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June 12, 2003

Dear Colleagues,

On behalf of CONNECT, welcome to the 2003 Life Sciences Financial Forum. The 23 companies we present today embody San Diego's strong entrepreneurial spirit within the life sciences industry, in spite of today's challenging times. These companies are bringing us some of the strongest and most innovative technologies.

CONNECT would like to extend a special thanks to Christina Wan, Principal, Strategic Alliances, Pfizer Global Research and Development, Robert H. Raynor, Ph.D., Director of Corporate Development, Beckman Coulter, Inc., and to Joseph D. Panetta, President and CEO of BIOCOM, for generously offering their time to the post-luncheon panel.

We are grateful to all of our Forum sponsors and supporters, including our Lead Sponsors, Morrison & Foerster LLP and Pfizer Inc. While these companies financially support the program, it is the many hours of work soliciting applications, reviewing business plans and coaching our presenters, which makes the 2003 Life Sciences Financial Forum a successful event. We thank our sponsors for donating their time and supporting San Diego's growing companies.

Sincerely,

**Fred Cutler** *Executive Director* 

**Brian Macias** 

Program Manager



# **TABLE OF CONTENTS**

3.....Agenda

- 4.....General Information
- 5.....Panel Discussion Participants
- 6.....Advisory Committee
- 8.....Special Thanks
- 9.....Event Sponsors
- 10.....Presenter Profiles (In order of appearance)



## AGENDA

#### 9:00 Welcome and Opening Remarks

Dr. Fred G. Cutler, Executive Director, UCSD CONNECT

### 9:15 First Round of Presenters

- MetaProbe Inc. ¥ V
- X-Ceptor Therapeutics ≫ 5
- ImaRx Therapeutics, Inc.
- NewBiotics \*N
- 10:35 Morning Break

### 11:00 Second Round of Presenters

- Sagres Discovery
- TargeGen
- **Conforma Therapeutics** Corporation

- Attenuon, LLC
- NovaRx Corp. 📈 🗸

- Favrille, Inc. 15
- Orphagen
- Allon Therapeutics, Inc. 42

### 12:00 Lunch

#### Panel Discussion with Pfizer Inc. and Beckman Coulter: 1:20

Making and maintaining deals to provide successful outcomes

#### 2:25 Third Round of Presenters

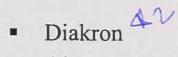
- Salmedix, Inc.
- Epicyte Pharmaceutical, Inc.
- Chimerix Inc.
- 3:15 **Afternoon Break**

#### Fourth Round of Presenters 3:40

Arizeke Pharmaceuticals, Inc.

3

MagneVu



- VidaCare 🔟 🖓 Accudx/Biopath  $\mathfrak{A}^{\mathcal{N}}$
- Molecular InSight, Inc.
- **Close of Presentations** 4:30 **Exhibit Hall Reception** 4:40
- **Close of Exhibit Hall Reception** 7:30

- GlySens Inc.

# TDBMMC

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# **General Information**

### Name Badge

Your name badge will admit you to the Presentations, Lunch and Evening Reception for which you have registered. *Please wear you name badge at all times during the meeting*. If you lose your name badge, please notify a staff member at the Forum Registration Desk.

### Presentations

Each presenting company will make an eight-minute presentation. All venture presentations will take place in Manchester Ballroom A, B, and C. There are areas available for private meetings. Please check with the registration desk to schedule these rooms throughout the day. The rooms will be scheduled on a first come, first served basis and will be limited to 30-minute sessions when others are waiting.

### Meals

Breakfast and Lunch, as well as the Networking Tabletop Reception are included with your registration to the Forum. Lunch will be served in Manchester Ballrooms D, E, and F. Please see the agenda for specific times and locations.



### **Panel Discussion Participants**

### Robert H. Raynor, Ph.D., Director, Corporate Development

Dr. Raynor received his Ph.D. in Microbiology and Immunology from the Medical College of Georgia. During post-doctoral training at the Medical College of Virginia, he specialized in tumor immunology. His first industrial position was with Coulter Corporation in Miami, Florida where he managed R&D for immunology projects as well as established and managed GMP manufacturing functions for several therapeutic monoclonal antibodies in early stage trials. Following the acquisition of Coulter by Beckman Instruments, Inc. in 1997, Dr. Raynor directed the development of reagent systems for hematology and flow cytometry products and was responsible for laboratories performing system validation. After completing an MBA from Florida Atlantic University, he moved to San Diego to assist with the start up of the Immunomics Division of Beckman Coulter. Currently Dr. Raynor serves as Director of Corporate Development at Beckman Coulter's headquarters in Fullerton. During his various positions he has been responsible for corporate research partnerships, licensing, and management of intellectual property.

**Christina Wan, Principal, Strategic Alliances, Pfizer Global Research and Development** Christina Wan joined Pfizer's Strategic Alliances group in La Jolla in 2000. Christina works closely with Pfizer scientists to identify collaborative opportunities with biotechnology companies and academic groups worldwide. She negotiates the terms of these alliances and is responsible for the business management of ongoing collaborations. Prior to joining Pfizer, Christina held the position of Manager, Licensing at AstraZeneca LP. Christina earned her B.A. in Biology at the University of Pennsylvania and M.S. in Natural Sciences at the State University of New York at Buffalo, Roswell Park Division. Christina also holds the J.D. and M.B.A. degrees from Washington University.

### Joseph D. Panetta, President and CEO, BIOCOM

Joseph Panetta is President and CEO and a member of the Board of Directors of BIOCOM, the regional association representing the 400 biotechnology, medical device, diagnostics, medical equipment and bioagriculture companies in the San Diego area, and the considerable number of service sector companies, civic organizations, municipalities, as well as the universities, colleges and biomedical research institutions in the San Diego region. Mr. Panetta has been actively involved in biotechnology product development and commercialization for more than 20 years, having begun his career in industry with Pennwalt Corporation. In 1988 he joined Mycogen Corporation and played a principal role in the commercialization of the first recombinant DNA microbes and crops. Mr. Panetta served as Vice President of Government and Public Affairs at Mycogen and participated in the sale of Mycogen to The Dow Chemical Company in 1998. He served briefly as Global Leader of Government and Regulatory Affairs for the Plant Sciences Division of Dow AgroSciences before joining BIOCOM as its first President and CEO. After earning a bachelor of science degree in biology from LeMoyne College in 1976 and a Master of Public Health degree from the University of Pittsburgh in 1979, Mr. Panetta began his career in government with the Washington, D.C. headquarters staff of the U.S. Environmental Protection Agency where he became the senior policy analyst for the adoption of the Toxic Substances Control Act passed by Congress in 1978.



# **ADVISORY COMMITTEE MEMBERS**

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**Bernadette Bach** City National Bank

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Abi Barrow UCSD Jacobs School

**Ralph Barry** 

**Randy Berholtz** 

Suzanne Biggs Pillsbury Winthrop LLP

Kay Chandler Cooley Godward, LLP.

Benny Chien Pfizer Inc.

Alan Creutz mergePoint Solutions

Kerry Dance Hamilton Apex Technology Ventures, L.P. **Stephen Ferruolo** Heller Ehrman White & McAuliffe LLP

Jack J. Florio Tech Coast Angels

Scott Foote Comerica Technology Banking Group

**Don Grimm** Strategic Design, LLC

**Bente Hansen** Bente Hansen Executive Search

**Carlos Heredia** Morrison & Foerster LLP

**Ned A. Israelsen** Knobbe, Martens, Olson & Bear, LLP

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Mike Kinkelaar Procopio, Cory, Hargreaves and Savitch LLP

Craig Knox Cooley Godward, LLP.

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Andi Neugarten

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Trindl Reeves MARSH Inc.

**Sharon Riddle** 

Julia Ronlove Forward Ventures



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**Faye Russell** Clifford Chance US LLP

Joleen Schultz Fischer Health

**Tim Scott** Pharmatek Laboratories, Inc.

**Stuart Sechriest** Deloitte & Touche LLP

**Jeff Southerton** Pfizer Inc. John Tishler Procopio, Cory, Hargreaves and Savitch LLP Jackie Townsend Konstanturos Townsend Agency

**Christian Waage** Gray Cary

Maria Walker Forward Ventures

**Mark Wicker** Gray Cary

Pamela Wong Baker & McKenzie

Liyuan Woo Deloitte & Touche LLP **Jack Yelverton** MARSH Inc.



# **SPECIAL THANKS**

CONNECT would like to extend a special thanks to the following people who volunteered considerable time to work on this year's Life Sciences Financial Forum.

**Jack Florio** 

**Karry Dance** 

**Tim Scott** 

**Greg Baker** 

**Sharon Riddle** 



### Many Thanks to our Event Sponsors

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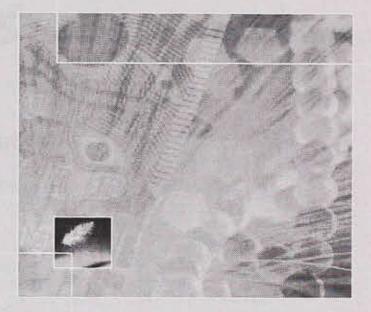
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The ambulance took a risk transporting the pregnant woman.

The hospital took a risk admitting the pregnant woman.

The manufacturer took a risk developing diagnostic equipment for the pregnant woman.

The ob-gyn took a risk attending to the pregnant woman.

The pharmaceutical firm took a risk producing fertility drugs for the pregnant woman.

And Marsh solved all these risks.



•



### **PRESENTING COMPANIES** (IN ORDER OF PRESENTATION)

11	MetaProbe Inc.
15	X-Ceptor Therapeutics
18	ImaRx Therapeutics, Inc.
21	NewBiotics
25	Attenuon, LLC
28	MithraGen, Inc.
31	NovaRx Corp.
34	Sagres Discovery
36	TargeGen.
39	Conforma Therapeutics Corp.
42	Favrille, Inc.
45	Orphagen
48	Allon Therapeutics, Inc.
51	Salmedix, Inc.
54	Epicyte Pharmaceutical, Inc.
58	Chimerix Inc.
61	Arizeke Pharmaceuticals, Inc.
64	MagneVu
67	VidaCare
71	Biopath Detection Systems

### 75.....Molecular InSight, Inc.

### 78.....Diakron

### 82.....GlySens Inc.



11

### MetaProbe, Inc.

Address: Phone:	: 6370 Nancy Ridge Dr. Suite 106 San Diego, CA 92121 858-558-2191		Forum Participants:	Michael Beeuwsaert, CEO	
Fax:	858-558-2198		Sector:	Molecular Imaging	
COMPANY PROFILE Legal Form: Date Established:		E: Corporation 1997	Amount of Ca	pital Raised:	Series A: \$4.7 M
Number of Employees: Stage of Development:		11 Pre-clinical	Funding Sought: Current Investors:		Series B: \$10.0 MM Research Corporation Technologies; IngleWood Ventures; Scope Industries

### **Company Overiew:**

MetaProbe is developing first-ever pharmacologic agents for use with computed tomography (CT) and magnetic resonance (MRI) that will create a new standard in diagnostic imaging. Our molecular probe technologies target cancer, cardiovascular disease, neurodegenerative disorders, and other pathologies at

the molecular level, allowing visualization and characterization of disease years earlier than currently possible. These technologies are covered by 11 issued and 23 pending patents.

Our initial two products, in late-stage pre-clinical development, address the major limitations of liver and blood vasculature imaging today. These agents, for use with CT, will eliminate the major disadvantages of currently marketed products by: detecting and staging lesions much earlier in their development; improving the ability to monitor effectiveness of therapeutic interventions; achieving superior visualization using an iodine dose that is 10x lower; extending the time window for image acquisition; avoiding nephrotoxicity

due to renal clearance; and replacing certain highly invasive surgical procedures. The markets addressed

by these agents exceed \$1 billion.

With the proceeds from Series B, we plan to complete Phase I & II clinical trials on both agents by the

end of 2004, identify our lead MR agent, and initiate licensing discussions with key industry participants.

### **Product/Technology Description:**

Our CT family of agents consists of iodinated triglycerides (ITG) that target the hepatobiliary system and the peripheral, cerebral and cardiac vasculature. In conjunction with the ITG agents themselves, we are also developing and optimizing an oil-in-water lipid emulsion (LE) that serves as a liver-selective drug delivery system. The imaging and drug delivery LE formulations exploit the metabolic pathways naturally present in the body that deliver lipids to the liver. Our lipid emulsions are solid lipid particles



that mirror naturally occurring chylomicron remnants and are distinctly better and different from liposomal approaches because they:

- Achieve virtually 100% incorporation of the drug in the emulsion particles, thus overcoming the problems of low-efficiency drug incorporation of liposomal technologies;
- Localize to the liver with exceedingly high efficiency and high capacity, due to their direct uptake by liver cells involved in lipid metabolic pathways (In contrast, liposomes only reach the extracellular spaces of liver and other organs through the bloodstream, and cannot access lipid metabolic pathways of liver cells directly); and
- Form stable systems that can be sterilized by autoclaving, the FDA preferred method. In addition, minor modifications to the surface properties of the liver agent result in formulations with extended blood residence times. These formulations have been demonstrated to serve as blood pool imaging agents, providing visualization of various components of the vasculature with numerous advantages over existing technologies and diagnostic procedures such as x-ray angiography. The CT technology is covered by 7 issued and 3 pending patents.

Our MR technology consists of gadolinium (Gd) chelates that have been in use for many years, but with key structural and functional differences. With standard Gd agents, the MRI contrast enhancement is always turned "on" in the body due to the free interactions of water molecules in the body with the exposed Gd ion. The MetaProbe Gd agents are modified with various blocking groups that shield the Gd from water molecules. These blocking groups can be substrates for specific enzymes, structures that change shape when exposed to specific ions or ligands to cell-surface receptors. Our agents remain "off" in the body until the blocking component is removed. When the agent encounters the reporter with which it was designed to react, the blocking group is cleaved away turning the agent into an "on" or open state. This reaction allows water molecules to enter the Gd inner sphere and enhance the MRI signal. This molecular reporting system will essentially transform MRI from an anatomical tool into a powerful functional reporting system. The MR technology is covered by 4 issued and 20 pending patents.

### **Industry Overview:**

Diagnostic imaging, a \$60 billion industry, involves the use of minimally-invasive techniques to generate representations of internal anatomy that can be recorded on film or digitized for display on a video monitor. Diagnostic imaging procedures facilitate the diagnosis of diseases and disorders, often minimizing the cost of care required for patients and healthcare providers. In addition to CT and MRI, common imaging procedures include: positron emission tomography (PET); single photon emission computed tomography (SPECT); ultrasound; mammography; and general radiology (X-ray). Contrast agents are used extensively with the various imaging procedures. They act to enhance the image by accentuating the contrast between various tissues, organs, and anatomic structures. Contrast agents are generally injected into a vein in the patient's arm prior to a scan and most are non-specific in their localization, distributing throughout the body following injection. The combined market for CT and MRI contrast agents worldwide is estimated at over \$1.8 billion.

### **Competition:**

We do not believe that there are any direct competitors of our molecular or functional imaging products for CT and MRI. However, competition could arise in the future from several sources including: established CT and MRI contrast agent manufacturers with broad product offerings; development stage specialty contrast agent companies; other imaging modalities such as PET and nuclear medicine; and



academic research institutions. Currently, the market for CT contrast agents is largely comprised of iodinated compounds that are limited by their: potential for renal toxicity: short time window for image collection due to rapid clearance; non-specificity; and adverse reactions resulting from exposure to high dosage levels of iodine. With regards to current MRI agents, none on the market or in development provide information on the status of biological events within the body. Although several second-generation agents in development target specific organs in the body, they are still limited to providing anatomical information.

### **Distribution/Marketing Plans:**

Our strategy includes licensing or partnering with others at various stages of discovery, pre-clinical, and/or clinical development, depending on the specific agent and target market, as well as external factors such as the capital markets and strategies of potential licensees.

## Fifth Year Revenue & Earning Projections:

We plan to develop multiple molecular imaging products from our two platforms, ultimately generating \$1 billion or more in revenue at end-user pricing. Based on the products in our pipeline, a development strategy that minimizes infrastructure buildup, and a commercialization model focused on licensing, we anticipate generating fifth year total revenues in excess of \$100 million and achieving profitability during the first year of our initial product launch.

### **Management Team:**

**Michael Beeuwsaert - CEO**, has over 15 years of health care experience with firms ranging from Fortune 500 to start-ups. Prior to joining MetaProbe, he served from June 1999 to April 2001 as President & CEO of LXN Corporation, a venture capital (Alta Partners, Walden, Advent, MPM, Bio-Asia) backed medical device company focused on innovative measuring devices for the control of diabetes. He led the company through the successful launch of three 510(k) approved devices for both the physician and over-the-counter consumer markets, establishing multiple channels of distribution. Prior to his role as CEO, he was LXN's CFO from August 1996 to June 1999. From December 1998 until joining LXN, he was CFO at Ansys Diagnostics Inc., a medical diagnostic company acquired through a management-led buyout from Marion Merrill Dow, a Fortune 500 pharmaceutical company. He received a BA from California State University, Fullerton and a MBA from Pepperdine University.

William C. Dow, Ph.D., VP R&D, has over 15 years of experience in leading R&D teams in advancing drug and contrast agent candidates through development. Prior to joining MetaProbe, he was VP Chemical R&D at Pharmacyclics (Kleiner Perkins, Asset Management, Venrock) where he established the R&D infrastructure and led the development team to multiple IND submissions. Prior to that, he held the position of Director Chemical Development & Manufacturing at Salutar, Inc. where he achieved the first synthesis of the API for the marketed nonionic MRI contrast agent Omniscan. He was also responsible for the development of Teslascan, a contrast agent for use in conjunction with MRI. He has also held various scientific and research positions at Syntex and Eli Lilly. He received a BS and MS in Chemistry from Stanford University and a Ph.D. in Chemistry from the California Institute of Technology.

