual clinical trial (Heinola et al., 2001). Naltrexone was effective when paired with alcohol drinking, but naltrexone tended to be worse than placebo when given during abstinence. Similar results can be seen in the other clinical trials (Sinclair, 2001). The latest published count had 41 clinical trials that obtained significant results from using opioid antagonists in a manner allowing extinction; 37 trials using the antagonists in ways precluding extinction, however, got negative results; only 4 trials had results contrary to this conclusion (Fantozzi and Sinclair, 2004).

The mechanism causing the increase in alcohol drinking when antagonists are administered only during abstinence can be used to improve the efficacy of treatment. It can increase the strength of behaviors other than alcohol drinking, of behaviors that can compete with drinking and help fill the vacuum as drinking is extinguished. At the same time other behaviors that are reinforced by endorphins are protected from extinction. One problem noted in some of the clinical alcohol trials is a reduction in the patients' interest in sweets or carbohydrates, or in sex (Bohn et al. 1994; Balldin et al., 1997) This is probably caused by these behaviors being made while on naltrexone and thus, along with alcohol drinking, being partially extinguished. Naltrexone given to humans reduces their preference for saccharin (Arbisi et al., 1999)

The first step in our clinical use of selective extinction in alcoholism treatment is to have patients make a list of behaviors they find pleasurable. The clinician identifies the behaviors on the list that are probably reinforced by the opioidergic system and advises the patient to avoid engaging in these activities on the days when taking naltrexone and drinking. In the beginning of treatment, this is essentially every day.

After the treatment has reduced craving for alcohol, usually during the first month, the patient is advised to have a weekend, starting with Friday evening, with no naltrexone and drinking. Friday night and Saturday constitute a wash-out period for naltrexone to be removed from the body. On Sunday afternoon, the patient chooses some of the opioidergically-reinforced behaviors: eating a highly palatable meal, jogging, having sex, cuddling, cards, etc. As expected, patients usually report that the activities at this time are unusually enjoyable.

The patients can return to naltrexone and drinking on Monday. They are advised, however, to try the next week to have a longer period without naltrexone and drinking but with the alternative behaviors. A three-year follow-up showed that complying patients reported a maximum of 1.5 ± 0.4 (SEM) days per week (Sinclair et al., 2000).

The example included here is a prior preclinical experiment in which the alternative opioidergically-reinforced behavior was saccharin drinking. Alcohol experienced rats had continual access to food and water. Alcohol solution was available for only an hour a day for 2 to 4 days. On the next day or two, saccharin solution instead was available. Naloxone (or saline for the control group) was injected prior to the alcohol session. During the first three weeks when the naloxone doses were in the range previously found to be effective, the alcohol drinking was practically abolished. Saccharin drinking in the same animals was significantly increased.

Background for eating disorders

The opioidergic system reinforces responses, not only when activated by an opiate or alcohol, but also when certain types of stimuli are experienced. The stimuli cause a release of opioids in the brain, reinforcing the responses that produced these stimuli. Consequently, opioid antagonists have been shown in clinical trials to be effective in treating compulsive gambling (Kim, US Patent 5,780,479, 1998; Kim et al., 2001).

Opioidergic reinforcement is well documented for food-related stimuli. On the basis of a large body of data, Cooper and Kirkham (1990, p. 91) concluded that "ingested items provide stimuli which lead to the release of endogenous opioidergic peptides in the central nervous system". The system does not appear to be involved in the reinforcement from eventually obtaining calories, but rather with that from the pleasant stimulation. For example, opiate antagonists reduce sham feeding of sucrose, and they suppress the eating of chocolate-coated cookies by rats, but not the intake of normal rat chow. Similarly in humans, the antagonist nalmefene suppresses intake of highly palatable foods but not that of less pleasant tasting ones. Another general finding is that antagonists suppress food consumption (and alcohol drinking) only in the later parts of the first session or eating binge but not at the beginning.

Other workers in the field interpret these results differently than I do. They suggest that "endogenous opioids play a central role in the modulation of appetite" (Jonas, 1990). The opioids released by food-related stimuli block satiety effects and make food stimuli continue to be pleasant even after caloric needs have been satisfied; thus the opioid release "contributes to the maintenance of ingestional behavior" (Cooper and Kirkham, 1990) and is "involved with processes associated with continuance of eating rather than starting to eat" (Wild and Reid, 1990). In some people the opioid release is too large or too long, and thus they do not stop eating (or alcohol drinking) normally but rather have "out of control" binges. An opiate antagonist blocks this opioid action; therefore, so long as the antagonist is present the duration of a binge is shortened. Similarly with alcohol drinking, "antagonists at opioceptors [sic] would reduce the propensity to continue to drink once drinking has begun" (Hubbell and Reid, 1990). Another interpretation was made by Huebner (US Patent 4,546,103, 1985). He saw endorphins providing satisfaction and pleasure from purging for bulimic patients and from anorexic behavior. Blocking the opioid system with endorphins would remove the reason for patients making the behaviors, and thus help them to stop.

Both of these interpretations are best served by continual opioid blockade. If endorphins cause normal eating to expand to a binge, then continual blockade would continually prevent binges. Or if endorphins provide the pleasure from purging, continual naltrexone would suppress purging at all times. No one previously has proposed using only short periods of blockade interspersed with periods when the opioid system was functional, as is done in the present invention.

I see the results not as immediate effects of the opioids and the antagonists on appetite or satiety, but rather as aftereffects produced by learning and extinction. When a highly palatable food is consumed, opioids are released and as a result, after consolidation, the response is stronger. In some people the responses are reinforced so often and so well that they become extremely strong and cannot be controlled properly. When the response is emitted while an opiate antagonist blocks the reinforcement, the response is weakened. The effect can be seen even during the first session, not at the very beginning but reducing intake in the latter portions and thus terminating a binge earlier. The antagonists can reduce purging if the behavior is emitted while reinforcement is blocked because of extinction.

Opiate antagonists have been tested for eating disorders but the methods used were ones that would be appropriate if the antagonists worked by directly increasing satiety or reducing appetite. In particular, the subjects were kept continually on the antagonists in order to prevent all eating from getting out of control and turning into a binge. For example, Alger et al. (1990) gave patients suffering from binge eating initially 50 mg of the longer lasting antagonist, naltrexone, once daily, then twice daily, and if that did not work, 3 times daily, apparently for the purpose of making sure the patient was never free of naltrexone. Although some patients seemed to benefit, over all the naltrexone treatment was not significantly better than placebo. Similarly, although some uncontrolled studies found benefits from naltrexone in the treatment of bulimia, the one placebo-controlled study did not (Jonas, 1990). A recent review of pharmacological treatments for binge eating does not include opioid antagonists among the medicines for which there is clinical support (Carter et al., 2003).

According to the extinction hypothesis, keeping a person continually on the antagonist is not optimal for treating eating disorders. In the case of binge eating, it weakens not only the binge-eating response but also all other emitted responses reinforced through the opioidergic system. This makes the procedure less effective because the probability of binge-eating is determined not by its absolute strength but rather by its strength relative to all competing responses. Of particular importance, eating in a healthy manner is also extinguished.

The present invention instead employs the "selective extinction" procedure (Sinclair, US Patent 5,587,381, 1996) which has the person take an antagonist only before making the problem response but free of the antagonist at times when the problem response is not made. Thus extinction sessions, when mainly the problem response is weakened, are interspersed with "learning periods" when other competing response including healthy eating responses can regain their strength. In the treatment of bulimia, only binge-eating of specific highly palatable food is weakened, but other competing responses are not.

Experimental support comes from my studies with alcohol drinking: keeping rats continually on an antagonist (large doses of naltrexone or nalmefene in the food) significantly lowered alcohol drinking but did not reduce it as completely as selective extinction produced by 1 hour sessions daily when alcohol and the short-acting antagonist, naloxone, were present, as shown in the example here.

Support may also be seen in the fact that the only blind, placebo-controlled experiment with humans to obtain significant results involving binge eating and antagonists was an acute study in which naloxone significantly reduced the size of an eating binge (Atkinson, 1982).

There are two other advantages of selective extinction. First, the continual presence of an antagonist produces up-regulation of opioid receptors (Unterwald and Zukin, 1990; Parkes and Sinclair, 2000). Consequently, a problem response would produce more reinforcement after the end of antagonist treatment, than it did before. Up-regulation should be attenuated with the selective extinction procedure because the antagonist is present only for relative short sessions interspersed with antagonist-free periods.

Second, although opiate antagonists are considered safe, there are side-effects, such as liver toxicity with naltrexone, elevated cortisol levels, and possible immunosuppressive effects (Morgan and Kosten, 1990). These side-effects should be greatly reduced or eliminated with only periodic administration of the antagonist. The dysphoria sometimes reported with continual administration might also be caused by the general blocking of pleasure from a wide range of activities, and should be less of a problem with selective extinction where the person is free to enjoy opioidergic reinforcement from other responses during the learning periods.

Selective extinction can be used for treating a variety of eating disorders. In addition to bulimia and binge-eating, it could be used as a dieting aid. A contributing factor to obesity for many people is overly-strong eating responses and cravings for a few highly palatable and high-energy foods: chocolate, cookies, peanut butter, etc. Losing weight and then maintaining a normal weight would be possible after these specific responses were removed by selective extinction. Similarly, selective extinction could be used by people who are not necessarily over-weight but have to restrict their intake of a particular substance (e.g., sugar or sodium chloride) that can be identified with a specific stimulus that activates the opioidergic system. (There is evidence that both sweet and salty tastes are reinforcing through this system (Levine et al., 1982).)

The present invention takes advantage of a relationship between opiate antagonists and a phenomenon I discovered called the "alcohol-deprivation effects". Taking alcohol away after prolonged prior experience gradually over several days increases the desire for it. When it is first returned, intense drinking begins immediately, probably accompanied by intensified pleasure and reinforcement. Deprivation effects also develop for saccharin and specific highly-palatable foods, as well as for many habitual behaviors. Opiate antagonists have been found to be more effective in suppressing alcohol drinking after deprivation (Kornet et al., 1990). The probable reason is that extinction (unlike learning) is most effective with “massed trials”, i.e., when the response is made over and over again, vigorously, without pausing (see Sinclair, 1981). Therefore, the extinction of specific eating responses will generally be done after several days of deprivation of the specific food item. For example, if chocolate ice cream is listed by patients as a triggering food for bulimia, these patients will be told to abstain from eating chocolate ice cream, plus ice cream in general and chocolate in general, for a week before taking an opioid antagonists and getting unlimited chocolate ice cream to eat and purge.

There is evidence linking anorexia nervosa to the opioidergic system. First, it may develop from bulimia (Kassett and Gwirtsman, 1988). Second, there is some preliminary evidence from a small study showing for improvement of anorexia nervosa from treatment with an opiate antagonist (Luby et al., 1987). Marrazzi and Luby (1986) suggested that starvation causes the release of endorphins; anorexic patients starve themselves supposedly to get elation from their own opioids. I suspect the situation is somewhat more complicated. The specific anorexic behaviors may be reinforced by the opioid system, but a major factor contributing to the condition is the extinction of normal eating response. During the developmental phase, the patients make all of the normal eating responses: going to the table, taking the food, pushing it around with a fork, but then willfully withholding the responses of tasting and swallowing the food. Thus the preliminary responses are made but do not get reinforcement from taste or from removal of hunger, and as a result are extinguished. In any case, it is clear that the solution is a strengthening of normal eating behaviors, and extinction of the responses maintaining anorexia. This should be accomplished by administering opioid antagonists while the patient is not eating, interspersed with antagonist-free periods when the patient does in fact eat a small amount of highly palatable food

Extinguished responses can be relearned; indeed they are relearned more readily than they were learned the first time. Subjects can be advised after a given period of treatment to refrain henceforth from making the extinguished response ever again in order to avoid relearning, but they cannot avoid all responses reinforced through the opioidergic system. One solution, used in alcoholism treatment, is to continue taking antagonist indefinitely whenever there is a risk of drinking, or in this case of making the eating disorder response again. Alternatively, selective extinction can be used to "trim" offending responses that are beginning to arise again before they become harmfully strong. Like finger-nails, the growth of responses is a useful natural process but can become harmful when left uncontrolled. Thus individuals with a predilection for developing overly-strong responses might periodically review their current activities and then trim those responses that were beginning to get too strong -- as casually and almost as easily as we trim our nails.

Technical innovations

Perhaps the greatest technological quest in this field since the discovery of the opioid antagonists has been for preparations that would cause the antagonists to remain in the body for longer periods of time. Naltrexone and nalmefene have been preferred over naloxone not only because they can be taken orally but also because of their much longer half-lives. Various slow-release methods for naltrexone and nalmefene have been developed over the passed two decades to provide weeks or months of constant blockade.

This quest is consistent with the previously proposed methods for treating bulimia and binge eating with opioid antagonists. Their imagined mechanisms of action would work best if the antagonists were always present, thus eliminating supposed problems of patient compliance.

The present invention, however, contemplates alternating periods when an opioid antagonist blocks the opioid system (during which the eating disorder behaviors are emitted) with periods when the patient’s body is free of antagonist (during which normal healthy eating behaviors are made).

We have used a similar “selective extinction” procedure extensively in treating alcoholism (Sinclair, 2001). (Incidentally, there has been little problem here with compliance. Alcoholics have difficulty complying if you tell them to refrain from drinking. They do not have a problem, however, with obeying the instruction to take a pill always before drinking.)

With alcoholics, we include a wash-out period of about 48 hours for removal of the naltrexone. During this time the patients should not drink alcohol and they also should not engage in the alternative opioidergically-reinforced behaviors that we wish to strengthen. This is not a problem with alcoholism or drug addiction.

In the case of eating disorders, such long wash-out periods are not possible. For example, when treating bulimia, the behavior we wish to extinguish is eating foods that trigger bulimia. The alternative behavior we wish to strengthen is eating foods that do not trigger bulimia. Obviously patients cannot be expected to avoid both activities, that is, to refrain from all eating, for a 48 hour wash-out period. Nalmefene is removed even more slowly.

Naloxone, however, has a half-life of only 30 to 80 minutes in humans. A patient given naloxone on one day would be free of it the following day.

Naloxone is metabolized so rapidly in the liver that all of it is removed during the first pass after oral administration. Consequently. it usually is injected, as was the case in a previous test for treating anorexia (Huebner, US Patent 4,546,103, 1985).

Transdermal administration of naloxone, however, is much better suited for repeated self-administration. I previously proposed a transdermal devise for administering a fixed dose of an opioid antagonist, including naloxone, for use in alcoholism treatment (Sinclair, US Patent 5,096,715, 1992). Recent experiments (Panchagnula et al., 2001) have shown this devise with 33% propylene glycol as the vehicle and ethanol as the permeation enhancer is even more effective for transdermal delivery of naloxone than I had anticipated: “theoretically blood levels well above the therapeutic concentration of naloxone can be achieved” with a transdermal patch of a convenient size. An intranasal spray has also been shown suitable for rapid administration of naloxone for the majority of subjects and could also be used, probably in combination with transdermal administration (Loimer et al., 1992).

Avoiding the oral route also has distinct advantages for selective extinction of eating disorders. First, there is the problem that some of an orally administered medication would be lost by purging, or not taken by anorexic patients. Second, troubles with the gastrointestinal tract are common complications with eating disorders. Oral administration itself irritates the throat and it directs the highest concentration of the medication to intestines where it interacts with opioidergically controlled motility. Third, the response of taking an oral medication is similar to the eating responses we are trying to alter with the treatment, thus adding a possible complication to the procedure.

SUMMARY OF THE INVENTION

The lifetime prevalence of bulimia is 2.8 % for women, and 5.7 % of women will show bulimia-like syndromes (Kendler et al., 1992). The disorder was strongly influence by genetics, with a heritability coefficient of 55%. Comorbidity was reported between bulimia and anorexia nervosa, alcoholism, panic disorder, generalized anxiety disorder, phobia, and major depression.

The present invention contemplates a therapeutic method, utilizing the ability of opiate antagonist to block positive reinforcement from stimuli produced by highly-palatable foods, from purging, and from anorexic behavior in order to extinguish bulimia and other eating disorders while simultaneously strengthening normal healthy eating behaviors and the consumption of foods conducive to health.

The subject suffering from one of these overly-strong eating disorder responses makes the response repeatedly, in the presence of stimuli similar to those to which the response had been learned, while active quantities of naloxone are in his or her brain, thus eventually extinguishing the response and removing the desire to make the response. These extinction sessions are separated by "learning periods" when the subject is free of antagonist and can make other responses but not the problem response, in order to restore the strength of competing responses. Thus the problem response is selectively extinguished.

In most cases the subject will suffer from several related problem responses: e.g., overly-strong eating responses for a dozen specific highly palatable food items. Each will be extinguished separately. Furthermore, prior to extinguishing a particular response, the subject will not be allowed to make that response for at least a week. The resulting "deprivation effect" will assure that the subject is highly motivated to make that response at the beginning of extinction and will increase the effectiveness of extinction.

Depending upon the severity and nature of the problem responses, provisions are made for using the method within a treatment center, as an out-patient treatment, and as a combination of the two.

DESCRIPTION OF PREFERRED EMBODIMENTS

The selective extinction method here can be used with subjects diagnosed as suffering from maladaptive overly-strong responses reinforced by stimulation-induced release of opioids and resulting in eating disorders. It cannot be used for patients for whom the opiate antagonist is contraindicated. In particularly, patients who are physiologically dependent upon opiates must be excluded.

Specific details for the use of selective extinction with each of the different varieties of problem responses are presented below. The initial steps, however, in each case are similar. First, detailed information is obtained about the patient's responses: the particular responses that cause the patient problems, the situations in which they have typically been emitted, and particularly the foods that trigger the behavior. Second, the patient is checked for alcoholism, drug addiction, or other contraindications. Third, if there is any possibility of an active opiate addiction despite denials by the patient, a small dose of opiate antagonist is administered under close medical supervision.

Binge-eating and bulimia

Severe cases should be handled initially in a treatment center to assure compliance, to increase motivation, to monitor health, and to provide counseling and training concerning correct eating habits. The information obtained includes a list of the patient's "trigger foods", i.e., those highly palatable foods that precipitate binges, are frequently included in binges, are greatly craved, or give the patient intense pleasure when the first bite is eaten. A list is also prepared for the patient of "healthy foods", i.e., nutritious foods that do meet any of the above characteristics for trigger foods.

The patient is kept initially on diet specifically excluding a particular trigger food and foods with similar characteristics for a week prior to treatment. (In the aforementioned example, if the trigger is chocolate ice cream, the patient avoids not only chocolate ice cream but all ice cream and all chocolate.) Naloxone is then administered, perhaps first by nasal spray and then transdermally, and then while active quantities are present in the system, the patient is presented with the trigger food and encouraged to have an eating binge of it. If possible, the situation in which the food is eaten should be similar to that in which the patient usually has had eating binges. The response set should also be similar; e.g., if the patient typically has purged after an eating binge previously, purging should occur also in the extinction session. No healthy foods should be available.

The duration of an extinction session should match the patient's previous binging behavior. If binging normally continued for several days, the same should occur in treatment, with additional transdermal administrations of naloxone being given as needed.

At the end of the extinction session, the transdermal administration is stopped and the skin area involved is washed thoroughly.

The extinction session is followed the next day by a "learning period" of one day or more when no antagonist is given and only healthy foods are available. Not only are trigger foods not available, but also all stimuli related to them; the patient should not see them or smell them, nor should they be discussed in counseling. The safe foods can be restricted to meal times, but the patient can eat as much as desired then: no attempt at dieting should occur during the learning periods. Learning of alternative behaviors can be encouraged, but care should be used with regard to responses reinforced through the opioid system. For example, greater than normal intake of alcohol should not be allowed.)

In subsequent extinction sessions, the patient binges on other trigger foods that have not been included in the previous sessions. In severe case being handled at a clinical center, treatment continues until binge eating with most of the patient's trigger foods has been extinguished and the person has gained greater control over his or her eating habits. Thereafter, an out-patient mode of selective extinction treatment can be used. The subject is given take-home doses of the opiate antagonist and told to take one whenever there is a high probability that unsafe foods will be eaten in the next few hours. The instructions state that the patients should go ahead and have an eating binge if they feel like it, but only after taking naloxone. Under no circumstance should they binge without taking the antagonist. The antagonist should not be taken otherwise, i.e., when the patient thinks there is little chance of eating trigger foods.

Dietary aid for stimulus-bound overeating

An out-patient mode of selective extinction is used for patients with less severe eating problems and high motivation and ability for compliance. It can be used with subjects who are obese or only moderately overweight whose weight problem is not due to glandular anomalies but rather is caused by eating more than more than caloric needs in response to specific stimuli. The stimuli can be specific highly-palatable ("trigger") food items, situations, or moods. Examples of trigger food items would be chocolate, mayonnaise, peanut butter, potato chips, cream, butter, and cheese. Examples of trigger situations are watching television, fast food and other restaurants, parties, holidays, and "midnight snack" excursions. Examples of moods are premenstrual syndrome (PMS), post-traumatic stress (PTS), anxiety in anticipation of a stress situation, and celebration euphoria.

The procedure is the same as that with binge-eating and bulimia except the subject is not kept in a treatment center but rather conducts his or her own extinction sessions in the outside world. The subject is given clear, precise instructions (similar to those specified above for binge eating and bulimia) on how to extinguish the problem eating responses (e.g., 1. create a list of trigger stimuli, 2. choose one, 3 refrain from it for one week, 4. arrange for the trigger stimulus to be present, 5. self-administer naloxone, 6. what to do during intervening "learning periods" when the antagonist is not taken and the trigger stimuli are avoided as much as possible.

Dietary aid for limiting intake of specific substances (sugar, salt, etc.)

Selective extinction can be used for people who are not necessarily overweight but must reduce their intake of a particular substance that is closely associated with a distinct stimulus that causes opioid release.

One example is with people who need to reduce their intake of sodium chloride. Sodium chloride is closely associated with salty tastes, and there is evidence showing that a salty taste produces reinforcement through the opioidergic system (Levine et al., 1982). The person is given a series of extinction sessions on naloxone and learning periods off of the antagonist. During the extinction sessions a variety of salty-tasting foods are eaten. If necessary, the salty taste could be produced by a salt substitute, but sodium chloride should be used if there is no medical danger from short-term intake of the substance. During the learning sessions, salty-tasting foods are omitted from the diet completely. The responses of eating salty foods are thus selectively extinguished, while the responses of eating non-salty foods are not weakened and may be enhanced. This will reduce the desire for salty foods and make it easier for the person to stay on a low salt diet.

A similar procedure could be used with people who need to restrict their intake of sugars. Sweet foods are eaten during the extinction sessions and non-sweet ones during the learning periods. The sweet taste could be produced with artificial sweeteners, but sugar should be used if there is no medical danger from such limited intake.

The method also can be used with people who need to restrict their intake of cholesterols or specifically low-density cholesterols. Although there probably is no specific taste stimuli associated with cholesterols, they tend to be present in highest amounts in particular highly-palatable foods. Consequently, during the extinction sessions the person eats these particular foods and during the learning session the person eats foods with low amounts of cholesterol or low-density cholesterols.

This procedure could be used either in a treatment center or on an out-patient basis depending upon the person's ability to comply and the severity of the ailment requiring the dietary limitations.

Anorexia nervosa

The patient is kept continually on a transdermal opiate antagonist for a period (probably 2 days or more) while intravenous nutrients are supplied. Naltrexone or nalmefene could be used initially but naloxone should be used in the last day.

Antagonist administration is then abruptly terminated. During the next day (a learning period when the system is free of active levels of antagonist), the patient is given small portions of a variety of highly-palatable foods and strongly encouraged to eat at least a small amount. The rebound supersensitivity of the opioid system should help to reinforce the eating responses that are made.

The next day the patient is placed again on the antagonists and fed intravenously. The pattern of extinction sessions and learning periods continues. New highly-palatable foods are introduced on each antagonist-free day, with at least a week between duplication of the same food item in order to allow deprivation effects to increase the reinforcement. After the first sessions, increasing attention is paid to providing a well-rounded, nutritious variety of highly-palatable foods. Pharmacological potentiation of the opioidergic response, e.g., with moderate amounts of alcohol, can be employed.

During extinction session days on the antagonist, the patient is encouraged to make the most common responses from his or her own list of previously-learned competing anorexic responses (e.g., vigorous exercise) that are probably reinforced through the opioid system. In most cases, the aim should be weakening these responses only to a normal level.

EXAMPLE

Male Wistar rats (n=26) were individually housed with daily access to 10% ethanol, with food and water always present. After 2 months prior experience, the rats were switched to having 2-4 alcohol-access days interspersed with 1 or 2 days when saccharin solution (1 g/l) was available for 1 hr. The rats were then divided into 2 matched groups, one always receiving a subcutaneous dose of naloxone prior to alcohol access and a control group receiving a similar injection of saline prior to alcohol access. No injections were made prior to saccharin access. In addition, the naloxone dose was progressively reduced from 10.000 to 0.005 mg/kg.

The naloxone injections significantly reduced alcohol drinking in comparison with both the alcohol intake by the controls and in comparison with their own prior levels (see Fig. 1a). The alcohol drinking continued to be significantly reduced for 8 weeks; many of these weeks involved doses far lower than previously found to be effective. Alcohol drinking was reduced to nearly zero for most rats for 6 weeks. The suppression of drinking of alcohol drinking appears greater than in previous experiments in which both alcohol drinking and antagonist administration occurred every day and specifically greater than in studies aimed at maintaining a continual presence of the antagonist by using longer lasting naltrexone or nalmefene and mixing them with the food.

In contrast to the sharp reduction in alcohol drinking, saccharin drinking was consistently higher in the naloxone treated rats than in the controls and significantly so during the first three weeks when doses of naloxone previously shown to be effective were used (see Fig. 1b).