**Douglas A. Bakan, Ph.D., VP Business Development,** has considerable experience with diagnostic imaging and contrast agent development. He has taken new agents from the early research stage through the product development cycle and into the formal manufacturing and commercialization environments. As Associate Director Product Development at Molecular Biosystems Inc. his responsibilities included the preclinical evaluation of various contrast agents and managing product



development efforts. As director of pharmaceutical formulations and manufacturing at Corvas International Inc., he was responsible for all product development activities for both biological and small-molecule compounds intended for therapeutic indications in cardiovascular disease and cancer. He holds a BS degree in Bioengineering and Applied Engineering Sciences and a Ph.D. in Biology. He earned both degrees at the University of California, San Diego.



## X-Ceptor Therapeutics, Inc.

Address:	4757 Nexus Centre Drive, Suite 200 San Diego, CA 92121		Forum Participants:	Chris Krueger (Chief Business Officer) Richard Heyman (Chief Scientific Officer)	
Phone:	858-458-4586		<b>A</b> .		
Fax:	858-458-4501		Sector:	Biotechnology/Drug Discovery	
Homepage:	www.x-ceptor.com				
COMPANY PROFILI Legal Form: Date Established: Number of Employees:		E: Corporation March 1999 65	Amount of Caj Funding Sough Current Invest	nt:	\$25,000,000 \$35,000,000 Domain Associates, Familian
Number of Er	npioyees:		Current Invest	lors:	Domain Associates, Farallon Capital, A.M. Pappas, Ligand Pharmaceuticals, GIMV, CDP Capital
Stage of Devel	lopment:	Research/Preclinical			

## **Company Overview:**

X-Ceptor Therapeutics, Inc. is a privately held company focused on the discovery and development of novel small molecule therapeutics that modulate nuclear receptors. Nuclear receptors are implicated in a broad range of human disease, including endocrine disorders, cardiovascular disease, hypertension, inflammation, metabolic disorders, central nervous system disorders and cancer.

Drug discovery opportunities that target nuclear receptors include improving therapies over existing drugs on the market that modulate validated nuclear receptor targets (e.g. estrogen, glucocorticoids), as well as validating orphan nuclear receptor targets, for which the ligand or endocrine signaling pathway is unknown, and discovering potent and selective drugs that modulate these targets.

In the four years since X-Ceptor was founded, we have built an integrated drug discovery platform and have developed a portfolio of drug candidates to treat cardiovascular and metabolic disorders.

### **Product/Technology Description:**

Our drug discovery process is designed specifically for the nuclear receptor gene family as a comprehensive approach to rapidly advance small molecule discovery programs from gene to clinic. We believe that our 'reverse endocrinology' strategy enables us to validate targets, develop novel therapeutics and improve existing drugs more rapidly and effectively than programs focused on different targets from multiple gene families. Compounds are optimized for their receptor activity and specificity with medicinal chemistry and rational drug design employing x-ray crystallography of the ligand receptor complex. The high affinity ligands are used to establish the physiology associated with regulation of the orphan nuclear receptor. Once the disease association is established, a small molecule already exists on which to base a lead optimization and drug discovery program. This approach can be universally applied to all members of the nuclear receptor family allowing for a systematic and parallel approach to drug discovery and target validation for this protein class.



By applying our expertise and proprietary technology we have taken identified orphan nuclear receptor targets without disease association and established disease proof-of-concept and generated advanced preclinical drug candidates. Our lead drug discovery programs include:

Liver X Receptor (LXR) to treat atherosclerosis; and

*Farnesoid X Receptor (FXR)* to treat hypertriglyceridemia (high triglycerides) observed in type II diabetes and metabolic syndrome and related metabolic disorders.

Our drug discovery programs provide:

*new chemical entities (NCEs)* with novel mechanisms of action to treat different aspects and risk factors associated with cardiovascular disease;

drugs that can be used as stand-alone therapies with *improved therapeutic and side-effect profiles*; and

*new combination therapies* with highly prescribed existing drugs, such as statins and anti-hypertensives.

In addition to the programs described above, we have active research phase programs covering the vitamin D receptor for cancer and the estrogen-related receptor possibly for breast cancer and osteoporosis.

## **Industry Overview:**

The nuclear receptor gene family is a therapeutically rich target class implicated in a broad range of human diseases. Of the 200 top selling drugs in the United States, 29 are directed at nuclear receptor targets and post annual sales in excess of \$12 billion. In addition to the well-characterized receptors, such as the glucocorticoid and estrogen receptors, approximately half of the receptors are classified as 'orphan' nuclear receptors because their ligands, target genes and physiological function are not completely understood.

Drugs to treat cardiovascular disease represented the largest pharmaceutical market in 2002, generating *\$51 billion in sales* worldwide (IMS HEALTH's Drug Monitor). This therapeutic area contains numerous classes of blockbusters, including the cholesterol-lowering statins (e.g. Lipitor®) with \$19 billion in 2001 sales worldwide.

Our lead discovery and development programs provide drug candidates for the treatment of two of the major risk factors responsible for cardiovascular disease: atherosclerosis and hyperlipidemia. Despite the availability of these and other treatments, *nearly 61 million Americans* — more than one in five — suffer from at least one type of cardiovascular disease and nearly one million Americans die each year from cardiovascular disease — a rate of more than 2,600 a day (New Medicines in Development, 2001 Survey). As a result, there is a clear need for more effective treatments.

**Competition:** 

Nuclear receptors are recognized as high-value therapeutic targets and, as such, have been a research focus for many major pharmaceutical companies as well as several small biotechs. We are not aware of any competitors that focus exclusively on the nuclear receptor gene family,



## particularly orphan nuclear receptors, utilize a similar reverse endocrinology approach to drug discovery, and have therapeutic expertise in cardiovascular disease and metabolic disorders.

X-Ceptor's expertise in nuclear receptor biology and reverse endocrinology approach provides significant advantage over competitors. We exploit molecular advances at the level of the ligand, receptor and co-factor to gain new insight into the gene and tissue-selectivity of nuclear receptor targets of interest. We design drugs that do not fully activate or fully inactivate the receptor, but which have some intermediate or modulatory effect on the function of the receptor. In doing so, we "dial-in" the beneficial therapeutic effects and "dial-out" unwanted side-effects, leading to safer drug candidates with improved therapeutic profiles.

## **Distribution/Marketing Plans:**

Our strategy is to develop "best in class" drug candidates with greater efficacy and fewer side effects than current market therapies. We are leveraging our proprietary technology platform and expertise in nuclear receptors to develop a continual pipeline of novel small molecule therapeutics on our own and through strategic partnerships with biopharmaceutical companies.

As an example, in March 2001, we entered into a three-year collaboration agreement with Sankyo Co., Ltd. focused on the discovery and development of selective modulators of LXR for the treatment of atherosclerosis.

## Fifth Year Revenue & Earning Projections:

We project annual revenue over \$12M in 2007 with an operating loss due to costs of our clinical development programs.

Management Team: Kevin J. Kinsella Chairman, Acting President & Chief Executive Officer

**Richard A. Heyman, Ph.D.** Sr. V.P. Research & Chief Scientific Officer

Christopher W. Krueger, J.D., MBA Sr. V.P. & Chief Business Officer Raju Mohan, Ph.D.

V.P. Chemistry



## ImaRx Therapeutics, Inc.

Address: Phone:	Tucson, Arizona 85719		ForumEvan C. Unger, MD, FACParticipants:President & CEO		
Fax: Homepage:	520-791-2437 www.imarx.com		Sector:	Biotech/Pharmaceuticals	
COMPANY P	ROFILE:				
Legal Form:	C	Corporation	Amount of Capit Raised:	tal	\$13.5 M
Date Established	l: Ja	anuary 1, 2000	Funding Sought:		\$15 million
Number of Empl	loyees: 1	9	Current Investor	rs:	2 Venture Capital; 2 Angel Groups; Private Investors
Stage of Develop	ment: D	Development Stage			

## **Company Overview:**

ImaRx's goal is to build clinical and shareholder value through a series of products using its proprietary microbubble (approved by the FDA for diagnostics) in conjunction with ultrasound for therapeutic indications including vascular thrombolysis, drug delivery to the brain and to guide minimally invasive surgical procedures. Clinical trials begin this month in thrombolysis. The Company has also developed drug solubilization technologies and will begin trials in its HydroPlex<sup>™</sup> cancer drug later this year. ImaRx's products and technologies enable site-specific delivery of a variety of pharmaceuticals, and its unique set of solutions provides significant clinical, technical and competitive advantages. ImaRx believes its intellectual property position in microbubble-enhanced, ultrasound-mediated therapeutics and delivery of drugs and genes is dominating in the field.

#### **Product/Technology Description:**

ImaRx has an extensive intellectual property portfolio of over 100 issued U.S. patents. We are currently focused on two projects: therapeutic Aerosomes<sup>®</sup> microbubbles and the HydroPlex drug solubilization system. ImaRx is developing Aerosomes, a novel energy-activated therapeutic platform that uses ultrasound and other energy modalities to deliver therapeutic microbubbles to humans. These energy-activated microbubbles offer the advantage of site-specific and controlled drug delivery, with the advantage of "imageability" for monitoring their location and rupture. The treatments are non-invasive as externally applied ultrasound can be used. The initial therapeutic application of Aerosomes microbubbles is for lysing blood clots with ultrasound. ImaRx holds an IND for clearing blood clots in dialysis grafts and will initiate clinical trials shortly. Future applications of blood clot lysis include deep vein thrombosis, myocardial infarction and stroke.

ImaRx's proprietary HydroPlex technology formulates hydrophobic drugs noncovalently with a biocompatible polymer to form nanoparticles in an aqueous suspension without chemically altering the drug. The HydroPlex platform is useful for the many drugs that are poorly soluble in water. The first drug product, MRX-952, is a HydroPlex formulation of the SN-38 camptothecin cancer drug. An IND is expected to be filed in mid-2003. A unique feature of ImaRx's HydroPlex technology is its simplicity and ease of manufacture. ImaRx has developed a robust single step process in the manufacture of sterile HydroPlex nanoparticles.

#### **Industry Overview:**

The drug discovery and delivery industries are highly competitive and require substantial resources to compete effectively, in particular in the cardiovascular treatment areas. Cardiovascular disease (CVD) is the leading cause of death in the U.S. Over 61 million people suffer from some form of CVD with nearly one million deaths occurring annually from this disease. The CVD market in the U.S. results in annual prescription drug costs of



\$16 billion. Worldwide, the total prescription drug costs for CVD in 2000 were approximately \$50 billion. The Company estimates that out of the 61 million CVD patients, approximately 14 million can benefit from MRX-815 enhanced SonoLysis.

#### **Competition:**

Microbubble technology has been the focal point of relatively few pharmaceutical companies as they were initially developed for diagnostic imaging. There are only two FDA approved microbubbles in the U.S., Definity and Optison<sup>®</sup>. Optison (Amersham) is a protein-shelled bubble, which is made from serum albumin. Definity is made from a synthetic phospholipid and has the advantage that it is not made from a blood-derived source. Other companies, such as EKOS, are using ultrasound without microbubbles to lyse blood clots in catheter-based systems. ImaRx's strong patent position in this field will help to decrease the number of competitors and help to secure the Company's strong position in this market.

There are four current thrombolytic drugs approved by the FDA. All of these drugs are approved for myocardial infarction, but only tPA is approved for ischemic stroke and pulmonary embolism. The thrombolytic drugs may not necessarily be competitive. In some cases, Aerosomes may eliminate the need for a thrombolytic drug (competitive), but in other cases, Aerosomes may open up new markets for thrombolytic drugs. In stroke, for example, few patients are treated with thrombolytic agents, in large part because of risk of hemorrhage. Aerosomes may allow more patients to be treated safely with low doses of thrombolytic drugs, expanding the market for thrombolytic agents.

#### **Distribution/Marketing Plans:**

ImaRx intends to leverage its FDA approved product into high margin Rx applications, progressing from the least difficult indications in clinical trials to the more difficult. Because SonoLysis embodies the following characteristics and application methods, it is expected to become the method of choice in treatment of CVD:

Non-invasive	Uses IV injection* of microbubbles
External application of ultrasound	Rapid and safe lysis of thrombosis
Cost-effective, time-saving	Rapid restoration of blood flow

Markets and distribution will be cost effectively covered by marketing to the 5,200 acute care hospitals in the U.S. and the major chain dialysis centers which comprise 44% of the dialysis procedures nationwide. The number of annual cases estimated by the AHA for each of the initial indications developed by the Company are as follows:

Dialysis grafts/fistula – 500,000 Deep Venous Thrombosis – 2 M Peripheral Artery Occlusive Disease – 2-6 M Myocardial Infarction – 1.1 M Stroke – 500,000

19

### Fifth Year Revenue & Earning Projections:

Operating projections during the next five years include clinical trials for four indications in SonoLysis treatment of CVD. To partially fund these trials, ImaRx intends to license its HydroPlex technology to major pharmaceutical and drug development companies for specific development projects. In addition, HydroPlex applications will be developed internally for outlicensing. All HydroPlex revenue will be applied to ongoing microbubble clinical trial costs. Although not projecting any external sales revenue for these SonoLysis products during this period, licensing revenue from HydroPlex products is projected. The plan is to leverage the FDA approved microbubble products for rapid FDA approval in CVD therapeutics and enter the market as quickly as possible then proceeding to follow on applications including targeted microbubbles and drug delivery to the brain as represented in the following chart:



MRX-800 Aerosomes	INDICATIONS	MARKET POTENTIAL
MRX-815	Treatment of vascular thrombosis (e.g. dialysis graft, DVT, PAD, & MI).	*\$5.6 billion Over 10 M cases/year in the U.S.
MRX-825	High Intensity Focused Ultrasound (HIFU) ablations (e.g. prostate, liver, lymph nodes)	\$1.5 billion
MRX-835	Drug delivery to brain	\$5.0 billion
	Total Potential Market	\$12.1 billion

#### Management Team:

#### Evan C. Unger, MD, FACR, Chairman, President & Chief Executive Officer

Dr. Unger is a world-renowned expert on diagnostic imaging, contrast media development and drug delivery. He founded ImaRx Pharmaceutical Corp. in 1990 and sold the diagnostic imaging business to DuPont Pharmaceuticals Company/Bristol-Myers Squibb, realizing a more than 25-fold return on invested capital. Dr. Unger is a Fellow of the American College of Radiology.

#### B. Jean Carlyle, MPA, CPA, BBA, Chief Financial Officer

Ms. Carlyle oversees financial, accounting, systems, human resources and other administrative activities and is also the Corporate Treasurer. Ms. Carlyle joined ImaRx in 2002, prio to this she held positions as CFO and COO in a large medical laboratory in the Southwest as well as IPO and development stage companies. She is a CPA with BBA and MPA degrees from the University of Texas

#### Rajan Ramaswami, PhD, Vice President, Research & Development

Dr. Ramaswami directs the analytical chemistry laboratories for drug discovery and also manages all product and process development. Dr. Ramaswami received his MS-PhD in Polymer Chemistry from Carnegie-Mellon University, and was a postdoctoral research fellow at the University of Arizona, Department of Chemistry. Dr. Ramaswami was hired in 1992.

#### Nina Ossanna, PhD, Senior Director, Business Development

Dr. Ossanna also serves as the Corporate Secretary. Prior to joining ImaRx in 2001, Dr. Ossanna was the Director of the Office of Technology Licensing at Johns Hopkins University School of Medicine. Dr. Ossanna also served as an examiner at the United States Patent Office. Dr. Ossanna earned a PhD in Molecular Biology from the University of Arizona and is registered to practice before the USPO.

#### Terry Matsunaga, PharmD, PhD, Senior Director, New Product Development

Dr. Matsunaga coordinates both internal and external new product research and is responsible for the proprietary peptide and ligand discovery program as well as scientific grant activities. Dr. Matsunaga was a postdoctoral fellow at the University of Arizona, Department of Chemistry and received his PhD in pharmaceutical chemistry and PharmD in clinical pharmacy from UCSF. Dr. Matsunaga joined ImaRx in 1992.



## **NewBiotics**

Address: Phone:	4939 Directors Place San Diego, CA 92121 858-259-8600		Forum Participants:	Thomas Mizelle	
Fax:	858-200-1898		Sector:	Pharmaceutical / cancer drug development	
Homepage:	www.newbiotics.com				
COMPANY Legal Form: Date Establish	ied:	Incorporated September 19,1997	Amt. of Capita Funding Sough	nt:	\$25.6 million \$20-\$25 million
Number of En	nployees:	10	Current Invest	tors:	Life Science Partners; IngleWood Ventures; GeneChem Therapeutics; BioVeda Capital; HMCH Ventures
Stage of Devel	opment:	Stage I/II			

## **Company Overview:**

NewBiotics, Inc. is a biopharmaceutical company applying its proprietary Enzyme Catalyzed Therapeutic Activation (ECTA) technology to discover breakthrough drugs to treat cancer and infectious disease. Based on understanding disease at the molecular level and how enzymes are regulated in response to genetic instability and disease progression, NewBiotics' focus is to discover, develop and commercialize a new generation of pharmaceuticals that transform drug resistance into therapeutic advantage.

## **Product/Technology Description:**

**Cancer and Hyperproliferative Diseases -** NewBiotics' first drug candidate for cancer treatment, Thymectacin<sup>™</sup> (NB1011), is designed for the treatment of patients with drug-resistant colorectal cancer but also has potential applications for solid tumors, including breast cancer. The enzyme target of Thymectacin, thymidylate synthase, is over-expressed in cancer cells and contributes to resistance against certain chemotherapeutic agents. This enzyme is an excellent target for product development because much is known about its structure and substrates. NewBiotics' preliminary results showed that NB1011 was able to suppress the clinical severity of arthritis in a collagen-induced arthritis animal model at various doses. These results have been repeated and plans provide for additional pre-clinical and toxicological testing, as well as formulation development, to enable human clinical testing to begin in 2004.

**Infectious Diseases -** NewBiotics' next generation ECTA product development efforts are targeted in the area of infectious disease. The rise in the incidence of infectious diseases caused by bacteria and fungi that have developed resistance to existing antimicrobial drugs is a natural outcome of the misuse and overuse of antimicrobial drugs. The Company has designed and synthesized ECTA compounds that target multiple enzymes unique to pathogenic microorganisms. One of the most common causes of antibiotic resistance in pathogenic bacteria is \_-lactamase, an enzyme that attacks and destroys penicillin-type drugs. ECTA compounds targeting this another a fitted for the fitted for the discrete discre

this enzyme, members of the Lamectacin<sup>™</sup> family of molecules, have demonstrated significant potential as antibiotics.

**Industry Overview:** One of the quests in cancer research involves the search for key intracellular regulatory factors that might be modified or inhibited by specific cancer therapeutics. It is believed that intracellular targets, until now very difficult to access, will prove to be critical in the battle against cancer. An early success in this area was the development of Novartis' Gleevec for treatment of leukemia. Gleevec was approved in record time after producing impressive clinical results that were based upon the inhibition of a key regulatory enzyme that was discovered through intensive gene functionalization studies. This work indicated that the enzyme was central to the pathogenesis of leukemia, and in Phase III studies, Gleevec demonstrated a 91% response rate. Our ECTA

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technology represents just such an approach, selectively taking advantage of intracellular enzymes that are important in the pathogenesis of cancer.

Autoimmune diseases are a diverse group of more than 80 chronic disorders characterized by the deterioration of virtually any tissue or organ system in the body. One of the most common of these disorders, rheumatoid arthritis, is characterized by hyperproliferation and exhibits over-expression of thymidylate synthase. With no available cure for the disease, the goal of treatment is to achieve complete remission with cessation of fatigue, relief of pain, prevention of deformity and maintenance of normal function. As for infectious diseases, during the 1970s and 1980s, many antimicrobials were developed from existing drug classes such as semi-synthetic penicillins, cephalosporins, macrolides, quinolones and carbapenems, and introduced into the market. As these drugs proved to be effective in treating infectious diseases, pharmaceutical companies shifted their resources to other areas of drug discovery and development. As a result, only one new antimicrobial agent has been introduced from a new chemical class in the past 25 years. However, the rise in the incidence of infectious diseases caused by bacteria and fungi that have developed resistance to existing antimicrobial drugs is a natural outcome of the misuse and overuse of these drugs. Surviving microbes in the body are able to build resistance to these drugs. The US Centers for Disease Control & Prevention has estimated that 1/3 of the 150 million prescriptions written for antibiotics each year are unnecessary, resulting in bacterial strains that become tougher than the antibiotics being used. Penicillins and cephalosporins are the most prescribed antibiotics today. They act by inhibition of penicillinbinding proteins blocking synthesis of the bacterial cell wall. NewBiotics has initially targeted this enzyme for its anti-infective program.

Drug resistance is especially prevalent in hospital-acquired, or nosocomial, infections. The World Health Organization estimates drug-resistant bacteria account for up to 60 percent of nosocomial infections globally. Each year more than 9 million patients worldwide and approximately 2 million US patients get nosocomial infections. Particularly vulnerable are patients undergoing invasive procedures or treatments such as chemotherapy. Cancer patients make up the highest proportion of patients likely to develop pneumonia and bloodborne infections, the most dangerous of the nosocomial infections.

**Competition:** The biopharmaceutical industry and the specific therapeutic areas in which we operate are intensely competitive. Oncology and infectious disease represent therapeutic opportunities of significant unmet medical needs.

Thymectacin will be initially tested in colorectal cancer patients who fail current chemotherapy. The drug most often prescribed for metastatic colorectal cancer as well as adjuvant chemotherapy following surgery is 5-FU and related fluoropyrimidines. For 5-FU (which is no longer patent-protected), a number of generic products compete in the marketplace, including those from Hoffmann-La Roche, Pharmacia and Lyphomed. Recently approved drugs for colorectal cancer include *Tomudex* (AstraZeneca), *Camptosar* (Pharmacia) and *Xeloda (5-FU prodrug)* (Hoffmann-La Roche). All appear to have efficacies similar to, or slightly better than, 5-FU. Of these compounds, *Xeloda* has a different mechanism of action, although it is still a thymidylate synthase inhibitor. *Xeloda* is a prodrug that is converted to 5-FU by an enzyme also found to be elevated in tumor cells — thymidine phosphorylase (also known as platelet-derived endothelial cell-growth factor). Because thymidine phosphorylase is secreted by cells, the enzymes generate 5-FU extracellularly as well. This results in *Xeloda* having the same toxicity profile as 5-FU alone.

NewBiotics' is unaware of any company developing drugs with a mechanism of action similar to NewBiotics' ECTA — one that takes advantage of intracellular drug-resistant enzymes to improve therapeutic efficacy with preferential activation in tumor cells. The anti-infective market is mature and highly competitive. A number of antibiotics are currently in use for treating nosocomial infections, with the penicillins and cephalosporins being the most often prescribed. Bacteria that become resistant to these two classes of antibiotics quite often express or over-express  $\beta$ -lactamase enzymes. Lamectacin is initially targeted at these resistant infections. In the last 5-10 years there has been renewed interest by the major pharmaceutical companies in developing novel antibiotics. The driving force behind this is the emergence of antibiotic-resistant bacterial infections, notably in hospitals. In some cases, therapeutic efficacy is now limited to a single antibiotic, creating dangerous public health risks. An antibiotic of novel structure and class — Zyvox (Pharmacia) — was approved last year by the FDA. Along with other clinical indications, Zyvox was approved for nosocomial pneumonia caused by methicillin-resistant Staphylococcus aureus. In clinical studies, the drug was shown to be effective against medically significant Gram-positive bacteria, including those resistant to other antibiotics.



ECTA Platform - NewBiotics' ECTA technology represents a new paradigm of drug discovery that exploits the mechanism of drug resistance for a new generation of drugs, promising unprecedented efficacy with little toxicity to the patient. We believe this innovative approach to drug discovery and development provides significant competitive advantage.

#### **Distribution/Marketing Plans:**

NewBiotics' commercialization strategy includes forming multiple collaborations with worldwide pharmaceutical companies to enhance the value of the Company's technology and product. With our lead drug Thymectacin in early phase clinic trials, we are actively seeking collaborations for the commercialization of this drug in Asia. Towards that end, we will be visiting Japanese pharmaceutical companies to identify, negotiate and secure a licensee for Japan. For the Asian markets outside of Japan, NewBiotics has the unique opportunity to form a joint venture with a government biotechnology organization and an oncology-focused pharmaceutical company in Taiwan. We plan to conclude a license agreement in Japan for Thymectacin for the treatment of cancer with a Japanese partner. An experienced consultant has been retained to introduce NewBiotics to appropriate Japanese companies, develop the required selling documents and provide advice on business terms with interested companies.

The Company also expects to enter into additional partnerships with pharmaceutical and biotech companies, involving rights to the development and commercialization of Rheumectacin (NB1011 in rheumatoid arthritis), as well as additional deals on early-stage ECTA compounds coming from the cancer and infectious disease programs.

#### Fifth Year Revenue & Earning Projections: N/A

#### **Management Team:**

**Thomas Mizelle, President, CEO & Director**, has over 20 years of sales and marketing, business development, operations and management experience in the pharmaceutical industry, specializing in oncology and infectious disease markets. Previously, he was COO at Vion Pharmaceuticals, formerly OncoRx. He successfully negotiated the company's merger with MelaRx Pharmaceuticals and took the company public in 1995. Before that, Mr. Mizelle worked in sales and marketing at Immunex, NeoRx and Adria Laboratories, and as a researcher at Duke Univ., Department of Pediatrics.

**Paul Cossum, Ph.D., EVP, Drug Development,** has 15+ years of industry experience. He was VP of preclinical R&D and business development at Aronex Pharmaceuticals, where he oversaw pharmacology, pharmacokinetics and toxicology studies and analytical development for anti-cancer and anti-infective drug candidates. He worked with clinical and regulatory affairs in filing INDs and NDAs at the US Food & Drug Administration and at European health regulatory agencies. In 1995, Dr. Cossum helped coordinate the merger of Triplex Pharmaceuticals with Argus Pharmaceuticals and Oncologix to form Aronex Pharmaceuticals. Previously, Dr. Cossum was director of preclinical development at Isis Pharmaceuticals and a scientist at Genentech.

**Chris Headrick, VP of Finance & CFO,** brings 10+ years' experience in corporate finance and investment banking with broad expertise analyzing and negotiating corporate deals, including high-tech M&As and IPOs. Previously Mr. Headrick worked for US Bancorp Piper Jaffray, as VP of investment banking for its technology M&A group. Before that, he was an investment banking associate at Paine Webber and a senior accountant at Arthur Andersen. Mr. Headrick earned a BA in economics from Williams College and an MBA from New York Univ. Leonard Stern School of Business.

Raymond Poon, Ph.D., EVP, Operations & International Development, has more than 25 years' experience in

the biotechnology industry, including research, product planning and management consulting. He was president of The Biotechnology Group, a management consulting firm specializing in assessing market opportunities, corporate alliances, valuations and other strategic business issues. He has served as VP of business development at Canji and managed the biotechnology consulting practices of The Wilkerson Group and SRI International. He holds a Ph.D. and MBA from UCLA. He was a post-doctoral fellow at Harvard Medical School and at the University of California, San Francisco.

**Roger L. Headrick, Director, Chairman of the Board,** brings 30+ years of management experience in finance and strategic planning. He is the managing partner of HMCH Ventures and president & CEO of Protatek, a



biotechnology process-engineering company. He serves on the boards of Caremark Rx and CK Witco. He was deputy controller of Exxon Corp., VP & CFO of the Pillsbury Company, and co-owner, president & CEO of the Minnesota Vikings. He has served on the board for Canji and is a member of the Univ. of Minnesota Cancer Center advisory board and the board of trustees of the Minnesota Medical Found. He has a BA from Williams College and an MBA from Columbia Univ.

**Blake Ingle, Ph.D., Director,** is a partner of IngleWood Ventures. He was formerly CEO of IMCERA Group, and has 30+ years of healthcare experience and 7 years of business experience as the former CEO of Canji, a biotechnology company that was sold to Schering-Plough. He also serves on the boards of Vical, Corvas, GeneFormatics, Ablation Technologies, INEX Pharmaceuticals and the Burnham Institute (formerly La Jolla Cancer Research Foundation).

**Martijn Kleijwegt, Director,** is a general partner of Life Sciences Partners, a venture capital fund based in The Netherlands. He gained extensive experience in life science venture investments as a general partner of Euroventures Benelux, a multi-million dollar pan-European fund. He has served on the boards of Qiagen, Quadrant & Rhein Biotech.

Martial LaCroix, Ph.D., Director, is VP of GeneChem. He was co-founder of BioChem Pharma and acting director of technology transfer. From 1986-1995, he held several positions with BioChem ImmunoSystems, including director of R&D and director of quality control. Between 1981 and 1986, Dr. Lacroix was a professor-scientist in the Depart. of Virology at Institut Armand-Frappier. Dr. Lacroix has authored 33 scientific publications and holds 8 issued patents.

**C. A. Lance Piccolo, Director,** is President and CEO of HealthPic Consultants Inc., a strategic healthcare consulting firm. Previously, he was Chairman and CEO of Caremark International, the nation's largest provider of physician practice, pharmacy benefit and disease management services. Mr. Piccolo served as EVP of Baxter Int. prior to Caremark's spin-off from the company in 1992, establishing the first home intravenous infusion business and the nation's leading alternate site business. He serves on the advisory boards of MedAssets and the Kellogg Graduate School of Management of Northwestern University, the board of directors of Crompton Corp., Physician Dynamics, Benchmark Medical, Wind Point Partners, NovaMed Eyecare and the Lake Forest Hospital Foundation, and is Vice Chairman of Caremark Rx Inc.



## Attenuon, LLC

Address:

10130 Sorrento Valley Rd Suite B San Diego, CA 92121

**Phone:** 858-622-0510 **Fax:** 858-622-0517 **Homepage:** www.attenuon.com

COMPANY PROFILE: Legal Form: LLC

Date Established: 1998 Number of Employees: 27 Stage of Development: Clinical

## **Company Overview:**

## **Forum Participants:**

Andrew P. Mazar Josh L. Distler Robert J. Ternansky

Sector: Biopharmaceutical

Amount of Capital Raised: \$18M Funding Sought: \$25M Current Investors: The D. E. Shaw Group

Attenuon, LLC is a clinical-stage pharmaceutical company working to rapidly translate promising lead compounds identified in academic labs into less toxic drugs that control the growth and progression of cancer. By partnering with academics who already have leads, Attenuon is able to bypass early stage discovery and specialize in rapidly going from lead to clinical proof of principle, thereby maximizing its risk-reward profile. Attenuon is currently seeking to raise \$25M to finance it through a sale of the company or IPO in early 2006, by which point the Company expects to have Phase II data on its two lead drugs and to be in a Phase I trial of its third clinical candidate.

By focusing on identifying promising compounds early and then selling inventors on collaborating with Attenuon, the Company bypasses years of expensive and risky discovery research. Attenuon specializes in taking such academic leads and quickly and efficiently carrying out optimization and preclinical development; the Company took only 13 months to move its first clinical candidate, ATN-161, from license signing to a Phase I trial. Attenuon also partners with academic and government laboratories to cost-effectively supplement its own clinical efforts and thereby increase the clinical data on its compounds. Once clinical proof of principle data is obtained, the Company will seek to partner with larger pharmaceutical firms, taking advantage of their tremendous demand for oncology compounds. Attenuon believes this strategy will rapidly provide superior returns for investors without requiring massive development budgets.

## **Product/Technology Description:**

The Company's drug candidates include:

ATN-224, an orally-administered small molecule that works by binding and depleting copper, thereby interrupting several tumor progression pathways. A previous generation version of ATN-224 (licensed to Attenuon) was tested in a successful physician-sponsored Phase I trial and is currently being evaluated in several ongoing physician-sponsored Phase II trials (mesothelioma, hepatocellular carcinoma, colorectal). A Phase II trial in patients with advanced renal cell carcinoma was recently completed and published in Clinical Cancer



Research. Although the renal cell carcinoma Phase II trial was non-comparative, thirty one percent of the patients in that trial achieved stable disease for at least 6 months. Company-sponsored trials with ATN-224 in the US are expected to begin in mid-2003. A second trial, sponsored by Cancer Research UK under the direction of Prof. Adrian Harris of Oxford University is also anticipated to start in mid-2003.

ATN-161, a five-amino acid peptide that has inhibited tumor growth and metastasis and dramatically extended life span in multiple animal models of human cancer when administered only three times per week. ATN-161 has also been shown in animal models to work synergistically with a broad range of existing chemotherapies. A Company-sponsored Phase I trial of ATN-161 began in January 2003 at Fox Chase Cancer Center in Philadelphia, PA. Discussions are ongoing with clinicians at the National Cancer Institute and other research centers regarding government-funded trials of ATN-161. Additionally, confidential discussions with several large pharmaceutical companies that have expressed interest in ATN-161 are also underway. In addition, Attenuon has developed a derivative of ATN-161 suitable for conjugating and delivering cytotoxic, radiotherapeutic, and imaging agents to tumors. Outlicensing discussions regarding the imaging application of this derivative are underway. A panel of antibodies targeting the urokinase plasminogen activator and its receptor (uPAR).

Advanced discussions regarding corporate collaborations on these antibodies are currently underway.

### **Industry Overview:**

The cancer drug market currently totals about \$18B per year. But even with this large market, chemotherapy is often ineffective as evidenced by the fact that this year, more than 550,000 people in the United States will die from cancer. Thus, there is a tremendous need for the development of novel cancer therapeutics that can improve on the current standards of care. While many large pharmaceutical and biotech companies have made expanding their oncology franchise a major priority, most have few or no good cancer drugs in their pipelines. At the same time, numerous academic labs have developed promising leads but lack the resources or expertise to optimize and develop them. There is a tremendous opportunity for companies to work with academics to translate these leads into drugs with clinical proof of principle, improving cancer care and earning attractive returns for investors.

## **Competition:**

There are many companies working on developing novel cancer therapeutics. Many of these companies are targeting single pathways that are involved in tumor progression. Attenuon's compounds differ from the competition in several ways: they block targets that are upstream from multiple pathways that are thought to be important in tumor progression (and capture some of the same pathways being targeted by our competition, as well as novel pathways). In addition, Attenuon's targets are present on multiple tumor compartments, including the tumor cells themselves as well as the blood vessels that feed them. Attenuon believes that its drugs may be used in combination with other treatments to make them more effective. The most effective treatment regimens are generally combinations of several drugs. In the future, cancer disease management will likely require multiple drug cocktails (similar to what is used to treat HIV infections). Thus, Attenuon believes that its drugs, rather than competing with current and future therapies, will help expand the market by making therapy more effective.