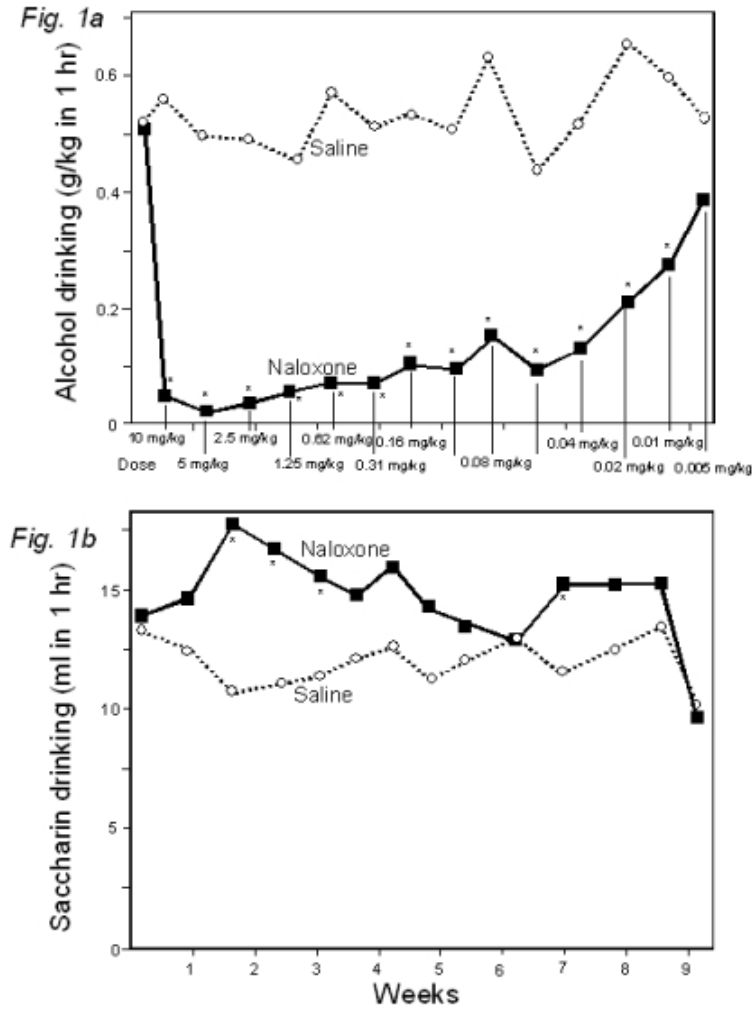


Figure. Selective extinction (interspersing periods when alcohol was drunk daily following naloxone injection with periods when saccharin was drunk with no injection) strongly reduced alcohol drinking (Fig. 1a) while increasing saccharin drinking (Fig. 1b) in the same animals relative to intakes by control animals injected with saline. Each data point is the mean of 1 to 4 days. The extremely low doses used from week 4 on have not previously been found to be effective. * $p<0.05$ relative to saline controls.

I claim:

1. A method for treating eating disorders by selectively extinguishing the behaviors causing the disorder while strengthening normal health eating behaviors, comprising the steps of:

repeatedly administering naloxone in a dosage sufficient to block the effects of opiate agonists to a subject suffering from an eating disorder caused by one or more related problem responses;

while the amount of naloxone in the subject's body is sufficient to block opiate effects, having the subject make one of the problem responses from which the subject suffers in the presence of stimuli similar to those to which it had been learned,

after the amount of naloxone is no longer sufficient to block opiate effects, having the subject make healthy eating responses to food items that do not trigger the problem responses; and

continuing the steps of administration of naloxone and having one after another of the problem responses made, followed by having a naloxone-free period in which healthy eating occurs, until the problem responses are extinguished.

2. The method in accordance with claim 1 wherein the eating disorder is selected from the group comprising, binge eating, bulimia, bulimia-like syndrome, anorexia nervosa, and habitual over-eating stimulated by specific stimuli including certain foods, situations, or moods.

3. The method in accordance with claim 1 wherein the subject must lower intake of a particular class of dietary substances including sodium chloride, sugars, cholesterols or low-density cholesterols, and the responses to be selectively extinguished are the eating of particular foods with high amounts of these substances.

4. The method in accordance with claims 1, 2, and 3 wherein naloxone is given transdermally and the dose per day is 0.01 to 50 mg.

5. The method in accordance with claim 4 in which the dose of naloxone is started at a high level of 5 to 50 mg and then is progressively reduced over the days of treatment.

(19) **[EUROPEAN PATENT OFFICE LOGO]** **[BAR CODE]**

(11) **EP 1 681 057 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
13.08.2008 Bulletin 2008/33

(51) Int Cl.:
A61K 31/485 *(2006.01)* ***A61P 25/30*** *(2006.01)*
A61P 3/04 *(2006.01)*

(21) Application number: **06396001.7**

(22) Date of filing: **10.01.2006**

(54) **Use of naloxone for treating eating disorders**

Verwendung von Naloxon zur Behandlung von Essstörungen

Utilisation de Naloxone pour traiter les troubles alimentaires

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR

(30) Priority: **10.01.2005 US 31534**

(43) Date of publication of application: **19.07.2006 Bulletin 2006/29**

(73) Proprietor: **Sinclair, John D. 02550 Evitskog (FI)**

(72) Inventor: **Sinclair, John D. 02550 Evitskog (FI)**

(74) Representative: **Hovi, Simo Pekka Tapani et al Seppo Laine Oy,**
Itämerenkatu 3 B
00180 Helsinki (FI)

(56) References cited:
EP-A- 0 790 058 **US-B1- 6 569 449**

- **FICHTER M M: "DIE MEDIKAMENTOESE BEHANDLUNG VON ANOREXIA UND BULIMIA NERVOSAEINEUEBERSICHTMEDICATIONFOR ANOREXIAAND BULIMIANERVOSA:A REVIEW" NERVENARZT, SPRINGER VERLAG, BERLIN, DE, vol.64, no.1, 1993, pages21-35, XP008016116 ISSN: 0028-2804**

- **DREWNOWSKI A ET AL: "Naloxone, an opiate blocker, reduces the consumption of sweet high-fat foods in obese and lean female binge eaters" AMERICAN JOURNAL OF CLINICAL NUTRITION 1995 UNITED STATES, vol. 61, no. 6, 1995, pages 1206-1212, XP002376723 ISSN: 0002-9165**

- **"Drug treatment for binge-eating disorders" JOURNAL OF THE AMERICAN DIETETIC ASSOCIATION 1995 UNITED STATES, vol. 95, no. 11, 1995, page 1329, XP002376724 ISSN: 0002-8223**

Description

Background of the Invention

Field of the Invention

[0001] The present invention relates to the treatment of eating disorders. In particular, the invention relates to the use of naloxone in methods of eating disorder therapy.

Description of Related Art

[0002] Various eating disorders, including binge eating, bulimia, and stimulus-induced over-eating, develop because the behaviors are reinforced by the opioidergic system so often and so well that the person no longer can control the behavior. Thus eating disorders resemble opiate addiction and alcoholism. Eating disorders can-not, however, be treated effectively by continual daily administration of opiate antagonists because normal healthy eating behavior is also reinforced by the opioidergic system. Instead, a selective extinction method is needed that weakens the eating disorder while strengthening healthy eating. Extinction sessions in which the eating disorder responses are emitted while an opiate antagonist blocks reinforcement must be interspersed with learning sessions in which healthy eating responses are made while free of antagonist. In between extinction and learning sessions there must be a wash-out period in which the antagonist is allowed to be eliminated from the body, and during which neither problem eating nor healthy eating should occur. Consequently, preparations with long-lasting antagonists such as naltrexone and nalmefene with wash-out periods of a day or more are not suitable, but naloxone with a half life of only about an hour is excellent. Naloxone cannot be taken orally. In-stead it is administered transdermally or by nasal inhalation. This provides additional advantages with eating disorders: the purging with bulimia does not affect the dosage; the gastrointestinal tract is not further disturbed by the antagonist administration; and altering eating responses does not affect taking the medication.

[0003] Opioid antagonists have been patented for inducing anorexia (Smith, US Patent 4,217,353, 1980; US Patent 4,477,457, 1984), and they also have been patented for treating anorexia (Huebner, US Patent 4,546,103, 1985). Both results are valid. The antagonists can also reduce binge eating and also the purging associated with bulimia, but normal eating, too. Narrowly limited experiments have found evidence for each of these effects. When put into long term practice, however, the different effects counteract each other and cause complications. For example, as Smith pointed out, the only clinical trial using naloxone for anorexia was inconclusive because they coupled the treatment with giving a hyper-caloric diet (Moore et al., 1981).

[0004] Unfortunately, the methods used and previously proposed for the treatment of eating disorders are unable to separate these various actions. Consequently, the antagonists have produced mixed clinical results, have not received FDA or equivalent European approval

5 for use with eating disorders, and currently are not being used clinically for such purposes.

[0005] In contrast, in the field of alcoholism and drug addiction treatment, I proposed a method in which the antagonists specifically remove the addictive behavior

10 (Sinclair, US Patent 4,882,335, Nov. 21, 1989; US Patent 5,587,381, Dec. 24, 1996; EP Patent 0 346 830 B1, May 11, 1995). Our double-blind placebo-controlled clinical trial has shown naltrexone is effective when used in ac-cord with this method but not when used otherwise

15 (Heinälä et al., 2001). Similar results have been obtained in nearly all trials (Sinclair, 2001). Naltrexone has been approved by the FDA for use in alcoholism treatment in 1995 and in Finland in 1996. Going one step further, I improved the method into a procedure of "selective ex-

20 tinction" that not only removes alcoholism and drug ad-diction but also enhances other competing behaviors (Sinclair, US Patent 5,587,381, 1996; Sinclair et al., 1994; Sinclair, 2001). Especially in Finland where naltrexone is widely used in this selective manner, it has

25 become a major factor in the treatment of alcoholism. **[0006]** Extinguished responses can be relearned; in-deed they are relearned more readily than they were learned the first time. Subjects can be advised after a given period of treatment to refrain henceforth from mak-

30 ing the extinguished response ever again in order to avoid relearning, but they cannot avoid all responses reinforced through the opioidergic system. One solution, used in alcoholism treatment, is to continue taking antagonist in-definitely whenever there is a risk of drinking, or in this

35 case of making the eating disorder response again. Alternatively, selective extinction can be used to "trim" of-fending responses that are beginning to arise again be-fore they become harmfully strong. Like finger-nails, the growth of responses is a useful natural process but can

40 become harmful when left uncontrolled. Thus individuals with a predilection for developing overly-strong responses might periodically review their current activities and then trim those responses that were beginning to get too strong -- as casually and almost as easily as we trim our nails.

45

[0007] Perhaps the greatest technological quest in this field since the discovery of the opioid antagonists has been for preparations that would cause the antagonists to remain in the body for longer periods of time. Naltrex-

50 one and nalmefene have been preferred over naloxone not only because they can be taken orally but also be-cause of their much longer half-lives. Various slow-release methods for naltrexone and nalmefene have been developed over the passed two decades to provide

55 weeks or months of constant blockade. Alkermes Inc. has recently received FDA approval for Vivitrol, a long-acting, injectable formulation of naltrexone.

Summary of the Invention

[0008] The present invention relates to a new and alternative way of treating eating disorders based on the use of naloxone.

[0009] The above explained quest, utilizing antagonists having a prolonged action and activity in the body, is consistent with the previously proposed methods for treating bulimia and binge eating with opioid antagonists. Their imagined mechanisms of action would work best if the antagonists were always present, thus eliminating supposed problems of patient compliance.

[0010] The present invention, however, contemplates alternating periods when an opioid antagonist blocks the opioid system (during which the eating disorder behaviors are emitted) with periods when the patient's body is free of antagonist (during which normal healthy eating behaviors are made).

[0011] The present invention is, therefore based on the use of naloxone for the preparation of pharmaceutical compositions for methods of treating eating disorders in mammals, including human beings.

[0012] The method of treatment preferred comprises "selective extinction". We have used a similar "selective extinction" procedure extensively in treating alcoholism (Sinclair, 2001). (Incidentally, there has been little problem here with compliance. Alcoholics have difficulty complying if you tell them to refrain from drinking. They do not have a problem, however, with obeying the instruction to take a pill always before drinking.)

[0013] With alcoholics, we include a wash-out period of about 48 hours for removal of the naltrexone. During this time the patients should not drink alcohol and they also should not engage in the alternative opioidergicallyreinforced behaviors that we wish to strengthen. This is not a problem with alcoholism or drug addiction.

[0014] In the case of eating disorders, such long wash-out periods are not possible. For example, when treating bulimia, the behavior we wish to extinguish is eating foods that trigger bulimia. The alternative behavior we wish to strengthen is eating foods that do not trigger bulimia. Obviously patients cannot be expected to avoid both activities, that is, to refrain from all eating, for a 48 hour wash-out period. Nalmefene is removed even more slowly.

[0015] Naloxone, however, has a half-life of only 30 to 80 minutes in humans. A patient given naloxone on one day would be free of it the following day.

[0016] The present invention contemplates the use of the opiate antagonist naloxone for the preparation of a pharmaceutical composition for the treatment of eating disorders. In particular the present invention provides for the use of naloxone (or a similar opiate antagonist having a half-life of less than about 2 hours, preferably less than 90 minutes).