**Distribution/Marketing Plans:** 

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Attenuon plans to maintain its focus on rapidly translating lead compounds from academia into drugs with clinical proof of principle. The Company believes that by focusing on rapidly and efficiently moving through this high value but relatively modest cost phase of the development cycle, it can earn superior returns for investors. Attenuon does not intend to undertake large, late stage trials or to build its own manufacturing or marketing capabilities. The Company instead plans to capitalize on the tremendous demand for clinical-stage oncology compounds among large pharmaceutical and biotechnology firms by being acquired by such a company or partnering with them for Phase III trials and commercialization.

## Fifth Year Revenue & Earning Projections:

Attenuon believes that cancer drugs with broad spectrum efficacy, few side effects, and the potential to be used in combination with existing therapies and chronically have the potential to achieve sales of \$500M to \$1B annually. However, the Company's strategy is not to take its drugs to market itself, but instead to seek to be acquired by a larger pharmaceutical company by early 2006, by which time Attenuon expects to have Phase II data on its two lead compounds and a Phase I trial of its third clinical candidate ongoing. Attenuon believes that this progress will support a very attractive acquisition price.

## Management Team:

Andrew Mazar, Ph.D., Chief Scientific Officer: 14 years industry experience in leading discovery and development including big pharma (Abbott) and biotech.

**Josh Distler, J.D., Chief Operating Officer**: Harvard B.A., Yale J.D. Supervised private investments in biotech firms as a VP at the D. E. Shaw group, a Wall Street investment firm.

**Robert Ternansky, Ph.D., Senior VP, Chemistry**: 19 years industry experience including Eli Lilly, La Jolla Pharmaceuticals, and IDUN Pharmaceuticals.

Kathryn Kimmel, Ph.D., Director, Clinical Development: 13 years in clinical development at Parke Davis/Pfizer. Formerly Sr. Assoc. Dir., Worldwide Regulatory Affairs, Pfizer.

Marian Plunkett, Ph.D., Assoc. Director, Biology: 17 years of pharma (Schering-Plough) and biotech (La Jolla Pharmaceuticals) experience.



# MithraGen, Inc.

Address:	8030 El Rio Street Houston, TX 77054	Forum Participants:	David Anderson Augustine Lin, Ph.D.
Phone: Fax: Homepage:	713-842-6188 713-842-6187 www.mithragen.com	Sector:	Life Sciences
COMPANY PROF Legal Form: Date Established: Number of Emplo	Corporation 2000	Amount of Capital Raised: Funding Sought: Leading Investors:	\$3.6 million \$5 million
Stage of Developm	nent: Preclinical		

## **Company Overview:**

MithraGen is developing innovative vaccines for cancer and infectious diseases which have the potential to generate a more complete and effective immune response. The Company's MithraVax<sup>™</sup> vaccines, in multiple preclinical studies, have demonstrated the ability to enhance the immune system's key responses, resulting in potent anti-tumor activity and prolonged survival. MithraGen's lead vaccine candidate, MVX011, provides an exceptional market opportunity by combining the Company's proprietary MithraVax vaccine technology with a unique cancer antigen that is expressed in a wide range of cancers, including breast, B-cell lymphoma, colorectal, esophageal, lung, pancreatic and uterine. With the support of grant funding, MithraGen is expanding its research and product development activities into additional cancer and infectious diseases opportunities, with awards for its first two grants totaling over \$600,000.

### **Product/Technology Description:**

*Vaccines in Development.* MithraGen's lead vaccine candidate, MVX011, targets a highly specific cancer antigen that is expressed in a wide range of cancers and by a high percentage of cancer patients. Studies have shown that patients highly expressing the antigen targeted by MVX011 have a significantly poorer response to chemo-therapy or radiation treatment than patients with low expression. These data suggest that MVX011 has the potential to be complementary to chemotherapy and radiation treatments by targeting those cancer cells highly expressing the antigen that these treatments do not destroy as effectively.

The Company also has research activities in progress to develop MithraVax<sup>™</sup> vaccines for infectious diseases and cancer indications outside the focus of MVX011. These include grant funded research activities to develop MithraVax vaccines for prostate cancer and anthrax.

*MithraVax<sup>™</sup> Vaccine Platform.* MithraGen's core technologies, exclusively licensed from Wake Forest University and Baylor College of Medicine, include the Company's proprietary vaccine platform, MithraVax<sup>™</sup>. The MithraVax technology presents disease-related antigens to both the MHC Class I and Class II pathways of the immune system in a unique approach that improves the immune system's ability to

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recognize and more effectively respond to the antigens. In preclinical studies, MithraVax vaccine candidates have demonstrated that this unique approach dramatically improves T helper cell activation and also significantly enhances the immune response of cytotoxic T cells (CTLs) and B cells, including increasing the production of antigen-specific antibodies.

## **Industry Overview:**

A clear attraction of the cancer market is its enormity as measured by the burden of cancer on the health care system. Estimates by the National Institutes of Health place the overall cost of cancer at \$156.7 billion for the year 2001, including indirect costs of lost productivity due to illness and death. Direct medical costs are estimated to be \$56.4 billion. To address the need for better and more cost effective cancer treatments companies are trying to develop a range of new products. These include monoclonal antibodies, anti-angiogenic agents, signal transduction inhibitors and antagonists of epidermal growth factor receptors, as well as immunostimulants and cancer vaccines.

Immunotherapy approaches include passive immunotherapy approaches that attempt to build on the successes of monoclonal antibodies such as Herceptin® (Genentech) for breast cancer and Rituxan® (IDEC) for non-Hodgkin's lymphoma and active immunotherapy approaches, which includes MithraGen's, that rely on direct stimulation of the immune system to attack cancer cells. Active immunotherapy approaches include both autologous vaccines, using modified tumor cells or dendritic cells, and vaccines based on peptides, recombinant protein antigens or genes that may be delivered directly by a variety of methods, including the use of viral vectors. One of the insufficiencies of cancer vaccines, however, that may contribute to some of the disappointing clinical outcomes which have been observed is their failure to stimulate an effective T helper cell response.

## **Competition:**

As indicated by the above industry overview, the cancer market is highly competitive and includes a number of companies developing potentially competitive immunotherapy products. Unlike companies that are developing peptides, non-specific whole cell vaccines or recombinant protein antigens that can only induce transient CTL or antibody responses, MithraVax has a unique approach capable of inducing a complete antigen-specific immune response, more effectively activating T helper cells, enhancing cytokine secretion and significantly improving both CTL and antibody responses. This broad, antigen-specific response should significantly improve the immune system's ability to both recognize and destroy cancer cells. Additionally, MVX011, by targeting an antigen expressed in a wide range of cancer types and in a large percentage of cancer patients, gives MithraGen an additional competitive advantage – the opportunity to develop a cancer vaccine that could be almost universal in its applicability.

## **Distribution/Marketing Plans:**

Although MithraGen's product technologies could be useful in the discovery and development of immunotherapies for both cancer and infectious diseases, MithraGen intends to focus its own initial efforts on development of oncology vaccines. Localization of patient treatment around major cancer centers, together with the relatively low number of patients and high costs of current treatment, create both a favorable reimbursement climate and a marketing opportunity for MithraGen. For infectious diseases, the Company will rely primarily on grant funding for completion of proof of concept studies, and then actively pursue partnering opportunities.

The market potential for the Company's lead vaccine candidate, MVX011, is substantial. Based on the wide range of cancers and high percentage of patients expressing the targeted antigen, and using the American Cancer Society estimates of new cases for 2003, MVX011 could target a potential U.S. patient population alone in excess of 600,000. The revenue potential provided by this patient base could be well over one billion dollars, as illustrated by sales of Herceptin® and Rituxan®. With approximately 200,000 new breast cancer cases in the U.S. annually, Herceptin targets only the 30% of



breast cancer patients who over-express HER-2 antigen. Nevertheless, Genentech's sales of Herceptin reached \$385 million in 2002, with sales of Rituxan for 2002 exceeding \$1 billion.

#### Management Team:

**David Anderson,** President and CEO. Formerly COO of Tanox, Inc., Mr. Anderson has 15 years of. biotech industry experience. Mr. Anderson spent over 13 years guiding Tanox's growth from a start-up to one of the largest IPO financings in biotech history.

Augustine Lin, Ph.D., Vice President of Research and Development. Formerly VP of Research for Mojave Therapeutics, Inc. and head of Aventis Pharmaceuticals' cancer immunotherapy group, Dr. Lin has over 13 years of industry experience.

**J. Donald Payne**, Vice President of Finance and Administration and CFO. Formerly Senior Vice President- Finance for Sensus Drug Development Corporation, a biopharmaceutical firm, Mr. Payne has over 10 years of industry experience and supports the Company's activities on a part-time basis as required.

Scientific Advisors: Mark Davis, Ph.D., Chairman, Dept of Microbiology & Immunology, Stanford University;

Herman Eisen, M.D., Professor Emeritus, Center for Cancer Research, MIT

Si-Yi Chen, M.D., Ph.D., Scientific Founder, Associate Professor, Baylor College of Medicine

**Directors:** 

Stephen J. Banks, President, BCM Technologies, Inc.

Nancy T. Chang, Ph.D., President and CEO, Tanox, Inc.

Wei-Wu He, Ph.D., Co-founder and General Partner, Emerging Technology Partners, LLC.

Margaret M. McCormick, Ph.D., General Manager Consulting Services, Integra Ventures

**David Anderson** 

Si-Yi Chen, M.D., Ph.D.



## **NovaRx Corporation**

Address:	ess: 8395 Camino Santa Fe, Suite A San Diego, CA 92121		Forum Participants:	Daniel Shawler, Vice President Habib Fakhrai, Ph.D., President and CEO Creighton Lawhead, Chief Business Officer		
Phone:	858-638-08	881				
Fax:	858-638-08	882	Sector: Biotech		chnology	
Homepage:	www.nova	rx-pharma.com				
COMPANY	PROFILI	E:				
Legal Form:		NovaRx Corporation	Amount of Ca	pital Raised:	\$8.5 million	
Date Established:		1997	Funding Sought:		\$5 - \$50 million over 5 years	
Number of En	nployees:	10	Current Invest	tors:	Emmet O'Neal III O'Neal Private Investment Company, LLC	
Stage of Devel	opment:	Phase II clinical trial				

## **Company Overview:**

The primary goal of NovaRx, a privately-held corporation, is to develop novel vaccine-based biological therapies that cure or significantly prolong the lives of cancer patients without the deleterious side effects that adversely affect the patients' quality of life. NovaRx has raised \$8.5 million, which provides the company with sufficient capital to complete its ongoing phase II clinical trial in lung cancer. However, in order to add value to NovaRx, the company wants to expand and improve its product pipeline by adding clinical trials in two additional indications, glioma and colon cancer. Revenue raised from this round of funding will be used to support the clinical and manufacturing programs required for the expanded pipeline.

## **Product/Technology Description:**

The patented core technology of NovaRx blocks tumor cell secretion of potent immunosuppressive molecules called Transforming Growth Factors-beta (TGF-\_). Secretion of TGF-b is one of the primary ways tumor cells hide from the immune system. The company is testing a tumor cell vaccine in which TGF-\_ secretion has been blocked in a Phase II clinical trial for patients with lung cancer. The goal of this trial is to induce antitumor immunity leading to clinical responses without the deleterious side effects associated with conventional forms of therapy. INDs for a Phase II/III clinical trial in glioma (brain cancer) and a Phase II clinical trial in colorectal carcinoma are being prepared, with the trials scheduled to commence in 2004.

#### **Industry Overview:**

Cancer is a serious disease in every country and invades the lives of almost 10 million people throughout the world each year. According to the American Cancer Society, it is estimated that in the United States in 2002, there were almost 800,000 new patients with one of the histologies targeted by NovaRx. Over 300,000 of these patients will die from their disease. Tumors of the histologies targeted by NovaRx



represent 55% of all cancer-related deaths in the United States. In Europe and Japan, the statistics are equally grim. The World Health Organization estimated that there were over 2 million Europeans who developed one of these forms of cancer in 2000, with over 1 million deaths caused by the disease. The National Cancer Center of Japan estimated that close to 200,000 Japanese developed one of these forms of cancer in 1999, with over 100,000 deaths caused by the disease.

The economic impact of these illnesses is also substantial. The National Cancer Institute has estimated that the annual cost of cancer to the United States economy overall was \$157 billion. Clearly, efforts to reduce these staggering numbers should have a high priority and companies that develop effective therapies for these diseases will be positioned to make a significant impact.

The initial targets for the NovaRx technology are lung cancer, glioma (brain cancer), and colon cancer. However, the NovaRx technology is applicable to all forms of cancer associated with production of TGF-\_. This incorporates more than 90% of the different cancer histologies and provides a potentially huge market for the product.

### **Competition:**

Cancer vaccines are designed to specifically activate the body's natural defense mechanisms to seek out and destroy tumor cells. Other biotechnology and pharmaceutical companies are currently pursuing various cancer vaccine technologies including whole tumor cell vaccines (Cell Genesys, CancerVax, and Onyvax), dendritic cell vaccines (Dendreon Corporation and Genzyme Molecular Oncology), and antigen-specific peptide vaccines (Corixa, AVI Biopharma, and Viragen). Of these, only CancerVax and Dendreon have clinical trials beyond the Phase II stage.

NovaRx has several competitive advantages compared to vaccine technologies being developed elsewhere. Unlike the antigen-specific peptide approaches, the use of whole tumor cells in the vaccine ensures that all the clinically relevant molecules will be included. More importantly, NovaRx has identified a major reason for the poor potency of most whole tumor cell vaccines. It has been well documented in the medical literature that cancer patients are immunosuppressed. A key immunosuppressive molecule produced by tumor cells in order to hide from the immune system is TGF-\_. The company's most significant advantage is Dr. Fakhrai's discovery that treating tumor cells with our proprietary TGF-\_-blocking technology enables them to overcome their inherent immunosuppression and renders them more suitable for use in tumor cell vaccines.

NovaRx has a strong intellectual properties position consisting of 5 issued patents that are aggressively

prosecuted by its patent attorneys. These patents protect the use of TGF-\_ blocking technologies in tumor cell vaccines for all forms of cancer.

**Distribution/Marketing Plans:** 

NovaRx intends to partner with a well established pharmaceutical company, with a proven track record in oncology. The partner company should be capable of producing sufficient quantities of the NovaRx



vaccine, under Good Manufacturing Procedure ("GMP") conditions, to support commercialization. NovaRx and its partner will commercialize the brain tumor vaccine and initiate Phase III clinical trials for the therapeutic vaccines of other tumor histologies.

### Fifth Year Revenue & Earning Projections:

NovaRx currently projects market approval for its lead drug, a whole cell vaccine in which TGF-\_ production has been blocked for patients with glioma (brain cancer), in 2008. Currently, 17,000 people in the US develop glioma each year. Because there are no effective therapies for the disease, the first effective therapy will capture the market. NovaRx projects sales of a glioma therapy to be between \$100 million and \$500 million annually.

## Management Team:

**Emmet O'Neal III**, Chairman of the Board; Mr. O'Neal, a graduate of the University of Alabama Law School, is the head of O'Neal Investments. He was the former CEO of O'Neal Steel, the largest privately-held held steel company in the US with sales of \$750 million in 2002.

Habib Fakhrai, Ph.D., President and CEO; the founder of NovaRx, Dr. Fakhrai is a world-renown pioneer in the field of cancer immunogene therapy. With over 25 years experience in molecular biology, Dr. Fakhrai led the research team that developed the patented TGF-\_-blocking methods that are the core technologies of NovaRx.

**Creighton Lawhead**, Chief Business Officer; Mr. Lawhead obtained his MBA from the University of Massachusetts and brings 20 years of biotechnology business experience to the company. Before joining NovaRx, he was the Director of Marketing at Hybritech, Inc., the Vice President, Head of Commercial Affairs and Investor Relations at The Immune Response Corporation, and the Senior Vice President and Chief Business Officer at GenStar Therapeutics.

**Daniel Shawler**, Vice President. Mr. Shawler shares a 13-year history of collaboration with Dr. Fakhrai and was an important member of the team that developed the patented technologies featured at NovaRx. He has over 20 years of clinical research experience at the UC, San Diego Cancer Center, the UC San Diego School of Medicine, and the Sidney Kimmel Cancer Center.



# **Sagres Discovery**

Address:		nd Street, Suite 400	Forum		
	Davis, CA 95616		Participants:	David Ferrick	, Ph.D.
Phone:	(530) 297-4700				
Fax:	(530) 297-4701		Sector:	biotechnology	
Homepage:	www.sagro	esdiscovery.com			
COMPANIA		r			
COMPANY	PROFIL				<b>AAAAAAAAAAAAA</b>
Legal Form:		C corporation	Amount of Capital Raised:		\$21 million
Date Established:		June 2000	Funding Sought:		\$25 –35 million
Number of Employees:		48	<b>Current Investors:</b>		Forward Ventures, Novartis
					BioVenture Fund, Burrill
					Biotechnology Capital Fund,
					Axiom Venture Partners,
					JAFCO, and others
Stage of Development:		early			

## **Company Overview:**

Sagres Discovery is a discovery stage biotechnology company that is developing novel therapeutics to improve the treatment paradigm for cancer patients. Sagres Discovery's technology platform combines the biology of cancer formation in mouse models with the robustness of high-throughput genomic technologies to enable discovery and clinical validation of human cancer genes at unprecedented speed. The company is using this technological advantage to assemble the Oncogenome<sup>™</sup> (a comprehensive list of genes causative for cancer) from the world's largest collection of cryopreserved animal tumors.

### **Product/Technology Description:**

Utilizing High-Throughput Provirus Tagging technology, human validation assays, monoclonal antibody technology and in vivo models, the company generates therapeutic leads against targets that are highly biologically validated for cancer relevance. Through its acquisition of MemRx Corporation, Sagres Discovery has added world-renowned expertise in structure-based drug design (SBBD) and the crystallization of membrane-bound proteins such as G-Protein Coupled Receptors and Ion Channels.

### **Industry Overview:**

The success of Gleevec, Rituxan, and Herceptin, has validated the demand for novel targeted

therapeutics in oncology that promise greater efficacy and lower toxicity than standard cancer drugs.



### **Competition:**

Sagres Discovery competes with other in vivo based cancer drug discovery companies, such as GenPath and Exelixis, Inc.

**Distribution/Marketing Plans:** 

Fifth Year Revenue & Earning Projections:

Management Team: David Ferrick, Ph.D., Director and Chief Executive Officer Michael Miille, Ph.D., Chief Operating Officer and Acting CFO David Ichikawa, Chief Business Officer Ali Fattaey, Ph.D., Senior Vice President of Discovery Research Marc Malandro, Ph.D., Vice President - Technology and Alliances David Morris, Ph.D., Vice President of Research Raymond Stevens, Ph.D., Exclusive Consultant



# TargeGen, Inc.

Address: Phone:		go, CA 92121	Drive, # 120	Forum Participants:	Peter	G. Ulrich, President & CEO
Fax: Homepage:	(858) 67			Sector:	Pharm	naceutical
COMPANY PRC Legal Form:	FILE:	Delaware Corpo	oration	Amount of ( Raised:	Capital	\$10 million
Date Established: Number of Employees:		March 2002 29		Funding Sought Current Investo		\$8-10 million Forward Ventures Enterprise Partners
Stage of Develop	ment:	Preclinical				Å

### **Company Overview:**

TargeGen, Inc. is a privately held San Diego based pharmaceutical company which initiated operations in March 2002. TargeGen is developing small-molecule kinase inhibitors that suppress the excessive vascular permeability (VP) associated with ischemic diseases and cancer. Excess permeability, or vascular leakage, is also associated with other major health problems including eye disease, arthritis, transplant ischemia and other disorders. Additionally, vascular leakage is a dose limiting side effect of certain commonly used cancer drugs including IL-2. TargeGen is not aware of any other company working to develop drugs that suppress changes in vascular leakage. The Company also believes that its intellectual property position will allow it to establish and maintain a leadership position in this field.

It has recently been demonstrated that vascular leakage is at least in part dependent upon tyrosine kinases, including the Src family of kinases, which previously were associated with many important cellular functions including adhesion, migration, survival, inflammatory processes and angiogenesis. TargeGen has now discovered that its small molecule kinase inhibitors suppress vascular leakage by inhibiting kinase pathways triggered by vascular endothelial growth factor (VEGF). The successful development of vascular leak inhibitors may lead to the development of safer and more effective treatments for major diseases which collectively represent a market opportunity in excess of \$15 billion.

The three leading disease related causes of death in the industrialized world are heart attack, cancer and stroke. TargeGen's novel small molecule drugs suppress vascular leakage that accompanies a heart attack, stroke, cancer, eye diseases and certain other medical conditions. Excessive VP is responsible for increased tissue damage and reduced organ function and survival. Several of TargeGen's drug



candidates have been shown to reduce VP levels and subsequently reduce tissue damage (infarct size) and improve both organ function and survival.

TargeGen has access to a portfolio of intellectual property that exceeds 100 issued and pending applications, including three applications submitted to date by the Company. These patents include the use of Src kinase inhibitors in ischemic disease, compositions of matter on six novel structural "scaffolds", and other related technology. The Company's depth of expertise in vascular biology and its arsenal of novel compounds position it to become a leader in developing next generation therapies.

TargeGen has assembled an experienced senior management team, a strong Board and Scientific Advisory Board, and scientific staff. As a result, the Company has been able to attract capital from top tier venture sources. As the Company's products potentially address some of the very largest markets in healthcare, the opportunity for future growth is significant.

### **Product/Technology Description:**

TargeGen product candidates are small molecule organic compounds made by synthetic chemistry. These would be used as either oral or i.v. administered pharmaceuticals for the treatment of ischemic diseases.

### **Industry Overview:**

The pharmaceutical industry is undergoing significant consolidation and major company pipelines are weak. As proprietary drugs are coming off patent, permitting ever greater competition from generics, drugs companies must find new products if they are to grow. The combination of already large companies creates an ever greater demand for new drugs that address ever larger market size thresholds. Biopharmaceutical companies such as TargeGen which is developing proprietary small molecule drugs that address large markets (heart attack, cancer, stroke) will become increasingly attractive as partners and acquisition candidates.

#### **Competition:**

TargeGen has established a significant intellectual property franchise in the field of vascular permeability inhibitors to treat ischemic diseases and believes that its IP in this area provides a significant barrier to competitive entry. There are no companies currently known to TargeGen actively engaged in developing small molecule VP inhibitors. While there are other companies working in the

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area of Src-kinase inhibitors (Ariad, Signase, Sugen), their efforts are concentrated in cancer and bone diseases, an area where stand alone Src-inhibitors have not performed well.

### **Distribution/Marketing Plans:**

As TargeGen's products address very large worldwide markets, product distribution will most likely be addressed through marketing agreements with large multi-national pharmaceutical companies.

### Fifth Year Revenue & Earning Projections:

Fifth year revenues are projected to be approximately \$20M with earning for that year estimated at \$400K.

### Management Team:

Peter Ulrich, Co-Founder, President & CEO (Baxter, NeuroVir)
Dr. Richard Soll, Vice President R&D & CSO (Wyeth, 3D Pharm.)
Wood Erwin, VP Finance &CFO (La Jolla Pharm, Maxia)
Dr. David McClure, VP Regulatory Affairs & Drug Development (Merck, McNeil, ICI)
Dr. Wolf Wrasidlo, Senior Director, Chemistry (Biotechnetics, Scripps)
Dr. John Doukas, Senior Director, Cardiovascular Program (Selective Genetics)
Dr. John Hood, Director of Research, Oncology (Scripps)
Dr. Lawrence Rozsnyai, Associate Director, Business Development (GeneFormatics, Morphosys)



## **Conforma Therapeutics Corp.**

Address: Phone:	9393 Towne Centre Dr. Ste. 240 San Diego, CA 92121 858-657-0300		Forum Participants:	Lawrence Jim Schmi	e C. Fritz, Ph.D. nidt	
Fax: Homepage:	858-657-0343 www.conformacorp.com		Sector:	Therapeutics		
COMPANY PRO Legal Form: Date Establishe Number of Emp	d:	Corporation September 1999 30 FT, 6 PT	Amount of Capita Funding Sought: Current Investors		<pre>\$15M \$30MM Domain Associates Forward Ventures Inglewood Ventures Lombard Odier/ Schweizerhall Proquest Investments</pre>	
Stage of Development:		Preclinical				

## **Company Overview:**

Conforma Therapeutics Corporation, a San Diego-based biotechnology company, is developing a new approach to the design and development of drugs for the treatment of cancer. Conforma's technology, based on research from the Memorial Sloan-Kettering Cancer Center, is designed to induce tumor cells to degrade the proteins that promote cancer growth. This novel technology targets the cellular "chaperones" that control protein shape, or conformation, and blocks the biochemical pathways that promote the growth and survival of tumor cells. Conforma is using this technology to create a new generation of molecularly targeted anticancer drugs. This approach also promises to have important applications in additional areas of medicine including inflammation, viral diseases, autoimmune disorders, and neurodegenerative diseases.

### **Product/Technology Description:**

Conforma's research and development is focused on a set of four important chaperone targets known as the HSP90 family. The HSP90 chaperones control the activity of key signal transduction proteins such as HER2/neu that are commonly deregulated in human cancers. Conforma's drugs have shown robust activity against multiple tumor types including cancer of the breast, prostate and lung, multiple myeloma, and certain leukemias. Importantly, HSP90-directed drugs are designed to retain activity against tumors that have acquired drug-resistance mutations. Conforma's drug discovery and development pipeline includes both semi-synthetic compounds derived from natural products and novel totally synthetic molecules. The Company expects to file an IND on its first HSP90 antagonist in late 2003.



## **Competition:**

Although Conforma has established a leadership position in the HSP90 field, the importance of this area is being increasingly recognized by the pharmaceutical community. To date, however, only two small companies, Kosan and Ribotargets, have announced competitive programs. Ultimately, we expect our major competitors to be larger pharmaceutical companies.

### Management Team:

### Lawrence C. Fritz, Ph.D., President & CEO

Dr. Fritz has extensive experience in the biotechnology industry, having started two successful biopharmaceutical companies prior to founding Conforma. Together with Avalon Ventures, he co-founded Athena Neurosciences, a public biopharmaceutical company in South San Francisco, CA that discovers, develops, and markets products for neurological diseases. He served as Vice President of Research at Athena, which was backed by a syndicate of major venture capital groups. Dr. Fritz's work led to the clinical development of breakthrough products for multiple sclerosis, Alzheimer's disease and neuromuscular disorders. Following its successful public offering, Athena was acquired by Elan Corporation, plc for over \$600 million. Following Athena, Dr. Fritz co-founded Idun Pharmaceuticals in La Jolla, California, the leading company focused on therapeutic applications of programmed cell death, or apoptosis. Serving as Executive Vice President, Research, he created and developed major programs for products to treat cancer and degenerative diseases. His efforts led to multiple corporate collaborations and to the first clinical trial of a specific apoptotic pathway inhibitor. Dr. Fritz is also a member of the Board of Directors of Kinetek Pharmaceuticals, a private biotechnology company in Vancouver, British Columbia. Dr. Fritz holds an A.B. Degree from Harvard, an M.Sc. Degree from University College London, and a Ph.D. from The Rockefeller University.

### Marcus F. Boehm, Ph.D., Vice President, Medicinal Chemistry

Dr. Boehm's achievements have resulted in over 60 patents and publications in the area of intracellular receptor ligands. Prior to his appointment at Conforma, Dr. Boehm served as Associate Director of Medicinal Chemistry for Ligand Pharmaceuticals, Inc. During his nine years at Ligand, he and his group designed and synthesized multiple clinical candidates for the treatment of cancer and diabetes including TARGRETIN, the first RXR selective drug to be marketed for lymphoma. His synthetic work resulted directly in the filing of four INDs and three NDAs. Dr. Boehm received his B.A. from

the University of California at San Diego, completed his doctoral work in organic chemistry at the State University of New York at Stony Brook, and performed postdoctoral research at Columbia University.

### Francis J. Burrows, Ph.D., Director, Biological Research

Following postdoctoral work on tumor-specific drug delivery and angiogenesis at the Imperial Cancer Research Fund in London and the University of Texas Southwestern Medical Center in Dallas, Dr.



Burrows served as Principal Scientist in the Chiron Technologies Division of Chiron Corporation. At Chiron, he was instrumental in the invention, testing and preclinical development of novel anticancer agents. Most recently, he served as Section Head, Oncology, at Idun Pharmaceuticals where he was responsible for all in vitro and in vivo testing of small-molecule oncology products. Dr. Burrows received his B.Sc. Degree from the University of Durham and his Ph.D. from the University of Bristol, both in the UK.

### James R. Schmidt, CPA, Director, Finance & Operations

Prior to joining Conforma, Mr. Schmidt was Vice President of Finance and Controller at Kent SeaTech Corporation, an intensive culture fish farming and research company. He was responsible for all financial aspects of the company, human resources, information technology and also coordinated research grants and funding. Prior to that, Mr. Schmidt served in the capacity of controller for companies in healthcare, entertainment and real estate. He started his career with Coopers & Lybrand and received his Bachelor of Science in Accounting and Corporate Finance from Drake University in Des Moines, Iowa. Mr. Schmidt is a certified public accountant.

### Edgar H. Ulm, Ph.D., Vice President, Preclinical Development

Dr. Ulm was previously Executive Director, Drug Safety and Disposition at Ligand Pharmaceuticals, where he led the ADME, toxicology and clinical pharmacokinetic functions in support of five INDs, three NDAs and three MAAs for oncology products. In addition, he led a two-company development team from candidate selection through the completion of Phase I/II clinical studies. Dr. Ulm has also worked at Merck and Ciba-Geigy. Dr. Ulm received his B.A. from Indiana University of Pennsylvania, a M.S. from Ohio University and a Ph.D. in Biochemistry from Purdue University.



# Favrille, Inc.

Address:	150 San Diego, (		Forum Participants:	John Gutheil, MD	)
Phone: Fax: Homepage:	858-450-594 858-597-704 www.favrill	40	Sector:	Biotech	
COMPANY PROFILE: Legal Form: Date Established: Number of Employees:		Incorporated Jan 2000 54	Amount of Capita Funding Sought: Current Investors		23M as of 5/31/03 20M Sanderling; DeNuvo; Forward; Alloy Venture
Stage of Develo	pment:	Clinical			

Favrille has developed a proprietary technology platform that utilizes unique characteristics of each patient's disease to generate patient-specific therapeutic vaccines for treatment of cancer and autoimmune disease. The major barrier to the commercialization of these therapies is cost of production. Favrille's production process is significantly less expensive than other methods. The Company is currently raising funds for a \$20 million extension of the Series B preferred stock offering. In April 2002, the Company initially sold \$16.9 million of Series B preferred stock.

## **Company Overview:**

Favrille is a clinical development stage company developing patient-specific therapeutics for lymphoma and diseases of the immune system. The Company was founded in 2000 by Drs. Bob Shopes and Dan Gold. The Company has two ongoing Phase II clinical trials and anticipates initiating pivotal registration trials for indications in cancer in early 2004.

### **Product/Technology Description:**

FavId<sup>™</sup> (Favrille's patient-specific therapeutic vaccine for follicular, B-cell non-Hodgkin's lymphoma) is created following the identification, production and manipulation of tumor-specific "**idiotype**" proteins. These idiotype-proteins are used to vaccinate the patient in the context of a strong immune stimulating agent, **KLH**. Most patients mount an idiotype-specific immune response that appears capable of destroying tumor cells. The Company is conducting Phase II clinical studies in the U.S.

## Industry Overview:

PATIENT-SPECIFIC THERAPIES: THE FUTURE OF MEDICINE **Tumor Idiotype: The ultimate target for lymphoma treatments** 

Drug development in oncology has seen many disappointments. Surgery, which remains responsible for the largest number of cancer cures, is unable to address the presence of distant micrometastatic disease. Cytotoxic drugs, which are active systemically, lack sufficient tumor specificity and therefore result in significant side effects. The introduction of most targeted anticancer treatments would dramatically improve the outcome of patients with cancer.

Several recently approved drugs in oncology have been targeted therapies. Herceptin®, a monoclonal antibody developed by Genentech for the treatment of breast cancer blocks the growth-promoting HER-2 receptor. Herceptin® was developed specifically for those 25% of patients whose tumors contained



very high levels of HER-2. In those patients without high levels of HER-2 expression, Herceptin® has little if any activity. Rituxan® is a monoclonal antibody therapy developed by IDEC/Genentech for the treatment of low grade, B-cell NHL. Rituxan® targets the cell surface protein CD20 that is present on the surface of almost all B-cells. Glivec®, developed by Novartis, is approved for the treatment of chronic myeloid leukemia (CML) and targets the Bcr-Abl fusion protein. Because of the high selectivity of each of these treatments for a specific cancer, the side effects seen with treatment are greatly reduced compared to conventional chemotherapy.

Selection of an appropriate target appears to be key to the development of a successful anticancer drug. Erbitux<sup>TM</sup>, a monoclonal antibody which targets epidermal growth factor receptor (EGFR), was rejected by the FDA in December of 2001. Iressa<sup>TM</sup>, also targeting EGFR, was approved in May 2003 despite a low response rate (10% PR + CR). EGFR may not represent an ideal tumor specific marker as reflected in a poor overall response rate, the lack of a direct correlation of activity with EGFR expression, and significant side effects in a subset of patients.

The idiotype protein found in almost all B-cells lymphomas may represent an ideal tumor specific target. The specificity of idiotype as a target results from the fact that B-cell lymphomas derive from a clonal expansion of a single B lymphocyte, which expresses a unique idiotype protein. Favrille's technology allows for the identification of each lymphomas idiotype and the generation of a therapeutic idiotype vaccine in a rapid and cost efficient manner. Prior clinical data has suggested that such a vaccine will result in long term remissions in patients with lymphoma.

### **Competition:**

The promise of idiotype vaccines as a treatment of B-cell NHL has attracted a number of companies to this area. Two companies in the U.S. are known to be in clinical development of these vaccines, Genitope, Inc. (Genitope) and Large Scale Biology Corporation (NASDAQ : LSBC). Each of these companies has a unique approach to production of idiotype and they have taken a particular clinical development strategy which differs in important ways from the approach Favrille is pursuing. In addition to the commercial ventures, the NCI has initiated a study and has established a supply agreement with Biovest International.

### **Distribution/Marketing Plans:**

Favrille intends to enter into a US distribution agreement at time of NDA filing.

### Fifth Year Revenue & Earning Projections:

Favrille raised \$6 million of Series A preferred stock in April 2000. In April 2002, the Company raised \$16.9 million through the sale of Series B preferred stock. The Company plans to extend the Series B financing round by selling an additional \$20 million of preferred stock in Q2 of 2003. These funds are expected to carry the Company through mid-2004 and completion of the Phase II clinical trials for FavId<sup>TM</sup> and initiation of Phase III registration trials for FavId<sup>TM</sup>.