[0017] In particular, the present invention contemplates the use of naloxone in the formulation of a pharmaceutical composition used in a method based on selective extinction.

[0018] Particularly preferred compositions are those which are suitable for transdermal or nasal administration appropriate in a therapeutic method, utilizing the ability of opiate antagonist to block positive reinforcement from

5 stimuli produced by highly-palatable foods, from purging, and from anorexic behavior in order to extinguish bulimia and other eating disorders while simultaneously strengthening normal healthy eating behaviors and the consumption of foods conducive to health.

10 **[0019]** The subject suffering from one of these overly-strong eating disorder responses makes the response repeatedly, in the presence of stimuli similar to those to which the response had been learned, while active quantities of naloxone are in his or her brain, thus eventually

15 extinguishing the response and removing the desire to make the response. These extinction sessions are separated by "learning periods" when the subject is free of antagonist and can make other responses but not the problem response, in order to restore the strength of com-

20 peting responses. Thus the problem response is selectively extinguished.

[0020] Considerable advantages are obtained with the present invention.

[0021] The lifetime prevalence of bulimia is 2.8 % for

25 women, and 5.7 % of women will show bulimia-like syndromes (Kendler et al., 1992). The disorder was strongly influence by genetics, with a heritability coefficient of 55 %. Comorbidity was reported between bulimia and anorexia nervosa, alcoholism, panic disorder, generalized anxiety disorder, phobia, and major depression.

30 **[0022]** In most cases the subject will suffer from several related problem responses: e.g., overly-strong eating responses for a dozen specific highly palatable food items. Each will be extinguished separately. Further-

35 more, prior to extinguishing a particular response, the subject will not be allowed to make that response for at least a week. The resulting increased motivation to make the response after being deprived of the opportunity ("deprivation effect") will assure that the subject makes

40 that response at the beginning of extinction and will in-crease the effectiveness of extinction.

[0023] Depending upon the severity and nature of the problem responses, provisions are made for using the method within a treatment center, as an out-patient treatment, and as a combination of the two.

45

Brief Description of the Drawings

[0024]
50
Figure 1a shows selective extinction (interspersing periods when alcohol was drunk daily following naloxone injection with periods when saccharin was drunk with no injection) strongly reduced alcohol
55 drinking, while

Figure 1b depicts increasing saccharin drinking in the same animals relative to intakes by control animals injected with saline. Each data point is the mean

of 1 to 4 days. The extremely low doses used from week 4 on have not previously been found to be effective. * $p<0.05$ relative to saline controls.

Description of Preferred Embodiments

[0025] The present invention involves taking the selective extinction method for separating the actions of opioid antagonists on different behaviors and contemplates applying it to the treatment of eating disorders. Because the opioid antagonists conventionally used in treating alcoholism are not suitable for treating eating disorders, the present invention employs naloxone (or salts thereof) for use in preparations that can be taken either transdermally or by nasal inhalation in a manner suitable for selectively extinguishing eating disorders while reinforcing healthy eating behaviors. In addition, several innovations are proposed to optimize the method to the eating disorder field and which then differentiate the method from all previously proposed treatments.

[0026] The key for how to separate the actions of the antagonists comes from an understanding of how the antagonists act in the nervous system to produce benefits.

[0027] There are two basic processes through which long-term change is made in the organization of the nervous system as a result of experience: one causes learning by strengthening synapses; the other causes habituation and extinction by weakening synapses (see Sinclair, 1981). Experimental results also show that the two occur under different circumstances and follow different rules. Thus, extinction is not simply learning to do some-thing else but rather a separate phenomenon. It also is distinct from forgetting; it is an active process for removing unsuccessful responses and requires the emission of the response in the absence reinforcement.

[0028] Our preclinical experimental results had shown that alcohol drinking is a learned behavior (Sinclair, 1974), and that opioid antagonists suppress alcohol drinking by mechanism of extinction (Sinclair, U.S. Patent 4,882,335, Nov. 21, 1989; Sinclair, 1990). Extinction weakens only those responses that are made while reinforcement is blocked. There the method I proposed for treating alcoholism had the antagonist being administered just before the alcoholic drank alcohol.

[0029] Others in the field, however, believed that opioid antagonists block the craving for alcohol caused by an imbalance, either a deficiency in opioid receptor activity (Tractenberg and Blum, 1987; Volpicelli et al., 1990) or having too much opioid receptor activity (Reid and Hub-bell, 1922). According to these theories, the antagonists would be effective if given during abstinence; they would block craving and the onset of drinking.

[0030] Our preclinical experiments had shown that giving opioid antagonists during abstinence not only failed to reduce subsequent drinking, but actually tended to in-crease subsequent drinking above control levels (Sinclair et al., 2003). The same result was found in our dual clinical trial (Heinola et al., 2001). Naltrexone was effective when paired with alcohol drinking, but naltrexone tended to be worse than placebo when given during abstinence. Similar results can be seen in the other clinical trials (Sin-

5 clair, 2001). The latest published count had 41 clinical trials that obtained significant results from using opioid antagonists in a manner allowing extinction; 37 trials using the antagonists in ways precluding extinction, how-ever, got negative results; only 4 trials had results con-

10 trary to this conclusion (Fantozzi and Sinclair, 2004). **[0031]** The mechanism causing the increase in alcohol drinking when antagonists are administered only during abstinence can be used to improve the efficacy of treatment. It can increase the strength of behaviors other than

15 alcohol drinking, of behaviors that can compete with drinking and help fill the vacuum as drinking is extinguished. At the same time other behaviors that are rein-forced by endorphins are protected from extinction. One problem noted in some of the clinical alcohol trials is a

20 reduction in the patients' interest in sweets or carbohydrates, or in sex (Bohn et al. 1994; Balldin et al., 1997). This is probably caused by these behaviors being made while on naltrexone and thus, along with alcohol drinking, being partially extinguished. Naltrexone given to humans

25 reduces their preference for saccharin (Arbisi et al., 1999) **[0032]** The first step in our clinical use of selective extinction in alcoholism treatment is to have patients make a list of behaviors they find pleasurable. The clinician identifies the behaviors on the list that are probably re-

30 inforced by the opioidergic system and advises the patient to avoid engaging in these activities on the days when taking naltrexone and drinking. In the beginning of treatment, this is essentially every day.

[0033] After the treatment has reduced craving for al-

35 cohol, usually during the first month, the patient is advised to have a weekend, starting with Friday evening, with no naltrexone and drinking. Friday night and Saturday constitute a wash-out period for naltrexone to be removed from the body. On Sunday afternoon, the patient chooses

40 some of the opioidergically-reinforced behaviors: eating a highly palatable meal, jogging, having sex, cuddling, cards, etc. As expected, patients usually report that the activities at this time are unusually enjoyable.

[0034] The patients can return to naltrexone and drink-

45 ing on Monday. They are advised, however, to try the next week to have a longer period without naltrexone and drinking but with the alternative behaviors. A three-year follow-up showed that complying patients reported a maximum of 1.5 ± 0.4 (SEM) days per week (Sinclair et

50 al., 2000).

[0035] The example included here is a prior preclinical experiment in which the alternative opioidergically-reinforced behavior was saccharin drinking. Alcohol experienced rats had continual access to food and water. Alcohol solution was available for only an hour a day for 2 to 4 days. On the next day or two, saccharin solution instead was available. Naloxone (or saline for the control group) was injected prior to the alcohol session. During

the first three weeks when the naloxone doses were in the range previously found to be effective, the alcohol drinking was practically abolished. Saccharin drinking in the same animals was significantly increased.

[0036] The opioidergic system reinforces responses, not only when activated by an opiate or alcohol, but also when certain types of stimuli are experienced. The stimuli cause a release of opioids in the brain, reinforcing the responses that produced these stimuli. Consequently, opioid antagonists have been shown in clinical trials to be effective in treating compulsive gambling (Kim, US Patent 5,780,479, 1998; Kim et al., 2001).

[0037] Opioidergic reinforcement is well documented for food-related stimuli. On the basis of a large body of data, Cooper and Kirkham (1990, p. 91) concluded that "ingested items provide stimuli which lead to the release of endogenous opioidergic peptides in the central nervous system". The system does not appear to be involved in the reinforcement from eventually obtaining calories, but rather with that from the pleasant stimulation. For example, opiate antagonists reduce sham feeding of sucrose, and they suppress the eating of chocolate-coated cookies by rats, but not the intake of normal rat chow. Similarly in humans, the antagonist nalmefene suppress-es intake of highly palatable foods but not that of less pleasant tasting ones. Another general finding is that antagonists suppress food consumption (and alcohol drinking) only in the later parts of the first session or later parts of the first eating binge but not at the beginning.

[0038] Other workers in the field interpret these results differently than I do. They suggest that "endogenous opioids play a central role in the modulation of appetite" (Jonas, 1990). The opioids released by food-related stimuli block satiety effects and make food stimuli continue to be pleasant even after caloric needs have been satisfied; thus the opioid release "contributes to the maintenance of ingestional behavior" (Cooper and Kirkham, 1990) and is "involved with processes associated with continuance of eating rather than starting to eat" (Wild and Reid, 1990). In some people the opioid release is too large or too long, and thus they do not stop eating (or alcohol drinking) normally but rather have "out of control" binges. An opiate antagonist blocks this opioid action; therefore, so long as the antagonist is present the duration of a binge is shortened. Similarly with alcohol drinking, "antagonists at opioceptors [sic] would reduce the propensity to continue to drink once drinking has begun" (Hubbell and Reid, 1990). Another interpretation was made by Huebner (US Patent 4,546,103, 1985). He saw endorphins providing satisfaction and pleasure from purging for bulimic patients and from anorexic behavior. Blocking the opioid system with endorphins would re-move the reason for patients making the behaviors, and thus help them to stop.

[0039] Both of these interpretations are best served by continual opioid blockade. If endorphins cause normal eating to expand to a binge, then continual blockade would continually prevent binges. Or if endorphins provide the pleasure from purging, continual naltrexone would suppress purging at all times. Therefore others have not proposed using only short periods of blockade interspersed with periods when the opioid system was
5 functional, as is done with the present invention.

[0040] I see the results not as immediate effects of the opioids and the antagonists on appetite or satiety, but rather as aftereffects produced by learning and extinction. When a highly palatable food is consumed, opioids

10 are released and as a result, after consolidation, the response is stronger. In some people the responses are reinforced so often and so well that they become extremely strong and cannot be controlled properly. When the response is emitted while an opiate antagonist blocks

15 the reinforcement, the response is weakened. The effect can be seen even during the first session, not at the very beginning but reducing intake in the latter portions and thus terminating a binge earlier. The antagonists can re-duce purging if the behavior is emitted while reinforce-

20 ment is blocked because of extinction.

[0041] Opiate antagonists have been tested for eating disorders but the methods used were ones that would be appropriate if the antagonists worked by directly increasing satiety or reducing appetite. In particular, the subjects

25 were kept continually on the antagonists in order to pre-vent all eating from getting out of control and turning into a binge. For example, Alger et al. (1990) gave patients suffering from binge eating initially 50 mg of the longer lasting antagonist, naltrexone, once daily, then twice dai-

30 ly, and if that did not work, 3 times daily, apparently for the purpose of making sure the patient was never free of naltrexone. Although some patients seemed to benefit, over all the naltrexone treatment was not significantly better than placebo. Similarly, although some uncon-

35 trolled studies found benefits from naltrexone in the treatment of bulimia, the one placebo-controlled study did not (Jonas, 1990). A recent review of pharmacological treatments for binge eating does not include opioid antagonists among the medicines for which there is clinical sup-

40 port (Carter et al., 2003).

[0042] According to the extinction hypothesis, keeping a person continually on the antagonist is not optimal for treating eating disorders. In the case of binge eating, it weakens not only the binge-eating response but also all

45 other emitted responses reinforced through the opioidergic system. This makes the procedure less effective be-cause the probability of binge-eating is determined not by its absolute strength but rather by its strength relative to all competing responses. Of particular importance, eat-

50 ing in a healthy manner is also extinguished.

[0043] As discussed above, the present invention instead employs the "selective extinction" procedure (Sinclair, US Patent 5,587,381, 1996) which has the person take an antagonist only before making the problem re
55 sponse but free of the antagonist at times when the problem response is not made. Thus extinction sessions, when mainly the problem response is weakened, are interspersed with "learning periods" when other competing

response including healthy eating responses can regain their strength. In the treatment of bulimia, only binge-eating of specific highly palatable food is weakened, but other competing responses are not.

[0044] Experimental support comes from my studies with alcohol drinking: keeping rats continually on an antagonist (large doses of naltrexone or nalmefene in the food) significantly lowered alcohol drinking but did not reduce it as completely as selective extinction produced by 1 hour sessions daily when alcohol and the short-acting antagonist, naloxone, were present, as shown in the example here.

[0045] Support may also be seen in the fact that the only blind, placebo-controlled experiment with humans to obtain significant results involving binge eating and opioid antagonists was an acute study in which naloxone significantly reduced the size of an eating binge (Atkin-son, 1982).