### Management Team:

### John P. Longenecker, Ph.D.

President and CEO (20 years of experience) Former President of SkyePharma, Inc. (formerly DepoTech, Corp) and V.P of Development @ Scios Inc. (formerly California Biotechnology). Has held senior management positions in two companies from startup to product approval and venture funded to public companies. Was instrumental in the approval process for Depocyt<sup>®</sup>, an oncology product to treat a metastatic form of lymphoma.



### Richard Murawski,

Senior Vice President Operations (32 years of experience) Former V.P Global Mfg for Baxter Bioscience, previously @ Cytogen, Inc., Immunomedics, Wellgen/Wellcome, Schering Corp., 32 yrs pharma mfg experience. 14 mfg facilities designed & licensed.

### Daniel P. Gold, Ph.D.

Founder, Exec. VP Research & Development (16 years of experience) Associate professor @ Sidney Kimmel Cancer Center, formerly @ La Jolla Institute for Experimental Medicine, Medical Biology Institute, post-doc training @ Dana Farber Cancer Center and MIT. Founder and inventor of the Favrille technology.

### John F. Bender, Pharm.D.

Vice President, Clinical Research (27 years of experience)

Medical / Pharmaceutical / Company Experience: Former Dir. Clinical Res-Oncology @ Pfizer, (formerly Parke-Davis), previously @ NCI & Baltimore Cancer Research Center. Involved in clinical development for more than 15 product candidates.

### Tamara A. Seymour

CPA, CFO (15 years of experience)

Since 1991 Ms. Seymour has assisted small and medium-sized, high growth companies in the biotechnology and health-care industries through her firm based in San Diego. Her client list includes CancerVax, VitaGen Incorporated, LXN Corporation and Chromagen. Previously Dir of Finance @ Agouron Pharmaceuticals, Deloitte & Touche

### John Gutheil, M.D.

Vice President, Medical Affairs (16 years of experience)

Former Executive Dir. Clinical R&D @ Vical Inc., where he directed clinical research in lymphoma, melanoma, renal cell carcinoma, prostate cancer and head & neck cancer. Previously Dir Clinical Res @Sidney Kimmel Cancer Center. Received his oncology and hematology training @ U of MD Cancer Center

### Alice Wei

Vice President, Regulatory Affairs & Quality (18 years of experience) Former Dir. of Regulatory Affairs @ IDEC Pharmaceuticals. Led the regulatory effort for the development and approval of Rituxan and Zevalin for treatment of B-cell NHL. Previously @ Anesta Corp. (currently Cephalon), Immuntech (currently Dura/Elan Pharmaceuticals)



## **Orphagen Pharmaceuticals**

Address: Phone:	5310 Eastgate Mall, San Diego, CA 92121 (949) 275-5916		Forum Participants:	Scott Thacher, CEO; William S. Craig, Bo of Directors	
Fax:	(949) 203-2819		Sector:	Pharmaceuticals, Early Stage Drug Development	
Homepage:	www.orpha	agen.com		*	
COMPANY PROFILE:					
Legal Form:		California "C" Corporation	Amount of Ca	pital Raised:	\$215,000 equity, \$725,000 grants (signed off and in pipeline)
Date Established:		October, 2000	Funding Sought:		\$1.2 million
Number of Employees:		two full-time, one part-time	Current Invest	tors:	Friends & Family
Stage of Deve	lopment:	Early			

## **Company Overview:**

Orphagen develops new classes of small molecule therapeutics for the treatment of heart disease, rheumatoid arthritis, prostate cancer, and other diseases. Its technology accelerates the identification of new drugs to novel targets from the human genome. The Company's expertise centers on the nuclear receptors, a family of drug targets that has provided novel and widely-accepted therapies for osteoporosis, diabetes, and breast cancer, generating more than \$12 billion in U.S. sales annually. Orphagen focuses on orphan members of the nuclear receptor family, those for which small molecule hits or leads have not yet been identified. Several of these orphan receptors promise to be the source for major new classes of therapeutics. The Company's competitive advantage is based on methods for small molecule compound screening needed to identify drug candidates to these receptors rapidly and more efficiently.

Orphagen's choice of targets and screening concepts have been validated through the grants review process. Orphagen was awarded a \$75,000 grant from the Center for Commercialization of Advanced Technology in San Diego for biodefense-related drug discovery in January, 2003. Two Phase I SBIR grants from the National Institutes of Health (NIH), for \$150K and \$500K in the areas of heart disease and prostate cancer, are in the pipeline for July, 2003. These initial awards, and other Phase I applications in progress, open the door to several million dollars of Phase II SBIR funding in the next 3-4 years. Orphagen has signed an exclusive license for screening technology with UCSF and a provisional patent has been filed. Initial discovery research is being performed at the Human BioMolecular Research Institute (HBRI) in San Diego, founded by the respected medicinal chemist, Dr. John Cashman. The company is raising seed funding in order to fully leverage its first mover

advantage for a selected group of orphan nuclear receptor drug targets.

### **Product/Technology Description:**

Of the 48 nuclear receptors, 23 are targets of known drugs and/or are the subject of intensive mainstream drug discovery. The remaining 25 are referred to as "orphans" because drug leads have not been identified for them. Orphagen has initiated work on five orphan nuclear receptor drug targets with strong clinical potential. Drugs to one of these targets are predicted to activate reverse cholesterol transport, or removal of cholesterol from the body. Current cholesterol-lowering therapies have limited



value in stimulating this pathway. A second target can provide a more efficacious and tolerable orallyavailable small molecule drug as an alternative to the injection-only medication now used to suppress androgen levels during early stage metastatic prostate cancer. Orphagen will generate intellectual property and capture value by identifying small molecule leads to target receptors and by pursuing therapeutic validation in animal models of disease.

Orphagen's competitive advantage is in technology that accelerates the identification and positive confirmation of hits to an orphan receptor. These confirmed hits serve as the basis of new lead synthesis. A major obstacle to lead generation for orphan nuclear receptors is the very high rate of false positives from any single screening method. The failure to efficiently discard false positives has already crippled several orphan nuclear receptor drug discovery programs in the pharmaceutical industry. Orphagen overcomes the false positive problem in early stage receptor screening by implementing complementary screening assays using distinct methods of measuring receptor activation. Orphagen has licensed enabling technology from UCSF for cell-free binding assays to certain of its targets. These assays, together with Orphagen's existing assay development program, form the basis of the Company's intellectual property today.

### **Industry Overview and Competition:**

The orphan nuclear receptor targets of interest to Orphagen are largely unexplored. Potential competitors, such as GlaxoSmithKline, Ligand, Karo-Bio, X-Ceptor and Tularik, historically have had strong track records in orphan nuclear receptor R&D. However, they are now primarily focused on the so-called "former" orphan nuclear receptors which have demonstrated potential for type 2 diabetes, hypercholesterolemia, and some other major indications. Orphagen is strategically positioned to avoid this crowded field of former orphan receptors and to become a leader in those receptors that are not yet part of the drug discovery pipeline.

The pharmaceutical industry will invest in promising preclinical leads to novel orphan nuclear receptor targets in order to have early access to potentially disruptive technology. Recent blockbusters in the nuclear receptor area, including Evista<sup>TM</sup>, Avandia<sup>TM</sup>, Actos<sup>TM</sup>, and Inspra<sup>TM</sup>, suggest broad potential for novel drug classes based on this target group. Early stage, preclinical partnerships for drug discovery and development in the nuclear receptor area had a potential value of almost \$500 million in 1997-2002.

### **Distribution/Marketing Plans:**

Value creation for a drug target, such as an orphan nuclear receptor, takes place in stages, beginning with identification of the first confirmed hits and continuing on to the creation of lead small molecules that are active in animal models of disease. Orphagen will initially specialize in these early stages of drug discovery. With receptor screening assays and drug candidates already identified, Orphagen can position itself to attract strategic partners by enabling full-scale drug development with reduced risk. Orphagen will develop strategic partnerships for leads to most major indications.

Other key elements of the Orphagen business strategy are:

To screen multiple receptors, increasing chances of success and providing a stake in multiple

## indications

To create and patent drug candidates as the bulwark of its intellectual property portfolio To reserve leads for internal development where more rapid commercialization is possible in smaller therapeutic markets

R&D spending in the pharmaceutical industry has gone up three-fold over ten years, from \$7 billion to \$23 billion. The major drug companies license in more than half of their new products, creating demand for drug candidates and partnership opportunities for Orphagen.



Orphagen will use a seed investment to expand its screening and invest in libraries and new compound synthesis to accelerate hit identification and validation. Goals for seed funding are two-fold: (i) confirmation of hits with cell-based pharmacology and structure-activity data for two orphan targets and (ii) securing two Phase II SBIR grants (approximate value \$1.5 - 2 million). These steps put the company in a strong position to develop leads for animal studies and to obtain venture capital funding. Orphagen projects revenues in three years of \$2 million/year in grants and partnership revenues and in five years of \$5 million/year with a significant contribution of research revenues, upfront partnership fees and development milestones. Based on continuing scientific success and the current valuations of leads in the nuclear receptor area, the company expects to have a value of \$30-100 million 3-4 years following equity investments of \$5-10 million. Orphagen will be in a good position, if desired, to find acquisition partners among the larger pharmaceutical and biotech companies.

### **Officers and Board Members:**

**Scott Thacher, Ph.D., founder and CEO**, has 22 years of experience in life sciences research and pharmaceutical R&D. He directed programs in acne, psoriasis, hyperlipidemia, and diabetes at Allergan in the retinoid nuclear receptor area for eight years and served on management teams for clinical drug development and for strategic collaborations, including with Warner-Lamber/Parke-Davis for diabetes. He left in April, 2001, to work full-time on Orphagen.

**Tim Scott, J.D., director and acting COO**, is co-founder and President of Pharmtek. He is also a co-founder of Diakron and served on the senior management team of Active.com while it raised \$53 million.

**William S. Craig, Ph.D., director, is Vice President of Research and Product Development** at ISTA Pharmaceuticals. He has a broad background in research, development, manufacturing, and FDA review of therapeutic molecules.

### **Scientific Advisory Board**

**Dr. Holly Ingraham, Ph.D., Professor of Physiology** at UCSF, is an authority on orphan nuclear receptor biology and chair of Orphagen's SAB.

**Dr. R. Kip Guy, Ph.D., Assistant Professor of Molecular Pharmacology** at UCSF, holds a Ph.D. in Organic Chemistry from Scripps and studies nuclear receptor ligand design and molecular function.

**Dr. Richard Chamberlin, Ph.D., Professor of Chemistry & former Department chair** at UCI, is a synthetic organic chemist with broad interests in drug discovery.

**Dr. Robert Fletterick, Ph.D., Professor of Biochemistry & Biophysics** at UCSF, is internationally recognized for his work on protein structure, including the nuclear receptors.

**Dr. Murray Korc, M.D., Professor of Biological Chemistry and Pharmacology** at UCI, is also Chief, Division of Endocrinology.



# Allon Therapeutics, Inc.

Address:	9253 Regei	nts Road, Suite 104	<b>Forum</b> Avi D. Spier, 1		PhD, CEO	
La Jolla, CA 92037		Participants:	Illana Gozes, PhD, CES			
Phone:	858 587 88	88				
Fax:	858 587 88	83	Sector: Biotechnolog		gy / pharmaceutical development	
Homepage:	www.allon	therapeutics.com				
		-				
COMPANY	PROFILE	E:				
Legal Form:		Delaware Corp	Amount of Caj	pital Raised:	\$400K + \$440K in grants	
Date Established:		July 2, 2001	Funding Sought:		\$1.5-2M	
Number of Employees:		2	<b>Current Investors:</b>		ISOA, Gildor Investments.	
Stage of Development:		Early				

### **Company Overview:**

Allon Therapeutics is positioned to become a leading developer of novel neuroprotective therapeutics for diseases and conditions of the central nervous system, including Alzheimer's Disease, Parkinson's Disease, stroke, head trauma, retinal damage due to glaucoma, senile dementia, multiple sclerosis and others. These types of diseases and conditions are referred to as "neurodegenerative diseases and disorders."

There are many neurodegenerative diseases and disorders that do not have an effective treatment. Allon aims to fill this void by developing drugs that block the common cause of these diseases: neuronal death. Our lead drug candidate, NAP, has been demonstrated by numerous groups worldwide to prevent or limit neuronal death associated with many neurodegenerative diseases and disorders in a variety of animal models.

Allon will capitalize on the extensive pre-clinical research conducted on its portfolio products by developing these products through early human clinical trials (Phase I and II) where costs are low relative to the value-enhancement proposition following such investigations. Thereafter, Allon's business strategy is to license or partner the drug candidates with an established pharmaceutical organization for Phase III clinical trials, product marketing and sales, or undergo an acquisition.

### **Product/Technology Description:**

Allon Therapeutics' proprietary information and technology are the products of a successful decade long research collaboration between Professor Illana Gozes of Tel Aviv University, Israel, and Dr. Douglas Brenneman, formerly of the National Institutes of Health, US. These scientists discovered natural proteins in the brain that keep the brain's cells alive under conditions that normally kill them. The loss of brain cells (neurons) leads to memory loss, cognitive impairment, brain damage and death. Following many studies it has been shown that drug candidates from this family of 'neuroprotective' molecules provide potent neuroprotection, are non-toxic, stable, easily delivered and are attractive drug candidates for therapeutic development against neurodegenerative diseases and disorders such as Alzheimer's Disease, Parkinson's Disease, senile dementia, glaucoma, traumatic head injury, neuronal damage due to stroke and other diseases characterized by loss of neurons.

NAP, the lead neuroprotective compound in Allon's portfolio is an eight amino acid peptide that, in preclinical experiments, protects neurons against numerous toxins and cellular stresses including the



Alzheimer's Disease neurotoxin, excitotoxicity, electrical blockade, oxidative stress, dopamine toxicity, decreased glutathione, and many others. NAP also has neuroprotective activity in a variety of animal models including models related to Alzheimer's Disease, traumatic head injury, multiple sclerosis, fetal alcohol syndrome, ischemic stroke, and others. NAP, works at unprecedentedly low concentrations, is water soluble, bioavailable, easily delivered, unusually stable, and in GLP toxicology studies no NAP toxicity has been observed to-date. GMP NAP has been manufactured for clinical studies pending this financing round. Allon Therapeutics also has two additional neuroprotective compounds, known as ADNF9 and D-ADNF9, derived from the same discovery platform as NAP in pre-clinical development.

There are many devastating neurodegenerative diseases and conditions in humans which have various causative factors. However, they are unified by one end result: The death of neuronal cells leading to brain damage and usually death. NAP, and its related peptide's, unique nerve cell protecting properties and pharmaceutically compatible biophysical attributes make them excellent drug candidates for development towards the treatment of neurodegenerative diseases and conditions.

### Industry Overview:

The central nervous system (CNS) sector of the pharmaceutical industry is the second largest pharmaceutical market in the world. In the United States, CNS-pharmaceutical related spending is over \$200 billion per year, representing approximately 15% of total national health care spending, and this sector is set to expand as new therapies are commercialized (source: UBS Warburg LLC). In terms of total pharmaceutical sales, CNS therapeutics are second only to cardiovascular in growth, growing by 16% in 2000 (source: Burrill & Company, Biotech 2001). Today the scientific process is unveiling more of the secrets of the brain and faster than ever before. As these discoveries lead to the development of cures for previously intractable conditions such as Alzheimer's Disease, the rewards and benefits to health will be extraordinary.

#### **Competition:**

Many biotechnology and pharmaceutical companies are engaged in discovery and development of therapeutics aimed at the neurodegenerative diseases and disorders market. This market represents a significant unmet need of the medical community. However, despite considerable effort, as yet no company competing in this space has been successful in this endeavor. The Allon approach to treating nerve degeneration is novel, highly effective in animal models of such diseases, and our unique technology is proprietary to Allon. Our business strategy fits current and future trends in pharmaceutical drug development in which larger pharmaceutical companies compete with each other in order to supply their late stage drug development pipelines with promising technologies. Such drugs, now more than ever, are being licensed to large pharmaceutical companies from innovative biotech companies.

## **Distribution/Marketing Plans:**

Allon Therapeutics' business strategy is to develop its neuroprotective proprietary technologies through to proof of concept (Phase Two) in human clinical trials. Following successful phase two data, Allon will seek to license the effective drug compound to, or become acquired by, a large pharmaceutical company for phase three clinical studies, NDA, product marketing and sales. Allon has channels of communication with senior executives at many of the major pharmaceutical companies towards this eventual aim. Depending on prevailing market conditions an IPO based on successful phase two data and development of portfolio drug candidates is possible.

#### Fifth Year Revenue & Earning Projections:

Allon Therapeutics anticipates obtaining phase two data from the lead neuroprotective drug candidate within three years. Successful phase two data would be a significant value enhancing event and depending on market conditions the company may be acquired at this point at a possible value of \$50-



300M. If the drug compound is licensed following successful phase two data the company may expect to receive upfront payments of \$10-50M, milestone and annual royalty payments of \$2-10M/yr, and royalty payments of 10-20% of net sales (sales for a drug of this type may be expected to be in the blockbuster range, >\$500M/yr).

#### Management Team:

### Avron D. Spier, PhD, Founder, Chief Executive Officer and Member of the Board.

Dr. Spier was educated at Oxford University, UK, gaining first class honors, and obtained his Ph.D. from Cambridge University, UK, at the MRC-Laboratory of Molecular Biology in the field of molecular neuroscience before moving to work on neuropeptide neurobiology at The Scripps Research Institute (TSRI), La Jolla, CA. Dr. Spier has many scientific publications and excellent organizational skills as evidenced by prominent positions in a number of scientific and professional organizations. He was a biotechnology consultant with the Technology Evaluation Group, LLC, since 1999 and has been working with Professor Gozes on founding Allon Therapeutics, Inc., licensing the required intellectual property for the technology, establishing the corporate structure of the company, financing, and managing the development of the technology.

#### Professor Illana Gozes, PhD, Founder, Chief Executive Scientist and Member of the Board.

Professor Gozes, The Lily and Avraham Gildor Chair for the Investigation of Growth factors, Tel Aviv University, was educated at Tel Aviv University (B.Sc.) and Weizmann Institute of Science (Ph.D.), obtaining the Landau award during her Ph.D. and the Chaim Weizmann postdoctoral fellowship award. Following post-doctoral trainings at the Massachusetts Institute of Technology (MIT), the Salk Institute and the Scripps Clinic and Research Foundation, Prof. Gozes became a Senior Scientist and Associate Professor at the Weizmann Institute and for the last ten years has been Professor of Clinical Biochemistry at Tel Aviv University where she heads a 14 member research group and has also served as Head of the Department. Her awards and honors include, the Bergmann Prize, Neufeld award, Juludan Prize, Teva Founders Prize, Israeli Society for Laboratory Studies and the Fogarty International Scholar in Residence (NIH) award. Prof. Gozes has published over two hundred manuscripts and is the co-inventor on more than 15 patents and applications that form the core intellectual property of Allon Therapeutics. She is the Editor-in Chief of the Journal of Molecular Neuroscience and Executive Guest Editor of Neuropeptide-based Drug Design, Current Pharmaceutical Design. Prof. Gozes has chaired and organized numerous international scientific conferences. Prof. Gozes manages the scientific research and development, and scientific aspects of clinical development for Allon Therapeutics.



51

## Salmedix

Address:9380 Judicial Drive<br/>San Diego, California 92121Phone:858-622-5050Fax:www.salmedix.com

Forum David S. K Participants: Anita I. Bu

David S. Kabakoff, CEO Anita I. Busquets, CFO

Sector: Biotech

### **Company Overview:**

Salmedix, Inc., an oncopharmaceutical company, in-licenses, develops and will market uniquely selective cancer drugs with an initial commercial focus on hematologic cancers. We are developing drugs designed to be more selective for malignant cells and better tolerated by patients than traditional cytotoxic cancer therapy. Our drugs interfere with specific mechanisms that confer survival advantages to cancer cells.

The Company has exclusively licensed its initial product candidates and intellectual property invented in the laboratories of our scientific founder, Dennis Carson, M.D., from the University of California, San Diego (UCSD). Our portfolio includes **two drugs in Phase II clinical trials** and two pre-clinical candidates. An experienced team of "drug hunters" is actively working to in-license products to expand our pipeline. We have signed an exclusive agreement to license the North American rights for a third oncology drug, developed and marketed in Europe and plan to commence U.S. trials in Q3, 2003. Among the strategies we use to build our portfolio are: identifying previously unrecognized oncology uses for development-stage or marketed compounds, adopting development paths for cancer compounds guided by molecular diagnostics and selecting agents that rob cancer cells of specific survival advantages.

We are developing our **lead Phase II clinical compound**, **SDX-101**, for chronic lymphocytic leukemia (CLL), multiple myeloma (MM) and lymphoma. SDX-101, which selectively induces apoptosis in CLL lymphocytes, is one component of a marketed, orally administered drug, but it lacks the anti-inflammatory activity of the marketed agent. In a pilot clinical trial in CLL, the compound reduced leukemia cell count in 80% of patients. Salmedix completed a successful 36-subject Phase I study with SDX-101 in The Netherlands. A multi-center Phase Ib/II study in patients with CLL is underway in Germany, Sweden and the U.S. Our goal is to commence Phase III

trials in CLL in late 2004 and launch SDX-101 for CLL in 2008. We believe SDX-101 may be the first non-

immunosuppressive, oral drug safe enough for chronic treatment of CLL.

Our second clinical-stage drug, **SDX-102**, inhibits synthesis of adenosine, a building block of ATP, the principal energy source for cells. Our program builds on earlier clinical trials conducted by the National Cancer Institute and at UCSD in which the safety and tolerability of the drug was established. Salmedix has developed a

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proprietary strategy for optimal use and targeting of SDX-102. A new tumor genotyping test will be used to identify patients predicted to benefit from treatment with SDX-102. We believe this drug will be effective in difficult to treat tumors, including sarcoma, glioma, non-small cell lung cancer, pancreatic cancer and lymphoma. A U.S. IND was filed in November, 2002 and new clinical trials for SDX-102 commenced inQ1, 2003.

We have signed an exclusive option to license a marketed oncology drug (SDX-105) from Europe for North America. This compound is a novel, bi-functional agent indicated in lymphoma, CLL, MM and selected solid tumors. SDX-105 has been used clinically in Germany in more than 20,000 patients. Regulatory approval in other European countries is currently being sought by the licensor. Salmedix intends to begin U.S. Phase II trials in Q3, 2003.

#### **Human Resources**

Salmedix has attracted executives and advisors from leading pharmaceutical and biotechnology companies to manage its future growth. The management team embodies senior-level experience and hands-on involvement in drug discovery, pharmaceutical development and commercialization. The team includes:

**David S. Kabakoff, Ph.D.**, formerly with Dura Pharmaceuticals, Corvas and Hybritech, is a founder of Salmedix and serves as **Chairman and Chief Executive Officer**.

F. Andrew Dorr, M.D., formerly Vice President of Oncology Drug Development and subsequently became the Chief Medical Officer at Isis Pharmaceuticals serves as Chief Operating Officer.
Wendy S. Johnson, formerly with Women First HealthCare, Selective Genetics and Cytel, serves as Senior Vice President, Corporate Development.

Linda Paradiso, D.V.M., formerly with Pfizer, Agouron, Depotech, Sequus, and Parke-Davis serves as Senior Vice President, Clinical and Regulatory Affairs.

Anita I. Busquets, formerly with GeneTex, Cancer Therapy and Research Center and Corvas, serves as Chief Financial and Administrative Officer.

Gary T. Elliott, Pharm.D., Ph.D., formerly with Corixa and Ribi ImmunoChem Research, serves as Vice President, Product Development.

Elizabeth Clark Moore, R.Ph., M.A.S., formerly with Pfizer Global Research and Development, Agouron, and the National Institutes of Health, serves as Vice President, Regulatory Lorenzo Leoni, Ph.D., formerly Assistant Professor of Medicine (UCSD), is a founder of the

Company and serves as **Director of Research**.

Gary A. Palmer, M.D., M.B.A., M.P.H., formerly with Amgen and the University of California,

#### Davis, serves as Medical Director, Clinical Development

Dennis Carson, M.D., Professor of Medicine at UCSD, and a founder of Vical, Triangle

Pharmaceuticals and Dynavax Technologies, is a founder of theCompany and serves as a **Director** 

and Scientific Advisor.



Antonio Grillo-Lopez, M.D., formerly with IDEC Pharmaceuticals, Dupont Merck, and Parke-Davis, serves as Chairman of the Clinical Advisory Board and as a Director.
Arnold Oronsky, of InterWest Partners, and Brian Atwood, of Versant Ventures, Christine
Cordaro, of CMEA Ventures, and Deepa Pakianathan, of Delphi Ventures, serve as Directors.

#### **Market Opportunity**

The incidence of cancer, the second leading cause of death in industrialized nations, is on the rise due to the aging populations of most countries. The current \$16 billion cancer drug market is expected to expand rapidly as more active and less toxic drugs are approved. This market is projected to grow to \$50 billion by 2010. The existing market for agents specifically indicated for hematologic cancers has experienced dramatic growth with the approval of Fludara®, Rituxan®, Gleevec® and Campath® and is now estimated to be at least \$1.5 billion. This market segment is projected to grow to \$5 billion by 2010.

We believe that the sales for our first drug, SDX-101, for the CLL, MM and lymphoma indications could reach approximately \$300 million by the fifth year of sales in the U.S. alone.

#### Financial

Salmedix closed a Series A financing in January, 2001 in which InterWest Partners and Versant Ventures invested \$10 million. In June, 2002, Salmedix closed a Series B Financing of \$27.5 million co-led by Delphi Ventures and CMEA Ventures, with Ventures West, ProQuest Investments, Aberdare Ventures, GeneChem Therapeutics Fund, BioFrontier Global Investors and Alexandria Equities participating, along with all Series A investors.



# Epicyte Pharmaceutical, Inc.

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	U	, CA 92121	<b>Participants:</b>	Christiane V.	Sheid, CFO	
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Fax:	858-544-0	288	Sector:	Biotech		
Homepage:	www.epicy	yte.com				
COMPANY P	COMPANY PROFILE:					
Legal Form:		Corporation	Amount of Capital Raised:		\$22 million	
Date Established:		July 1996	Funding Sought:		\$25 million	
Number of Employees:		40	<b>Current Investors:</b>		Johnson & Johnson	
					Development Corp	
					Tullis Dickerson	
					CMEA Ventures	
					Milepost Ventures	
					The Dow Chemical Company	
Stage of Deve	lopment:	Product Development			1 2	

## **Company Overview:**

Epicyte develops proprietary, therapeutic antibodies clinically equivalent ("follow ons") to the most commercially successful antibody products currently on the market. Through our follow-on product strategy, we minimize the risks of drug discovery and clinical development by developing antibodies directed against clinically and commercially validated targets. Through our strategic partnership with The Dow Chemical Company (Dow) and our patented technology, we are able to produce antibodies for substantially lower capital investment than other therapeutic antibody developers. As a result, we believe that the total cost to develop each of our products will be substantially less than the development cost for other antibody developers. Our follow-on product strategy, combined with these technology-derived cost advantages, will enable us to develop more successful therapeutic antibodies, at lower risk, than other antibody developers.

**Product/Technology Description:** There is a significant opportunity to achieve substantial market share through the introduction of follow-on antibody products. We are well-positioned to successfully address this large market opportunity by utilizing our patented, low-cost antibody manufacturing technology. By substantially reducing capital investment, variable production costs and royalties, our portfolio of follow-on antibody products will achieve significant market share in the therapeutic

antibody market. We intend to accomplish our mission through the following strategy:

#### Pursue Follow-On Products Within Large, Attractive Markets. We are developing a

portfolio of follow-on therapeutic antibody products that address large, well established markets. Our initial pipeline of products target major indications: RSV, NHL and RA. During 2002, currently available antibody therapies for these treatments generated revenues of ~\$3



billion. We are also evaluating, as potential candidates for future follow-on products, antibody products currently under review for approval by the FDA or in Phase III trials. Over the next few years, we intend to file with the FDA one IND per year, starting in 2004 with an IND for EPI-19, a therapeutic antibody for RSV.

**Manage Regulatory Approval Risk Using Clinically Validated Targets and Established Clinical Trial Pathways.** We seek to minimize the risks of drug discovery and clinical trials by developing antibodies directed against clinically validated targets, such as RSV glycoprotein F, CD20 and TNF\_ for the treatment of RSV, NHL and RA, respectively. Given insight provided by studying the clinical development of existing commercial antibodies labeled for these indications, we can design and execute time and cost efficient clinical development programs supporting the intended label claims.

**Dramatically Reduce Upfront and Ongoing Manufacturing Costs Using Patented Plant-Based Production Technology.** Through our patented antibody technology, we dramatically reduce the large capital investment associated with manufacturing antibodies. We believe that our plant-based production technology reduces by as much as 80% the capital required to achieve capacity equivalent to mammalian cell culture facilities. Similarly, at commercial scale, the variable cost of antibodies produced in plants is 50% less than in mammalian cell production.

**Outsource Antibody Manufacturing to Major Partners.** We outsource our antibody manufacturing to established plant-based biopharmaceutical contract manufacturers. In March 2000 we entered into a strategic development and supply agreement with Dow. Under the agreement, Dow provides the transgenic production and processing systems to deliver bulk purified antibodies to us and our licensees for Phase I and II clinical trials at no charge, in exchange for an exclusive multi-year commercial supply contract for up to five products.

Enhance the Likelihood of Product Success Through Funded Development Partnerships. We believe our follow-on antibody products, produced cost-efficiently using our proprietary production technology, will be attractive to pharmaceutical and biotechnology companies. We intend to enter into funded product development and marketing partnerships with established pharmaceutical and biopharmaceutical companies, and leverage our partners' research and

development capabilities to support regulatory approval and their sales and marketing organizations to penetrate markets rapidly and compete effectively.

Enhance Cash Flow and Future Revenues Through Strategic Licensing Arrangements. We intend to generate license revenues by licensing our plant-based manufacturing technology to leading antibody developers. We will utilize revenue streams realized from these

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relationships to fund some of the costs of pre-clinical and clinical development of our proprietary product portfolio.

#### **Industry Overview:**

The therapeutic antibody market has emerged in the past five years as one of the fastest growing and most successful categories in the biopharmaceutical industry. Antibodies have high potency, high specificity, limited side effects, long circulating half-lives, historically high FDA approval rates and shorter development times. Since 1997, the FDA has approved 12 antibody products, and there are currently six Biologics Licensing Applications (BLAs) under review at the FDA and 38 novel antibodies currently in Phase II or Phase III clinical trials. During 2002, aggregate antibody sales exceeded \$4 billion, with three drugs, Synagis<sup>®</sup>, Rituxan<sup>®</sup>, and Remicade<sup>®</sup>, representing nearly \$3 billion in sales. The market for therapeutic antibodies is projected to expand to over \$20 billion by 2010, according to pharmaceutical industry specialists.

While antibodies are highly effective and attractive therapeutics, the large capital investment and long lead time required to establish manufacturing capacity create significant risks for drug developers. A large scale mammalian cell culture fermentation system costs approximately \$300-500 million and requires three to six years to design, build and certify. As such, manufacturers must commit substantial capital to construct fermentation facilities prior to demonstrating their product's efficiency. In addition to these high capital costs, manufacturing therapeutic antibodies involves considerable ongoing production and royalty expenses.

Because of these constraints, there are relatively few follow-ons to marketed antibody products. Unlike small molecule markets, where follow-on products are very common, the opportunity for a biopharmaceutical developer to enter and take market share in an existing antibody market has been outweighed by the substantial capital investment and financial risk to manufacture antibodies using current technologies. As a result, most antibody markets are currently addressed by a single marketed product. This stands in contrast to small molecule markets, where lower capital investment needs and fewer manufacturing challenges, combined with larger addressable market size, enable several companies to enter a market with follow-on products.

**Competition:** Based on the issuance of our July 2002 patent, we believe that our patent estate portfolio covers all aspects of producing any antibody in plants. We will consider granting licenses to companies developing non-competing products on a case-by-case basis until the patents expire between 2009 and 2014.

**Distribution/Marketing Plans:** We intend to out-license our follow-on products after early indications of comparable safety and efficacy after Phase I or Phase II clinical trials. We will fund later clinical development of our products when our resources permit.



**Fifth Year Revenue & Earning Projections:** With \$25MM in funding from new and existing venture investors (our third venture round), Epicyte's projections indicate a low-water mark in cash of \$15MM in 2005, then an increase in cash to approximately \$55MMin 2007. Revenues in 2007 are forecasted to exceed \$65 MM. No additional outside funding is expected to be needed.

### Management Team:

Lloyd Kunimoto, President and CEO - Exelixis, Monsanto Andrew Hiatt, Ph.D., Founder & CSO – The Scripps Research Institute, Cold Spring Harbor Christiane Sheid, CFO – Ligand, Lehman Brothers Neil Cowen, Ph.D., VP-Strategic Development- Dow Chemical, DAS Bruce Davis, VP-Manufacturing - Baxter, Nexell



# Chimerix, Inc.

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Phone: Fax: Homepage:	858.550.6090	Sector:	Biotechnology

### **Company Overview:**

Chimerix Inc. uses proprietary chemistry to create orally available medicines from bioactive molecules. Application of Chimerix chemistry enhances oral availability, stabilizes drug in plasma, and facilitates absorption of drug by cells in target tissues. Known drugs can be modified to improve dosing parameters, broaden therapeutic applications and decrease the risk of adverse reactions. Chimerix technology also enables discovery of new drugs from molecules with chemical properties that would otherwise be unsuitable for pharmaceutical development. Chimerix is applying its technology towards discovery and development of oral drugs for the treatment of smallpox, cytomegalovirus infection, drug-resistant HIV infection, viral hepatitis, and macular degeneration. Chimerix is seeking partnerships to broaden the application of its technology in the following areas:

Licensing or co-development of Chimerix drug candidates and lead compounds

Collaborations to address ADME (absorption, distribution, metabolism, elimination) limitations of proprietary partner compounds

Drug discovery collaborations using novel chemical classes of charged or polar molecules requiring intracellular delivery

Chimerix is an early stage pharmaceutical research and development venture founded to apply and commercialize proprietary chemical technology discovered at the University of California San Diego, and the Veteran's Administration Medical Center San Diego. The company plans to develop its existing portfolio of drug candidates generated using Chimerix technology, and to pursue new applications across a number of therapeutic areas via collaborations and partnerships. Chimerix began operations with initial funding from Sanderling Ventures and Asset Management in July, 2002 and currently maintains offices in San Diego, California and Research Triangle Park, North Carolina.