[0046] There are two other advantages of selective extinction. First, the continual presence of an antagonist produces up-regulation of opioid receptors (Unterwald and Zukin, 1990; Parkes and Sinclair, 2000). Consequently, a problem response would produce more reinforcement after the end of antagonist treatment, than it did before. Up-regulation should be attenuated with the selective extinction procedure because the antagonist is present only for relatively short sessions interspersed with antagonist-free periods.

[0047] Second, although opiate antagonists are considered safe, there are side-effects, such as liver toxicity with naltrexone, elevated cortisol levels, and possible immunosuppressive effects (Morgan and Kosten, 1990). These side-effects should be greatly reduced or eliminated with only periodic administration of the antagonist. The dysphoria sometimes reported with continual admin-istration might also be caused by the general blocking of pleasure from a wide range of activities, and should be less of a problem with selective extinction where the per-son is free to enjoy opioidergic reinforcement from other responses during the learning periods.

[0048] Selective extinction can be used for treating a variety of eating disorders. In addition to bulimia and binge-eating, it could be used as a dieting aid. A contributing factor to obesity for many people is overly-strong eating responses and cravings for a few highly palatable and high-energy foods: chocolate, cookies, peanut but-ter, etc. Losing weight and then maintaining a normal weight would be possible after these specific responses were removed by selective extinction. Similarly, selective extinction could be used by people who are not necessarily overweight but have to restrict their intake of a particular substance (e.g., sugar or sodium chloride) that can be identified with a specific stimulus that activates the opioidergic system. (There is evidence that both sweet and salty tastes are reinforcing through this system (Levine et al., 1982).)

[0049] The present invention takes advantage of a relationship between opiate antagonists and a phenomenon R. J. Senter and I discovered called the "alcohol-deprivation effects" (Sinclair and Senter, 1967). Taking alcohol away after prolonged prior experience gradually over several days increases the desire for it. When it is

first returned, intense drinking begins immediately, probably accompanied by intensified pleasure and reinforcement. Deprivation effects also develop for saccharin and specific highly-palatable foods, as well as for many habitual behaviors. Opiate antagonists have been found to

be more effective in suppressing alcohol drinking after deprivation (Kornet et al., 1990). The probable reason is that extinction (unlike learning) is most effective with "massed trials", i.e., when the response is made over and over again, vigorously, without pausing (see Sinclair,

1981). Therefore, the extinction of specific eating responses will generally be done after several days of deprivation of the specific food item. For example, if chocolate ice cream is listed by patients as a triggering food for bulimia, these patients will be told to abstain from

eating chocolate ice cream, plus ice cream in general and chocolate in general, for a week before taking an opioid antagonists and getting unlimited chocolate ice cream to eat and purge.

[0050] There is evidence linking anorexia nervosa to

the opioidergic system. First, it may develop from bulimia (Kassett and Gwirtsman, 1988). Second, there is some preliminary evidence from a small study showing for improvement of anorexia nervosa from treatment with an opiate antagonist (Luby et al., 1987). Marrazzi and Luby

(1986) suggested that starvation causes the release of endorphins; anorexic patients starve themselves supposedly to get elation from their own opioids. I suspect the situation is somewhat more complicated. The specific anorexic behaviors may be reinforced by the opioid sys-

tem, but a major factor contributing to the condition is the extinction of normal eating response. During the developmental phase, the patients make all of the normal eating responses: going to the table, taking the food, pushing it around with a fork, but then willfully withholding the

responses of tasting and swallowing the food. Thus the preliminary responses are made but do not get reinforcement from taste or from removal of hunger, and as a result are extinguished. In any case, it is clear that the solution is a strengthening of normal eating behaviors,

and extinction of the responses maintaining anorexia. This should be accomplished by administering opioid antagonists while the patient is not eating, interspersed with antagonist-free periods when the patient does in fact eat a small amount of highly palatable food

[0051] The selective extinction method here for treating eating disorders comprises selectively extinguishing the behaviors causing the disorder while strengthening normal health eating behaviors. It preferably comprises the steps of:

- repeatedly administering naloxone in a dosage sufficient to block the effects of opiate agonists to a subject suffering from an eating disorder caused by one

or more related problem responses;

- while the amount of naloxone in the subject's body is sufficient to block opiate effects, having the subject make one of the problem responses from which the subject suffers in the presence of stimuli similar to those to which it had been learned,

- after the amount of naloxone is no longer sufficient to block opiate effects, having the subject make healthy eating responses to food items that do not trigger the problem responses; and

- continuing the steps of administration of naloxone and having one after another of the problem responses made, followed by having a naloxone-free period in which healthy eating occurs, until the problem responses are extinguished.

[0052] Based on the above, the invention comprises, i.a., the following preferred embodiments:

In the first, naloxone is used for the preparation of a pharmaceutical composition to be Administered simultaneously with the patient making eating disorder responses but in a manner so that effective levels of naloxone are not present in the body when the patient makes healthy eating responses, and continuing the alternating between extinction of eating disorder responses with naloxone and reinforcement of healthy eating behaviors until the eating disorder responses are weak enough to be controlled. Typically, in the method, the patient makes said "healthy eating responses" a few hours, preferably about 0.2 to 12 hours, in particular about 0.5 to 6 hours, typically about 0.8 to 4 hours, after the first eating responses.

In a second embodiment, naloxone is used transdermally and in a dose per day amounting to about 0.001 mg to 50 mg.

[0053] The present invention provides a means, or de-vice, suitable for the rapid, easy and foolproof transdermal delivery of the opiate antagonist. The device is a package containing a fixed dose of antagonist, a vehicle and a permeation enhancer to assure rapid systemic de-livery of the antagonist. The package contemplated is a container, such as a capsule, sachet, or squeeze tube, holding a fixed volume of an ointment containing the antagonist, vehicle and enhancer. An important consideration for the formulation that has not been mentioned previously is the ease and rapidity of removing the transdermal composition and thus terminating further naloxone administration.

[0054] For the transdermal administration, naloxone can be in the form of the acid, the base, or the salts there-of. The concentrations of naloxone in the ointment can range from 1 mg/ml up to or in excess of the solubility limit of the vehicle. Possible vehicles include propylene glycol, isopropanol, ethanol, oleic acid, N-methylpyrrolidone, sesame oil, olive oil, wood alcohol ointments, vaseline, a triglyceride gel sold under the trade name Softisan 378, and the like.

[0055] Possible permeation enhancers include saturated and unsaturated fatty acids and their esters, alco-

5 hols, acetates, monoglycerides, diethanolamides and N, N-dimethylamides, such as linolenic acid, linolenyl alcohol, oleic acid, oleyl alcohol, stearic acid, stearyl alcohol, palmitic acid, palmityl alcohol, myristic acid, myristyl alcohol, 1-dodecanol, 2-dodecanol, lauric acid, decanol,

10 capric acid, octanol, caprylic acid, 1-dodecylazacycloheptan-2-one sold under the trade name Azone by Nelson Research and Development, ethyl caprylate, isopropyl myristate, hexamethylene lauramide, hexamethylene palmitate, capryl alcohol, decyl methyl sulfoxide,

15 dimethyl sulfoxide, salicylic acid and derivatives, N,N-diethyl-m-toluamide, crotamiton, 1-substituted azacycloalkan-2-ones, polyethylene glycol manolaurate, and other compounds compatible with the package and the antagonist, and having transdermal permeation activity. In

20 accord with patent EPA-0282156, corticosteroid or other agents to lessen skin irritation could also be included. A preferred vehicle is propylene glycol and a preferred enhancer is linolenic acid (10 %).

[0056] Further details on transdermal compositions *25* will appear from US Patent No. 5,096,715.

[0057] In a third embodiment, naloxone is given by intranasal inhalation and the dose per day is 0.001 mg to 50 mg.

[0058] The intranasal formulations can be formulated

30 with naloxone in the form of the acid, the base, or the salts thereof together with a stabilizer and a surfactant. Among pharmaceutically acceptable surfactants the following can be mentioned: Polyoxyethylene castor oil derivatives; mono-fatty acid esters of polyoxyethylene (20)

35 sorbitan and sorbitan esters (TWEEN 20 and TWEEN 80), polyoxyethylene monostearate (TWEEN 60), polyoxyethylene (20) sorbitan monopalmitate (TWEEN 40), and polyoxyethylene 20 sorbitan monolaurate (TWEEN 20); polyglyceryl esters, and polyoxyethylated kernel oil.

40 Preferably, the surfactant will be between about 0.01 % and 10% by weight of the pharmaceutical composition. **[0059]** The pharmaceutically useful stabilizers include antioxidants, such as sodium sulfite and metabisulfite, sodium thiosulfate and formaldehyde, sulfoxylate, sulfur

45 dioxide, ascorbic acid, isoascorbic acid, thioglycerol, thioglycolic acid, cysteine hydrochloride, acetyl cysteine, hydroquinone, propyl gallate, nordihydroguaiaretic acid, butylated hydroxytoluene, butylated hydroxyanisole, alpha-tocopherol and lecithin. The stabilizer will preferably

50 be present in a concentration of about 0.01% and 5% by weight of the intranasal composition.

[0060] Naturally, the compositions may contain other components, as well (e.g. chelating agents and fluidizing agents).

55 **[0061]** Each of the above embodiments can be carried out by a method in which the dose of naloxone is started at a high level of 5 to 50 mg and then is progressively reduced over the days of treatment.

[0062] By the above embodiments, various eating disorders, typically selected from the group comprising, binge eating, bulimia, bulimia-like syndrome, anorexia nervosa, and habitual over-eating stimulated by specific stimuli including certain foods, situations, or moods, can be successfully treated.

[0063] The method can also be used in situations wherein the patient must lower intake of a particular class of dietary substances including sodium chloride, sugars, cholesterols or low-density cholesterols, and the responses to be selectively extinguished are the eating of particular foods with high amounts of these substances. **[0064]** It should be noted that the method can be used with subjects diagnosed as suffering from maladaptive overly-strong responses reinforced by stimulation-induced release of opioids and resulting in eating disorders. It cannot be used for patients for whom the opiate antagonist is contraindicated. In particularly, patients who are physiologically dependent upon opiates must be excluded.

[0065] Specific details for the use of selective extinction with each of the different varieties of problem responses are presented below. The initial steps, however, in each case are similar. First, detailed information is obtained about the patient's responses: the particular responses that cause the patient problems, the situations in which they have typically been emitted, and particularly the foods that trigger the behavior. Second, the patient is checked for alcoholism, drug addiction, or other contraindications. Third, if there is any possibility of an active opiate addiction despite denials by the patient, a small dose of opiate antagonist is administered under close medical supervision.

[0066] Naloxone is metabolized so rapidly in the liver that all of it is removed during the first pass after oral administration. Consequently, it usually is injected, as was the case in a previous test for treating anorexia (Huebner, US Patent 4,546,103, 1985).

[0067] Transdermal administration of naloxone, how-ever, is much better suited for repeated self-administration. I previously proposed a transdermal devise for ad-ministering a fixed dose of an opioid antagonist, including naloxone, for use in alcoholism treatment (Sinclair, US Patent 5,096,715, 1992). Recent experiments (Panchagnula et al., 2001) have shown this devise with 33 % propylene glycol as the vehicle and ethanol as the permeation enhancer is even more effective for transdermal de-livery of naloxone than I had anticipated: "theoretically blood levels well above the therapeutic concentration of naloxone can be achieved" with a transdermal patch of a convenient size. An intranasal spray has also been shown suitable for rapid administration of naloxone for the majority of subjects and could also be used, probably in combination with transdermal administration (Loimer et al., 1992).

[0068] Avoiding the oral route also has distinct advantages for selective extinction of eating disorders. First, there is the problem that some of an orally administered medication would be lost by purging, or not taken by anorexic patients. Second, troubles with the gastrointestinal tract are common complications with eating disorders. Oral administration itself irritates the throat and it directs

5 the highest concentration of the medication to intestines where it interacts with opioidergically controlled motility. Third, the response of taking an oral medication is similar to the eating responses we are trying to alter with the treatment, thus adding a possible complication to the pro-
10 cedure.

Binge-eating and bulimia

[0069] Severe cases should be handled initially in a

15 treatment center to assure compliance, to increase motivation, to monitor health, and to provide counseling and training concerning correct eating habits. The information obtained includes a list of the patient's "trigger foods", i.e., those highly palatable foods that precipitate binges,

20 are frequently included in binges, are greatly craved, or give the patient intense pleasure when the first bite is eaten. A list is also prepared for the patient of "healthy foods", i.e., nutritious foods that do meet any of the above characteristics for trigger foods.

25 **[0070]** The patient is kept initially on diet specifically excluding a particular trigger food and foods with similar characteristics for a week prior to treatment. (In the afore-mentioned example, if the trigger is chocolate ice cream, the patient avoids not only chocolate ice cream but all

30 ice cream and all chocolate.) Naloxone is then administered, perhaps first by nasal spray and then transdermally, and then while active quantities are present in the system, the patient is presented with the trigger food and encouraged to have an eating binge of it. If possible, the

35 situation in which the food is eaten should be similar to that in which the patient usually has had eating binges. The response set should also be similar; e.g., if the patient typically has purged after an eating binge previously, purging should occur also in the extinction session. No

40 healthy foods should be available.

The duration of an extinction session should match the patient's previous binging behavior. If binging normally continued for several days, the same should occur in treatment, with additional transdermal administrations of

45 naloxone being given as needed.

[0071] At the end of the extinction session, the transdermal administration is stopped and the skin area involved is washed thoroughly.

[0072] The extinction session is followed the next day *50* by a "learning period" of one day or more when no antagonist is given and only healthy foods are available. Not only are trigger foods not available, but also all stimuli related to them; the patient should not see them or smell them, nor should they be discussed in counseling. The
55 safe foods can be restricted to meal times, but the patient can eat as much as desired then: no attempt at dieting should occur during the learning periods. Learning of alternative behaviors can be encouraged, but care should

be used with regard to responses reinforced through the opioid system. For example, greater than normal intake of alcohol should not be allowed.

[0073] In subsequent extinction sessions, the patient binges on other trigger foods that have not been included in the previous sessions. In severe case being handled at a clinical center, treatment continues until binge eating with most of the patient's trigger foods has been extinguished and the person has gained greater control over his or her eating habits. Thereafter, an out-patient mode of selective extinction treatment can be used. The subject is given take-home doses of the opiate antagonist and told to take one whenever there is a high probability that unsafe foods will be eaten in the next few hours. The instructions state that the patients should go ahead and have an eating binge if they feel like it, but only after taking naloxone. Under no circumstance should they binge without taking the antagonist. The antagonist should not be taken otherwise, i.e., when the patient thinks there is little chance of eating trigger foods.

Dietary aid for stimulus-bound overeating

[0074] An out-patient mode of selective extinction is used for patients with less severe eating problems and high motivation and ability for compliance. It can be used with subjects who are obese or only moderately over-weight whose weight problem is not due to glandular anomalies but rather is caused by eating more than more than caloric needs in response to specific stimuli. The stimuli can be specific highly-palatable ("trigger") food items, situations, or moods. Examples of trigger food items would be chocolate, mayonnaise, peanut butter, potato chips, cream, butter, and cheese. Examples of trigger situations are watching television, fast food and other restaurants, parties, holidays, and "midnight snack" excursions. Examples of moods are premenstrual syndrome (PMS), post-traumatic stress (PTS), anxiety in anticipation of a stress situation, and celebration euphoria. **[0075]** The procedure is the same as that with binge-eating and bulimia except the subject is not kept in a treatment center but rather conducts his or her own extinction sessions in the outside world. The subject is given clear, precise instructions (similar to those specified above for binge eating and bulimia) on how to extinguish the problem eating responses (e.g., 1. create a list of trigger stimuli, 2. choose one, 3. refrain from it for one week, 4. arrange for the trigger stimulus to be present, 5. self-administer naloxone, 6. what to do during intervening "learning periods" when the antagonist is not taken and the trigger stimuli are avoided as much as possible.

Dietary aid for limiting intake of specific substances (sugar, salt, etc.)

[0076] Selective extinction can be used for people who are not necessarily overweight but must reduce their intake of a particular substance that is closely associated with a distinct stimulus that causes opioid release.

[0077] One example is with people who need to reduce their intake of sodium chloride. Sodium chloride is closely

associated with salty tastes, and there is evidence showing that a salty taste produces reinforcement through the opioidergic system (Levine et al., 1982). The person is given a series of extinction sessions on naloxone and learning periods off of the antagonist. During the extinc-

tion sessions a variety of salty-tasting foods are eaten. If necessary, the salty taste could be produced by a salt substitute, but sodium chloride should be used if there is no medical danger from short-term intake of the sub-stance. During the learning sessions, salty-tasting foods

are omitted from the diet completely. The responses of eating salty foods are thus selectively extinguished, while the responses of eating non-salty foods are not weakened and may be enhanced. This will reduce the desire for salty foods and make it easier for the person to stay

on a low salt diet.

[0078] A similar procedure could be used with people who need to restrict their intake of sugars. Sweet foods are eaten during the extinction sessions and non-sweet ones during the learning periods. The sweet taste could

be produced with artificial sweeteners, but sugar should be used if there is no medical danger from such limited intake.

[0079] The method also can be used with people who need to restrict their intake of cholesterols or specifically

low-density cholesterols. Although there probably is no specific taste stimuli associated with cholesterols, they tend to be present in highest amounts in particular highly-palatable foods. Consequently, during the extinction sessions the person eats these particular foods and during

the learning session the person eats foods with low amounts of cholesterol or low-density cholesterols. **[0080]** This procedure could be used either in a treatment center or on an out-patient basis depending upon the person's ability to comply and the severity of the ail-

ment requiring the dietary limitations.

Anorexia nervosa

[0081] The patient is kept continually on a transdermal

opiate antagonist for a period (probably 2 days or more) while intravenous nutrients are supplied. Naltrexone or nalmefene could be used initially but naloxone should be used in the last day.

[0082] Antagonist administration is then abruptly ter-

minated. During the next day (a learning period when the system is free of active levels of antagonist), the patient is given small portions of a variety of highly-palatable foods and strongly encouraged to eat at least a small amount. The rebound supersensitivity of the opioid sys-

tem should help to reinforce the eating responses that are made.

[0083] The next day the patient is placed again on the antagonists and fed intravenously. The pattern of extinc-

tion sessions and learning periods continues. New highly-palatable foods are introduced on each antagonist-free day, with at least a week between duplication of the same food item in order to allow deprivation effects to increase the reinforcement. After the first sessions, in-creasing attention is paid to providing a well-rounded, nutritious variety of highly-palatable foods. Pharmacological potentiation of the opioidergic response, e.g., with moderate amounts of alcohol, can be employed.

[0084] During extinction session days on the antagonist, the patient is encouraged to make the most common responses from his or her own list of previously-learned competing anorexic responses (e.g., vigorous exercise) that are probably reinforced through the opioid system. In most cases, the aim should be weakening these responses only to a normal level.

EXAMPLE

[0085] Selective extinction: weakening of one behavior and at the same time strengthening another. Selective extinction is produced by pairing the response we want to decrease (alcohol drinking by rats in this example) with an opioid antagonist and pairing the response we want to become more powerful (saccharin drinking here) with times when the antagonist is not in the body.

[0086] The example demonstrates that selective extinction can be produced with naloxone (i.e., the antagonist best suited for treating eating disorders.) It also shows that selective extinction works with eating behaviors like saccharin drinking that are normally reinforced by the flavor causing endorphins to be released.

Methods

[0087] Male Wistar rats (n=26) were individually housed with daily access to 10 % ethanol, with food and water always present. After 2 months prior experience, the rats were switched to having 2-4 alcohol-access days interspersed with 1 or 2 days when saccharin solution (1 g/l) was available for 1 hr. The rats were then divided into 2 matched groups, one always receiving a subcutaneous dose of naloxone prior to alcohol access and a control group receiving a similar injection of saline prior to alcohol access. No injections were made prior to saccharin access. In addition, the naloxone dose was progressively reduced from 10.000 to 0.005 mg/kg.

Results

[0088] The naloxone injections significantly reduced alcohol drinking in comparison with both the alcohol in-take by the controls and in comparison with their own prior levels (see Fig. la). The alcohol drinking continued to be significantly reduced for 8 weeks; many of these weeks involved doses far lower than previously found to be effective. Alcohol drinking was reduced to nearly zero for most rats for 6 weeks. The suppression of drinking of alcohol drinking appears greater than in previous experiments in which both alcohol drinking and antagonist ad-ministration occurred every day and specifically greater than in studies aimed at maintaining a continual presence

of the antagonist by using longer lasting naltrexone or nalmefene and mixing them with the food.

[0089] In contrast to the sharp reduction in alcohol drinking, saccharin drinking was consistently higher in the naloxone treated rats than in the controls and signif-

icantly so during the first three weeks when doses of naloxone previously shown to be effective were used (see Fig. 1b).

References

[0090]

"Naloxone in the Treatment of Anorexia Nervosa: Effect on Weight Gain and Lipolysis" R. Moore, I.H Mills, A. Forster, Journal of the Royal Society of Medicine 1981, 74, 129-31.

"Targeted Use of Naltrexone Without Prior Detoxification in the Treatment of Alcohol Dependence: A Factorial Double-Blind Placebo-Controlled Trial." P Heinälä, H. Alho, K. Kiianmaa, J. Lönnqvist, K. Kuoppasalmi, and J.D. Sinclair, Journal of Clinical Psychopharmacology, 2001. 21, 287-292.

"Evidence about the Use of Naltrexone and for Different Ways of Using It in the Treatment of Alcoholism" J. D. Sinclair, Alcohol and Alcoholism 2001,36, 2-10.

"The Rest Principle: A Neurophysiological Theory of Behavior" J. D. Sinclair, Lawrence Erlbaum Associates, Hillsdale, NJ, 1981.

"Rats Learning to Work for Alcohol" J. D. Sinclair, Nature 1974, 249, 590-592.

"Drugs to Decrease Alcohol Drinking", J.D.Sinclair, Annals of Medicine, 1990, 22, 357-362.

"Alcohol and Opioid Peptides: Neuropharmacological Rational for Physical Craving of Alcohol" M.C. Tractenberg, and K. Blum. American Journal of Drug and Alcohol Abuse 1987,13, 365-372.

"Naltrexone and the Treatment of Alcohol Dependence" J.R. Volpicelli, C.P.O'Brien, A.I.Alterman, and M. Hayashida, In Opioids, Bulimia, and Alcohol Abuse & Alcoholism, L.D.Reid, ed. Springer-Verlag, New York, 1990, pp 195-214.

"Opioids Modulate Rats' Propensities to Take Alcoholic Beverages" L. D. Reid, and C. L. Hubbell, in Novel Pharmacological Interventions for Alcoholism. C.A. Naranjo and E.M. Sellers (eds) New York: Springer-Verlag, pp.121-134,1992

"Uso Efficace del Naltrexone: Ciò Che Non è Stato Detto a Medici e Pazienti" (Effective use of naltrexone: What doctors and patients have not been told) D. Sinclair, F. Fantozzi, and J. Yanai, The Italian Journal of the Addictions, 2003, 41,15-21.

"La Ricaduta Nell'Alcol: un Concetto Vincente, Ma

in Via di Estinzione?" F. Fantozzi, and D. Sinclair, Personalit Dipendenze 2004,10, 219-243. "Naltrexone and Brief Counselling to Reduce Heavy Drinking" M. J. Bohn, H.R. Kranzler, D. Beazoglou, and B.A. Staehler, The American Journal on Addictions 1994, 3, 91-99.

"A Randomized 6 Month Double-Blind Placebo-Controlled Study of Naltrexone and Coping Skills Education Programme" J. Balldin, M. Berglund, S. Borg, M. Månsson, P. Berndtsen, J. Franck, L. Gustafsson, J. Halldin, C. Hollstedt, L-H. Nilsson, and G. Stolt, Alcohol and Alcoholism 1997, 32, 325.

"The Effect of Naltrexone on Taste Detection and Recognition Threshold" P.A. Arbisi, C.J. Billington, A.S. Levine, Appetite 1999, 32, 241-249. "Long-Term Follow Up of Continued Naltrexone Treatment" J. D. Sinclair, K. Sinclair, and H. Alho, Alcoholism: Clinical and Experimental Research 2000, 24, suppl. 182A.

"Double-Blind Naltrexone and Placebo Comparison Study in The Treatment of Pathological Gambling" S. W. Kim, J. E. Grant, D. E. Adson, and Y. C. Shin, Biological Psychiatry 2001, 49:914-921.

"Basic Mechanisms of Opioids' Effects on Eating and Drinking", S.J. Cooper and T.C. Kirkham, in Opioids, Bulimia, and Alcohol Abuse & Alcoholism, L.D. Reid, ed. Springer-Verlag, New York, 1990, 91-110.

"Naltrexone and Bulimia: Initial Observations", J.M. Jonas, in Opioids, Bulimia, and Alcohol Abuse & Alcoholism, L.D. Reid, ed., Springer-Verlag, New York, 1990, 123-130.

"Obesity, Anorexia Nervosa, and Bulimia: A General Overview", K.D. Wild and L.D. Reid,in Opioids, Bulimia, and Alcohol Abuse & Alcoholism, L.D. Reid, ed., Springer-Verlag, New York, 1990, 3-21.

"Opioids Modulate Rats' Intake of Alcoholic Bever-ages", C.L. Hubbell and L.D. Reid, in Opioids, Bulimia, and Alcohol Abuse & Alcoholism, L.D. Reid, ed., Springer-Verlag, New York, 1990, 145-174.

"Using Drugs to Manage Binge-Eating among Obese and Normal Weight Patients", S.A.Alger, M.J.Schwalberg, J.M. Bigaoutte, L.J. Howard, and L.D. Reid, in: Opioids, Bulimia, and Alcohol Abuse & Alcoholism, L.D.Reid, ed., Springer-Verlag, New York, 1990, 131-142.

"Pharmacologic Treatment Of Binge Eating Disorder" W.P. Carter, J.I. Hudson, J.K. Lalonde, L. Pindyck, S.L. McElroy, and H.G. Pope Jr., International Journal of Eating Disorders 2003, 34, Suppl:S74-88. "Naloxone Decreases Food Intake in Obese Hu-mans", R. L. Atkinson, Journal of Clinical Endocrinology and Metabolism, 1982, 55, 196-198.

"The Endogenous Opioidergic Systems" E.M.Unterwald and R.S.Zukin, in, Opioids, Bulimia, and Alcohol Abuse & Alcoholism, L.D. Reid, ed., Springer-Verlag, New York, 1990, 49-72.

"Reduction of Alcohol Drinking and Upregulation of Opioid Receptors by Oral Naltrexone in AA Rats" J.H. Parkes and J.D.Sinclair. Alcohol, 2000, 21, 215-221.

"Potential Toxicities of High Doses of Naltrexone in Patients with Appetitive Disorders", C.J. Morgan and

T.R. Kosten, in Opioids, Bulimia, and Alcohol Abuse & Alcoholism, L.D. Reid, ed. Springer-Verlag, New York, 1990, 261-273.

"Flavor Enhances the Antidipsogenic Effect of Naloxone", A. S. Levine, S. S. Murray, J. Kneip, M.

Grace and J. E. Morley, Physiology and Behavior, 1982, 28, 23-25.

"Increased preference for ethanol in rats following alcohol deprivation", J.D. Sinclair, and R.J.Senter, Psychonomic Science 1967, 8, 11-12.

"The Effect of Naltrexone on Alcohol Consumption after Alcohol Deprivation in Rhesus Monkeys", M. Kornet, C. Goosen, and J.M. Van Ree, Abstracts of the XXth Nordic Meeting on Biological Alcohol Re-search, Espoo, Finland, May 13-15, 1990, abstract

20

"Pattern of Onset of Bulimic Symptoms in Anorexia Nervosa", J.A. Kassett, H.E. Gwirtsman, W.H. Kaye, H.A. Brandt, and D.C. Jimerson, American Journal of Psychiatry, 1988, 145, 1287-1288.

"Case Reports: Treatment of Chronic Anorexia Nervosa with Opiate Blockade", E.D. Luby, M.A. Marrazzi, and J. Kinzie, Journal of Clinical Psychopharmacolgy, 1987, 7, 52-53.

"An Auto-Addiction Opioid Model of Chronic Anorex-

ia Nervosa", M.A. Marrazzi and E.D. Luby, International Journal of Eating Disorders, 1986, 5, 191-208. "Transdermal Delivery of Naloxone: Effect of Water, Propylene Glycol, Ethanol and Their Binary Combinations on Permeation Through Rat Skin" R. Pan-

chagnula, P.S. Salve, N.S. Thomas, A.K. Jain, and P. Ramarao, International Journal of Pharmacology 2001, 219, 95-105.

"Nasal Administration of Naloxone is as Effective as the Intravenous Route in Opiate Addicts" N. Loimer,

P. Hofmann, and H.R. Chaudhry, International Journal of Addictions, 1994, 29, 819-827.

"The Genetic Epidemiology of Bulimia Nervosa" K.S. Kendler, C. MacLean, M. Neale, R. Kessler, A. Heath, and L. Eaves, American Journal of Psychia-

try, 1991,148, 1627-1637.

"Selective Extinction of Alcohol Drinking in Rats with Decreasing Doses of Opioid Antagonists" J.D. Sinclair, L. Vilamo, and B. Jakobson. Alcoholism: Clinical and Experimental Research 1994, 18, 489.

Claims

1. Use of naloxone for the preparation of a pharmaceu-

tical composition for treating eating disorders by a method based on selective extinction comprising the steps:

- identification of the specific responses in the patient's eating behavior that are unhealthy or otherwise inappropriate,
- administering the pharmaceutical composition containing naloxone just before the patient 5 makes these unhealthy responses,
- having the patient make healthy eating responses only when the effective levels of naloxone are no longer present in the body, and
- having the patient to alternate between making 10 unhealthy eating responses when effective levels of naloxone are present and making healthy eating responses when effective levels of naloxone are not present, so long as the patient
still wants to make the unhealthy eating respons 15 es.

2. Use according to claim 1, wherein the eating disorder is selected from the group comprising binge eating, bulimia, bulimia-like syndrome, anorexia nervosa, and habitual over-eating stimulated by specific stimuli including certain foods, situations, or moods.

3. Use of naloxone for the preparation of a pharmaceutical composition for improving compliance among patients who must lower intake of a particular class of restricted food including dietary substances such as sodium chloride, sugars, cholesterols or low-density cholesterols by a method based on selective extinction comprising the steps:

20

25

30

- administering the pharmaceutical composition containing naloxone just before the patients eats the restricted food,
- having the patient eat other non-restneted food 35 only when the effective levels of naloxone are no longer present in the body,
- having the patient alternate between occasion-ally eating the restricted food when the effective levels of naloxone are present and eating non- 40 restricted food when effective levels of naloxone are not present, so long as the patient still wants to eat the restricted food.
- Identifizieren der spezifischen Reaktionen im Essverhalten des Patienten, welche ungesund oder anderweitig ungünstig sind,

Patentansprüche

1. Verwendung von Naloxon zur Herstellung eines Arzneimittels zur Behandlung von Essstörungen durch ein Verfahren beruhend auf selektiver Löschung, umfassend die Schritte:

- Verabreichen des Arzneimittels enthaltend Naloxon kurz bevor der Patient diese ungesunden Reaktionen ausführt,
- den Patienten dazu bringen, die gesunden Essreaktionen nur dann auszuführen, wenn die wirksamen Spiegel von Naloxon nicht länger im Körper vorherrschen, und
- den Patienten dazu bringen, zwischen dem Ausführen von ungesunden Essreaktionen, wenn wirksame Spiegel von Naloxon vorherrschen, und dem Ausführen von gesunden Essreaktionen, wenn wirksame Spiegel von Naloxon nicht vorherrschen, zu wechseln, so lange der Patient die ungesunden Essreaktionen immer noch ausführen will.

4. The use according to any of claims 1 to 3, wherein 45 naloxone is given transdermally and the dose per day is 0.001 mg to 50 mg.

5. The use according to any of claims 1 to 3, wherein naloxone is given by intranasal inhalation and the 50 dose per day is 0.001 mg to 50 mg.

6. The use in accordance with any of the preceding claims, wherein the dose of naloxone is started at a high level of 5 to 50 mg and then is progressively 55 reduced over the days of treatment.

2. Verwendung nach Anspruch 1, wobei die Essstörung ausgewählt ist aus Binge Eating, Bulimie, bulimieähnlichem Syndrom, Anorexia nervosa und gewohnheitsmäßigem Über-Essen stimuliert durch spezifische Stimuli einschließlich bestimmter Nahrungsmittel, Situationen oder Gemütszustände.

3. Verwendung von Naloxon zur Herstellung eines Arzneimittels zur Verbesserung der Therapietreue unter Patienten, welche die Aufnahme von einer bestimmten Klasse an begrenzten Nahrungsmitteln herabsetzen müssen, einschließlich Diätsubstanzen wie Natriumchlorid, Zucker, Cholesterine oder LDLCholesterine, durch ein Verfahren beruhend auf selektiver Löschung umfassend die Schritte:

- Verabreichen des Arzneimittels enthaltend Naloxon kurz bevor der Patient das begrenzte Nahrungsmittel isst,

- den Patienten dazu bringen, andere, nicht-begrenzte Nahrungsmittel nur dann zu essen, wenn die wirksamen Spiegel von Naloxon nicht länger im Körper vorherrschen, und

- den Patienten dazu bringen, zwischen dem gelegentlichen Essen des begrenzten Nahrungsmittels, wenn wirksame Spiegel von Naloxon vorherrschen, und dem Essen von nicht-begrenzten Nahrungsmitteln, wenn wirksame Spiegel von Naloxon nicht vorherrschen, zu wechseln, so lange der Patient das begrenzte Nahrungsmittel immer noch essen will.

4. Verwendung gemäß einem der Ansprüche 1 bis 3, wobei Naloxon transdermal verabreicht wird und die Tagesdosis 0,001 mg bis 50 mg beträgt.

5. Verwendung gemäß einem der Ansprüche 1 bis 3, wobei Naloxon durch intranasale Inhalation verabreicht wird und die Tagesdosis 0,001 mg bis 50 mg beträgt.

6. Verwendung gemäß einem der vorangegangenen *10* Ansprüche, wobei die Dosis an Naloxon bei einem hohen Spiegel von 5 bis 50 mg gestartet und dann allmählich über die Tage der Behandlung reduziert wird.

- administrer la composition pharmaceutique contenant la naloxone juste avant que le patient n'ait ces réponses morbides,
- faire que le patient ait des réponses alimentaires saines seulement lorsque les taux efficaces de naloxone ne sont plus présents dans le corps, et
- faire que le patient alterne entre manger occasionnellement des aliments interdits lorsque les taux efficaces de naloxone sont présents et manger des aliments non interdits lorsque les taux efficaces de naloxone ne sont plus présents, tant que le patient veut encore manger les aliments interdits.

Revendications

1. Utilisation de naloxone pour la préparation d'une composition pharmaceutique pour le traitement de troubles alimentaires par un procédé basé sur une extinction sélective comprenant les étapes de :

   - identifier les réponses spécifiques dans le comportement alimentaire d'un patient qui sont morbides, ou inappropriées,

   - administrer la composition pharmaceutique contenant la naloxone juste avant que le patient n'ait ces réponses morbides,

   - faire que le patient ait des réponses alimentaires saines seulement lorsque les taux efficaces de naloxone ne sont plus présents dans le corps, et

   - faire que le patient alterne entre les réponses alimentaires morbides lorsque les taux efficaces de naloxone sont présents et des réponses alimentaires saines lorsque les taux efficaces de naloxone ne sont plus présents, tant que le patient veut encore avoir des réponses alimentaires morbides.

2. Utilisation selon la revendication 1, dans laquelle le trouble alimentaire est choisi dans le groupe comprenant l'hyperphagie boulimique, la boulimie, un syndrome similaire à la boulimie, l'anorexie mentale, et l'hyperphagie ordinaire stimulée par des stimulus spécifiques incluant certain(e)s aliments, situations, ou humeurs.

3. Utilisation de naloxone pour la préparation d'une composition pharmaceutique pour améliorer l'observance des patients qui doivent réduire la consommation d'une classe particulière d'aliments interdits incluant des substances alimentaires telles que le chlorure de sodium, les sucres, les cholestérols ou les cholestérols de basse densité par un procédé basé sur l'extinction sélective comprenant les étapes de :

4. Utilisation selon l'une quelconque des revendications 1 à 3, dans laquelle la naloxone est administrée par voie transdermique et la dose quotidienne est de 0,001 mg à 50 mg.

5. Utilisation selon l'une quelconque des revendications 1 à 3, dans laquelle la naloxone est administrée par inhalation intranasale et la dose quotidienne est de 0,001 mg à 50 mg.

6. Utilisation selon l'une quelconque des revendications précédentes, dans laquelle la dose de naloxone est initiée à un taux élevé de 5 à 50 mg puis est progressivement réduite pendant le traitement.

Fig. 1a

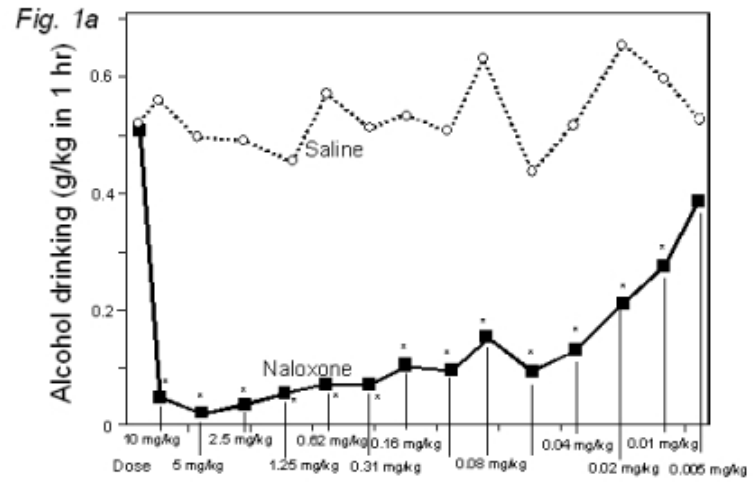
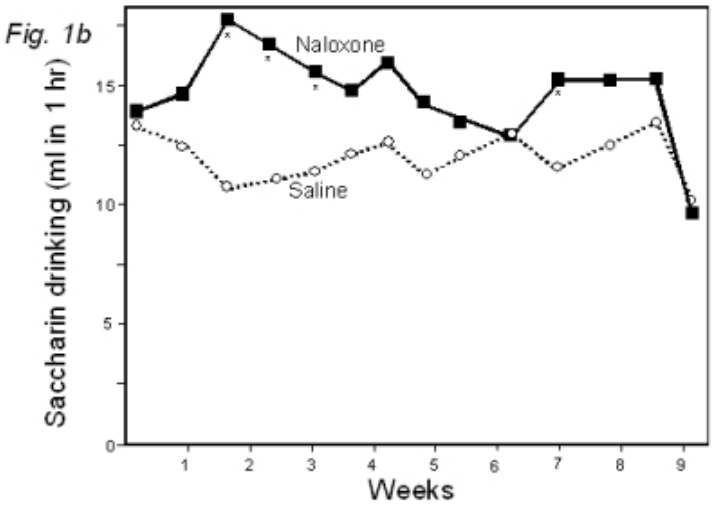

Alcohol drinking (g/kg in 1 hr)
0
0.2
0.4
0.6
Saline
Naloxone
10 mg/kg
5 mg/kg
2.5 mg/kg
1.25 mg/kg
0.62 mg/kg
0.31 mg/kg
0.16 mg/kg
0.08 mg/kg
0.04 mg/kg
0.02 mg/kg
0.01 mg/kg
0.005 mg/kg
Dose

Fig. 1b


Saccharin drinking (ml in 1 hr)
0
5
10
15
Naloxone
Saline
1
2
3
4
5
6
7
8
9
Weeks

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- US 4217353 A **[0003]**
- US 4477457 A **[0003]**
- US 4546103 A **[0003] [0038] [0066]**
- US 4882335 A **[0005] [0028]**
- • US 5587381 A **[0005] [0005] [0043]**
- • EP 0346830 B1 **[0005]**
- • US 5780479 A **[0036]**
- • US 5096715 A **[0056] [0067]**

Non-patent literature cited in the description

- **R. MOORE ; I.H MILLS ; A. FORSTER.** Naloxone in the Treatment of Anorexia Nervosa: Effect on Weight Gain and Lipolysis. *Journal of the Royal Society of Medicine*, 1981, vol. 74, 129-31 **[0090]**
- **P HEINÄLÄ ; H. ALHO ; K. KIIANMAA ; J. LÖNNQVIST ; K. KUOPPASALMI ; J.D. SINCLAIR.** Targeted Use of Naltrexone Without Prior Detoxification in the Treatment of Alcohol Dependence: A Factorial Double-Blind Placebo-Controlled Trial. *Journal of Clinical Psychopharmacology*, 2001, vol. 21, 287-292 **[0090]**
- **J. D. SINCLAIR.** Evidence about the Use of Naltrexone and for Different Ways of Using It in the Treatment of Alcoholism. *Alcohol and Alcoholism*, 2001, vol. 36, 2-10 **[0090]**
- **J. D. SINCLAIR.** The Rest Principle: A Neurophysiological Theory of Behavior. Lawrence Erlbaum Associates, 1981 **[0090]**
- **J. D. SINCLAIR.** Rats Learning to Work for Alcohol. *Nature*, 1974, vol. 249, 590-592 **[0090]**
- **J.D.SINCLAIR.** Drugs to Decrease Alcohol Drinking. *Annals of Medicine*, 1990, vol. 22, 357-362 **[0090]**
- **M.C. TRACTENBERG ; K. BLUM.** Alcohol and Opioid Peptides: Neuropharmacological Rational for Physical Craving of Alcohol. *American Journal of Drug and Alcohol Abuse*, 1987, vol. 13, 365-372 **[0090]**
- Naltrexone and the Treatment of Alcohol Dependence. **J.R. VOLPICELLI ; C.P.O'BRIEN ; A.I.ALTERMAN ; M. HAYASHIDA.** Opioids, Bulimia, and Alcohol Abuse & Alcoholism. Springer-Verlag, 1990, 195-214 **[0090]**
- Opioids Modulate Rats' Propensities to Take Alcoholic Beverages. Novel Pharmacological Interventions for Alcoholism. Springer-Verlag, 1992, 121-134 **[0090]**
- Uso Efficace del Naltrexone: Ciò Che Non è Stato Detto a Medici e Pazienti. **D. SINCLAIR ; F. FANTOZZI ; J. YANAI.** The Italian Journal of the Addictions. 2003, vol. 41, 15-21 **[0090]**
- **F. FANTOZZI ; D. SINCLAIR.** La Ricaduta Nell'Alcol: un Concetto Vincente, Ma in Via di Estinzione. *Personalit Dipendenze*, 2004, vol. 10, 219-243 **[0090]**
- **M. J. BOHN ; H.R. KRANZLER ; D. BEAZOGLOU ; B.A. STAEHLER.** Naltrexone and Brief Counselling to Reduce Heavy Drinking. *The American Journal on Addictions*, 1994, vol. 3, 91-99 **[0090]**
- **J. BALLDIN ; M. BERGLUND ; S. BORG ; M. MÅNSSON ; P. BERNDTSEN ; J. FRANCK ; L. GUSTAFSSON ; J. HALLDIN ; C. HOLLSTEDT ; L-H. NILSSON.** A Randomized 6 Month Double-Blind Placebo-Controlled Study of Naltrexone and Coping Skills Education Programme. *Alcohol and Alcoholism*, 1997, vol. 32, 325 **[0090]**
- **P.A. ARBISI ; C.J. BILLINGTON ; A.S. LEVINE.** The Effect of Naltrexone on Taste Detection and Recognition Threshold. *Appetite*, 1999, vol. 32, 241-249 **[0090]**
- **J. D. SINCLAIR ; K. SINCLAIR ; H. ALHO.** Long-Term Follow Up of Continued Naltrexone Treatment. *Alcoholism: Clinical and Experimental Re-search*, 2000, vol. 24 (182A **[0090]**
- **S. W. KIM ; J. E. GRANT ; D. E. ADSON ; Y. C. SHIN.** Double-Blind Naltrexone and Placebo Comparison Study in The Treatment of Pathological Gambling. *Biological Psychiatry*, 2001, vol. 49, 914-921 **[0090]**
- **S.J. COOPER ; T.C. KIRKHAM.** Basic Mechanisms of Opioids' Effects on Eating and Drinking. *Opioids, Bulimia, and Alcohol Abuse & Alcoholism*, 1990, 91-110 **[0090]**
- Naltrexone and Bulimia: Initial Observations. **J.M. JONAS.** Opioids, Bulimia, and Alcohol Abuse & Alcoholism. Springer-Verlag, 1990, 123-130 **[0090]**
- Obesity, Anorexia Nervosa, and Bulimia: A General Overview. **K.D. WILD ; L.D. REID.** Opioids, Bulimia, and Alcohol Abuse & Alcoholism. Springer-Verlag, 1990, 3-21 **[0090]**

- Opioids Modulate Rats' Intake of Alcoholic Beverages. **C.L. HUBBELL ; L.D. REID.** Opioids, Bulimia, and Alcohol Abuse & Alcoholism. Springer-Verlag, 1990, 145-174 **[0090]**
- Using Drugs to Manage Binge-Eating among Obese and Normal Weight Patients. **S.A.ALGER ; M.J.SCHWALBERG ; J.M. BIGAOUTTE ; L.J. HOWARD ; L.D. REID.** Opioids, Bulimia, and Alcohol Abuse & Alcoholism. Springer-Verlag, 1990, 131-142 **[0090]**
- Pharmacologic Treatment Of Binge Eating Disorder. **W.P. CARTER ; J.I. HUDSON ; J.K. LALONDE ; L. PINDYCK ; S.L. MCELROY ; H.G. POPE JR.** Inter-national Journal of Eating Disorders. 2003, vol. 34, S74-88 **[0090]**
- **R. L. ATKINSON.** Naloxone Decreases Food Intake in Obese Humans. *Journal of Clinical Endocrinology and Metabolism*, 1982, vol. 55, 196-198 **[0090]**
- The Endogenous Opioidergic Systems. **E.M.UNTERWALD ; R.S.ZUKIN.** Opioids, Bulimia, and Alcohol Abuse & Alcoholism. Springer-Verlag, 1990, 49-72 **[0090]**
- **J. H. PARKES ; J.D.SINCLAIR.** Reduction of Alcohol Drinking and Upregulation of Opioid Receptors by Oral Naltrexone in AA Rats. *Alcohol*, 2000, vol. 21, 215-221 **[0090]**
- Potential Toxicities of High Doses of Naltrexone in Patients with Appetitive Disorders. **C.J. MORGAN ; T.R. KOSTEN.** Opioids, Bulimia, and Alcohol Abuse & Alcoholism. Springer-Verlag, 1990, 261-273 **[0090]**
- **A. S. LEVINE ; S. S. MURRAY ; J. KNEIP ; M. GRACE ; J. E. MORLEY.** Flavor Enhances the Antidipsogenic Effect of Naloxone. *Physiology and Behavior,* 1982, vol. 28, 23-25 **[0090]**
- **J.D. SINCLAIR ; R.J.SENTER.** Increased preference for ethanol in rats following alcohol deprivation. *Psychonomic Science,* 1967, vol. 8, 11-12 **[0090]**
- **M. KORNET ; C. GOOSEN ; J.M. VAN REE.** The Effect of Naltrexone on Alcohol Consumption after Alcohol Deprivation in Rhesus Monkeys. *Abstracts of the XXth Nordic Meeting on Biological Alcohol Re-search,* 13 May 1990 **[0090]**
- **J.A. KASSETT ; H.E. GWIRTSMAN ; W.H. KAYE ; H.A. BRANDT ; D.C. JIMERSON.** Pattern of Onset of Bulimic Symptoms in Anorexia Nervosa. *American Journal of Psychiatry,* 1988, vol. 145, 1287-1288 **[0090]**
- **E.D. LUBY ; M.A. MARRAZZI ; J. KINZIE.** Case Re-ports: Treatment of Chronic Anorexia Nervosa with Opiate Blockade. *Journal of Clinical Psychopharmacolgy,* 1987, vol. 7, 52-53 **[0090]**
- **M.A. MARRAZZI ; E.D. LUBY.** An Auto-Addiction Opioid Model of Chronic Anorexia Nervosa. *International Journal of Eating Disorders*, 1986, vol. 5, 191-208 **[0090]**
- **R. PANCHAGNULA ; P.S. SALVE ; N.S. THOMAS ; A.K. JAIN ; P. RAMARAO.** Transdermal Delivery of Naloxone: Effect of Water, Propylene Glycol, Ethanol and Their Binary Combinations on Permeation Through Rat Skin. *International Journal of Pharmacology,* 2001, vol. 219, 95-105 **[0090]**
- **N. LOIMER ; P. HOFMANN ; H.R. CHAUDHRY.** Nasal Administration of Naloxone is as Effective as the Intravenous Route in Opiate Addicts. *International Journal of Addictions*, 1994, vol. 29, 819-827 **[0090]**
- **K.S. KENDLER ; C. MACLEAN ; M. NEALE ; R. KESSLER ; A. HEATH ; L. EAVES.** The Genetic Epidemiology of Bulimia Nervosa. *American Journal of Psychiatry,* 1991, vol. 148, 1627-1637 **[0090]**
- **J.D. SINCLAIR ; L. VILAMO ; B. JAKOBSON.** Selective Extinction of Alcohol Drinking in Rats with De-creasing Doses of Opioid Antagonists. *Alcoholism: Clinical and Experimental Research*, 1994, vol. 18, 489 **[0090]**

EXHIBIT 31.1

CERTIFICATION
Pursuant to 18 U.S.C. 1350
(Section 302 of the Sarbanes-Oxley Act of 2002)

I, Seijin Ki, Chief Executive Officer of Lightlake Therapeutics Inc., certify that:

1. I have reviewed this Annual Report on Form 10-K of Lightlake Therapeutics Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to me by others within those entities, particularly during the period in which this report is being prepared;
b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: 10/15/09

By: /s/ Seijin Ki
Seijin Ki
Chief Executive Officer

CERTIFICATION
Pursuant to 18 U.S.C. 1350
(Section 302 of the Sarbanes-Oxley Act of 2002)

I, Seijin Ki, Chief Financial Officer of Lightlake Therapeutics Inc., certify that:

1. I have reviewed this Annual Report on Form 10-K of Lightlake Therapeutics Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to me by others within those entities, particularly during the period in which this report is being prepared;
b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: 10/15/09

By: /s/ Seijin Ki
Seijin Ki
Chief Financial Officer

EXHIBIT 32

CERTIFICATION
Pursuant to 18 U.S.C. 1350
(Section 906 of the Sarbanes-Oxley Act of 2002)

In connection with the Annual Report on Form 10-K of Lightlake Therapeutics Inc. (the"Company") for the year ended July 31, 2008, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), Seijin Ki, as ChiefExecutive Officer and Chief Financial Officer of the Company, hereby certifies, pursuant to 18 U.S.C. ss.1350, as adopted pursuant to ss.906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: 10/15/09

By: /s/ Seijin Ki
Seijin Ki
Chief Executive Officer
Chief Financial Officer

This certification accompanies each Report pursuant to ss. 906 of the Sarbanes-Oxley Act of 2002 and shalL not, except to the extent required by the Sarbanes-Oxley Act of 2002, be deemed filed by the Company for purposes of ss.18 of the Securities Exchange Act of 1934, as amended.

A signed original of this written statement required by Section 906 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.