#### Management Team:

Chimerix has a highly experienced management team with proven track records in major pharmaceutical and biotechnology companies. The team has over 70 years of combined experience in drug discovery and development. Each team member has played a key role in the discovery, development and commercialization of one or more drugs. Members include:

George R. Painter, Ph.D.; President and Chief Executive Officer

Kevin P. Anderson, Ph.D.; Vice President, Business Development



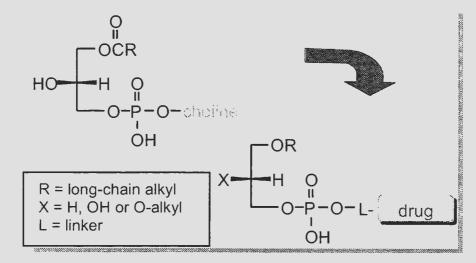
## Merrick R. Almond, Ph.D.; Vice President, Chemistry

#### Rosemary O'Mahony, Ph.D.; Vice President, Development

## PROPRIETARY TECHNOLOGY PLATFORM

Chimerix technology can be used to chemically modify a drug molecule in order to promote absorption from the intestinal tract, to improve distribution to target organs, and to facilitate cellular uptake. Figure 1 shows how this is accomplished. Lysophosphotidylcholine (LPC) is a natural lipid metabolite that is readily absorbed intact from the small intestine and distributed throughout the body by lipid transport processes. By chemically modifying the OH and acyl (O-COR) groups of LPC and replacing choline with a drug molecule, a lipid mimic is created. The drug moiety is covalently coupled to the modified LPC via a linker (L). The mimic is recognized as a natural LPC and is readily absorbed intact from the small intestine and distributed to tissues via the plasma or lymph. Preliminary data indicates that the degree to which a drug is distributed to various organs can be modulated by varying the "R" and/or "X" groups in Figure 1.

Figure 1. How drugs are modified using the Chimerix technology platform.



Lysophosphatidylcholine (LPC, upper left) is modified by replacing the choline group with a drug. Specific cleavage by intracellular phospholipases releases active drug

Once in the peripheral tissues, intact drug conjugate is efficiently internalized by target cells. The mechanism of cellular uptake is analogous to that used for the uptake and metabolism of natural lysolecithin. The lipid-drug conjugate inserts into the outer surface of the cell membrane and then moves to the inner surface of the membrane by a "flip-flop" mechanism. The drug presented to the inner surface of the membrane is freed by the action of intracellular phospholipases which cleave the bond linking the lipid carrier and the drug.

One significant application of Chimerix technology is to improve the oral availability, and to potentiate the activity of nucleoside analogs for the treatment of cancer and viral diseases. Nucleoside analogs must be converted to a 5'-triphosphate moiety by intracellular enzymes in order to act as specific polymerase inhibitors and to interrupt nucleic acid replication. The activity of these nucleoside analogs is often limited by the degree to which they are recognized by the kinase responsible for addition of the first of the three phosphates. Chimerix technology can efficiently bypass this limitation by delivering nucleoside monophosphates directly into target cells. Examples are discussed below.

## INTELLECTUAL PROPERTY

Chimerix owns or is the exclusive licensee for multiple issued patents and patent applications worldwide that protect Chimerix drug candidates as well as the broadly enabling Chimerix technology for enhancing drug-like qualities of pharmacologically active compounds. Included in the intellectual property assets are:

Four issued US patents protecting modifications to enhance oral bioavailability of any pharmacologically active compound.



Five issued US patents and six issued foreign patents relating to modification of nucleotides for antiviral use.

Five issued US and foreign patents protecting modified phosphonoformate derivatives for treatment of HIV infection and other antiviral applications.

Three issued US patents and one issued Australian patent protecting modified nucleoside analogs and their use for the treatment of viral hepatitis.

Three US applications and foreign counterparts licensed from the University of California that include specific claims protecting modified CDV, other modified phosphonate compounds, and improvements in chemistry.

Chimerix will continue to broaden and solidify its intellectual property portfolio by filing new applications based on significant inventions arising from Chimerix research and development. PARTNERING OPPORTUNITIES

Initially Chimerix will focus on the discovery and development of antiviral drugs since the management team has extensive experience in this area. Development candidates exist and proof of concept clinical trials can be initiated in the near term. However, the technology is broadly enabling and the company desires to expand application to other therapeutic areas through collaborations and licensing agreements. Chimerix is seeking partners to apply Chimerix technology through any of the following mechanisms:

Licensing or co-development of Chimerix drug candidates and lead compounds.

Collaborations to apply Chimerix technology to lead compounds or drug candidates identified by a partner that have ADME limitations or require intracellular delivery.

Drug discovery collaborations applying Chimerix technology to new chemical classes that have not been amenable to pharmaceutical development in the past.

## **Contact Information:**

George R. Painter, Ph.D. President and CEO 5015 Southpark Drive, Suite 240 Durham, NC 27713 919.806.1074 gpainter@chimerix-inc.com

Kevin P. Anderson, Ph.D. VP Business Development 4401 Eastgate Mall San Diego, CA 92009

## 858.550.6090

#### kanderson@chimerix-inc.com



# Arizeke Pharmaceuticals, Inc.

6828 Nancy Ridge Dr., Ste 400	Forum	Dan Henderson, President & CEO
San Diego, CA 92121	<b>Participants:</b>	Seth Goldman, Vice President - Finance
858-455-6907		Paulo Rangel, Director – Bus. Development
858-455-6908		
	San Diego, CA 92121 858-455-6907	San Diego, CA         92121         Participants:           858-455-6907

#### COMPANY PROFILE:

Legal Form:CorporationDate Established:9/27/1996Number of Employees:45

Amount of Capital Raised: Funding Sought: Current Investors: \$20,000,000
\$20,000,000
Forward Ventures
Novartis Bioventures, Ltd.
Lombard Odier & Cie
Liam Biotechvest Investments, LLC
Johnson & Johnson Development

Stage of Development: Preclinical

## **Company Overview:**

Arizeke is focused on the development of pulmonary and oral versions of the large therapeutic proteins currently administered by injection; a market with 2001 revenues of \$27B. Based on fundamental discoveries at University of California, San Francisco (UCSF) licensed to Arizeke, we are developing unique inhaled versions of interleukin-2 (IL2), interferon-alpha, human growth hormone (hGH), and interferon-beta. Arizeke constructs genetically modified versions of the parent drugs and is currently conducting pulmonary studies in monkeys with product candidates. Our lead product candidates are derivatives of IL2 and interferon alpha, designed to initially treat life-threatening diseases. Drug feasibility of interferon alpha and hGH has been demonstrated by inhalation in monkeys. Because of the nature of our technology, we are also focused on oral drug delivery. Our business strategy is to jeopardize large existing product franchises stimulating corporate partnerships and, eventually, acquisition by one of those partners.

Arizeke intends to raise \$20,000,000 in Series D Convertible Preferred Stock. The money raised in this financing will last through mid-year 2005. By mid-2005 we expect to complete Phase II clinical trials of inhaled IL2 providing "hints" of therapeutic efficacy and support for Phase III clinical trials. By mid-2005 we also expect to have one corporate partnership and realized \$5 million in research contract revenue from a combination of corporate and governmental sources. Other projects will be accelerated as additional partnerships are consummated.

**Product/Technology Description:** Arizeke is developing the use of the polymeric immunoglobulin receptor (pIgR) for the high-capacity transport of large proteins to the blood using both pulmonary and oral delivery. The Company's current emphasis is in pulmonary delivery. The pulmonary route provides Arizeke with a rapid approach to develop new and exciting product opportunities. The potential for oral delivery is underscored by knowledge that 65% of pIgR is found in the GI tract. pIgR (mw 110,000) transports 3-15 grams/day (8.5-43 micromoles) of IgA (mw 350,000) and IgM (mw 900,000) from the interstitial space underlying the epithelial cell layer to the lumen of the lung and gastrointestinal tract.



Arizeke constructs gene fusions of a therapeutic protein fused to a human single chain antibody (scFv) that binds to the residual pIgR stalk. The therapeutic protein is then transported back to the interstitial space and to the blood via a reverse flow of the endocytotic vesicle system.

**Competition:** There are two general approaches employed by companies to deliver drugs via the pulmonary route:

Diffusion/Formulation Receptor-mediated transport

The diffusion/formulation approach for pulmonary delivery will take advantage of the tremendous absorptive surface area in the lung (up to 100 m<sup>2</sup> in adults) to deliver drugs. Inhalation offers an enormous absorptive surface area for rapid drug absorption and substantial absorption of polypeptides. Due to slow clearance from the lower lung, even compounds with very small absorption rates can be absorbed in significant quantities over 10-12 hour periods. To date, most of the success with this approach has been with relatively small proteins such as insulin. Larger proteins most likely do not diffuse as readily. To deliver these large macromolecules and to deliver small macromolecules more effectively, Arizeke has focused on receptor-mediated technology.

**Distribution/Marketing Plans:** Given the pIgR platform technology, a critical challenge to Arizeke is the choice of the lead product. We need to manage the risk of drug approval while minimizing the time and cost to obtain that approval.

We have developed the following criteria for selecting ideal target drug candidates to which we can apply our technology:

Choose an existing marketed product to reduce clinical and market risk Choose a product coming off patent Choose a product that TranZyte<sup>TM</sup> enables unrealized benefits Choose a product that presents minimal regulatory hurdles Choose a product with a short clinical trial Choose a product with desirable market competitiveness Choose a product that addresses an unmet medical need

With these criteria in mind, we have selected five target markets for development at Arizeke. These are IL2, interferon alpha, human growth hormone, interferon beta, and a Biodefense product developed through collaboration with DARPA. Arizeke will focus on moving one product forward rapidly to clinical trials. This will allow the near term development of human safety, bioavailability and efficacy data. The strategy is to focus product development on a disease that is life threatening and where improvements to the currently available treatments will result in both improved efficacy and compliance. The selected indication for IL2 is lung metastases of renal cell carcinoma, an indication known to be responsive to IL2. Clinical data already has demonstrated that delivery of IL2 by inhalation is at least as effective as subcutaneous delivery and results in considerably less toxicity.



#### Management Team:

Name	Position	History
Daniel R. Henderson, Ph.D.	President, CEO and Director	See Below
Donna Palmer, Ph.D.	Vice President, Development	VP of R&D – Batelle Pharma CTO -Pulmonary Therapeutics -Batelle Memorial
Seth Goldman	Vice President, Finance	VP Finance – Safeskin Corporation
Paul Shabram	Sr. Director, Process Development & Mfg.	Schering-Plough Chiron
Paulo Rangel, MBA	Director, Business Development	Hybritech Amgen

**Daniel R. Henderson, Ph.D.** has been Arizeke's President, Chief Executive Officer and a member of the Board of Directors in July 2002. Previously, Dr. Henderson founded Calydon, Inc. and served as their President, Chief Executive Officer and Director from its inception in 1994 through the sale of the company to Cell Genesys in 2001. Dr. Henderson is an experienced technologist, entrepreneur and biotechnology executive. He invented a technology for designing oncolytic viruses and self-financed Calydon while serving as a Visiting Scientist in the Department of Surgery at Stanford University Medical Center. Earlier in his career, he was the Founder and President of Microgenics Corporation, a successful medical diagnostics company that was acquired by Boehringer Mannheim Corporation in 1991. A graduate of the University of California, Berkeley, Dr. Henderson holds a Ph.D. degree in Medical Sciences from the University of New Mexico and his post-doctoral experience was at Duke University with Dr. W. K. Joklik. He has authored over 20 patents.

Board of Directors		
Daniel R. Henderson, Ph.D.	Arizeke - President & CEO	
H. Peter Bissinger, Ph.D.	Novartis BioVenture Fund – Managing Director	
Standish Fleming	Forward Ventures – Managing Member	
Keith E. Mostov, M.D., Ph.D.	Arizeke - Founder & Technology Inventor	
	UC San Francisco - Professor	
David Sudolsky	Arizeke – Former President & CEO	
Scientific Advisory Board		
John Young, Ph.D.	Amgen / Chiron: PK	
James Marks, M.D.	UCSF: Antibody Engineering	
Ron Borchardt, Ph.D.	University of Kansas	
Keith E. Mostov M.D., Ph.D.	UCSF: Inventor of Arizeke's TranZyte <sup>™</sup> Technology	
Robert Langer, Ph.D.	MIT: Drug delivery and formulation	
Günter Blobel, M.D., Ph.D.	Rockefeller University – Nobel Laureate	



# MagneVu

Address:	2225 Faraday Ave., Suite F Carlsbad, California 92008	Forum Participants:	Freeman H. Rose President and CEO Doug Brewer, CFO
Phone: Fax:	(760) 929-8000	Sector:	Medical Device
Homepage:	www.magnevu.com		

## **Company Overview:**

MagneVu has developed and patented a unique Magnetic Resonance Imager, the FDA-approved MagneVu MV1000, which is capable of in-office patient scanning or clinical research at very low cost. MRI is considered the gold standard of imaging modalities, but the technology is expensive and access is often restricted to only the most severe trauma and cardiac cases. As such, MRI is unavailable in many clinical and research environments in which it could add tremendous diagnostic value. The MagneVu MRI is small, portable, and requires none of the expensive shielding or site preparation of conventional systems. This allows placement directly in the research facility or physicians office. Our mission at MagneVu is to bring the benefits of MRI to a broad new range of clinical, research, and industrial applications.

Current applications for the MV1000 include:

in-office clinical use by rheumatologists for the diagnosis and management of patients with rheumatoid arthritis and other erosive joint diseases
gathering data for Phase IV clinical trials of RA biologics by major pharmaceutical companies
animal and laboratory research

The Company's intellectual property is reflected in a portfolio of 26 issued and 24 pending patents, and covers all major operating and design properties of the technology.

Recent milestones achieved are:

An installed base of 12 units Profitable EBITDA for Q3 and Q4 2002 Centocor and Amgen commit to Phase IV studies using MV1000

Since inception, over \$10.7 million has been invested. Investors include Johnson & Johnson, prominent physicians, and industry leaders. Advisors to the Company include some of the foremost names in magnetic resonance imaging, radiology, and related specialties. In December 2001, MagneVu was awarded UCSD's prestigious Connect award for the most significant new product in the life sciences category.

The company is seeking \$5 million in growth capital. The proceeds will enable the company to expand marketing and sales initiatives, establish new clinical uses for the product, and perform additional product development.



### **Competition:**

Over 22 million MRI procedures are performed each year. MagneVu MRI technology is being offered to markets that cannot use expensive systems from major manufacturers such as General Electric, Siemens, Philips and Hitachi. Although these entrenched manufacturers offer products with limited capabilities at reduced prices, these "low-end" MRI products cost between \$300,000 to \$800,000, and still require all the site preparation, installation, and operating costs of larger systems. The MagneVu MV1000 costs \$150,000 and is the only MRI that meets the requirements of in-office applications.

### **Distribution/Marketing Plans:**

## A MagneVu in every Rheumatologist's office

Over 2 million Americans are affected by rheumatoid arthritis (RA). There are 5,000 rheumatologists in the United States now treating 225,000 RA patients with new biologic therapies. In its latest guidelines, The American College of Rheumatology (ACR) emphasizes the value of early diagnosis and aggressive treatment. It is now possible to slow or inhibit erosive joint disease with these promising new biologic therapies, but regular imaging is critical in the management of these patients.

Current diagnostic tools such as X-Ray are inadequate. X-Ray lacks soft tissue capability and is insensitive to joint erosions until damage is significant. Until now, there has been no cost-effective diagnostic tool available to facilitate objective diagnosis and early treatment. The MagneVu MRI is the tool of choice for the early diagnosis of RA and the ongoing monitoring of therapy. Conventional MRI can provide excellent data, but use is limited due to high cost, patient discomfort, and lack of in-office capability.

Centocor, a Johnson & Johnson subsidiary, Amgen (Immunex), and Abbott Labs market the new biologic therapies. Worldwide sales of their three products were \$1.7 billion in 2001. The retail cost is \$1,100 per dose and costs to payors can exceed \$10,000 per patient annually for the drug and related costs. To convince the payor community, objective justification is necessary for initial prescription and ongoing treatment. These companies have recognized the MV1000 as the only cost effective, in-office diagnostic tool capable of providing this objective data.

## Fifth Year Revenue & Earning Projections:

MagneVu Pro-forma Statement of Operations (\$000's )

For the Years Ended December 31,

-	2003	2004	2005
Revenues \$	4,191	32,839	133,504

#### Gross Margin......\$ 3,123 24,922 103,074

EBITDA.....\$ 634 13,778 69,324

 Units In Service.
 43
 313
 1,473

 Employment
 23
 70
 166



#### Management Team:

Executive Officers and Key Employees

The management team is composed of executives experienced in the medical industry and the unique challenges of high-growth companies. Several members have prior experience working together, and the entire team has an excellent working relationship.

Name	Age	Position
Freeman H. Rose	60	Chairman, President, CEO, Director
Timothy W. James, Ph.D.	52	EVP Product & Market Development
Michael D. Barry	35	Director, Sales & Marketing
Donald Stevenson	48	Vice President - Engineering
Wayne Cornelius, Ph.D.	53	Senior Scientist
Gloria Rose	55	Vice President - Manufacturing
Douglas C. Brewer	45	Chief Financial Officer

#### Management Team:

The company was founded in 1991 by Freeman Rose, CEO, Dan Clark, former CEO, and Rudolph Shepard, Attorney and Board Member. The Board of Directors consists of 5 members. Corporate officers are noted.

Freeman H. Rose, Chairman, Founder Kenneth Slutsky, Partner, Sepulveda Capital LLC Andrew Arnold, Partner, Sepulveda Capital LLC Rudolph C. Shepard, Secretary, Founder Ronald Van Horssen, Entrepreneur, Consultant

**Advisors:** 

MagneVu has engaged experts to advise the company on legal, patent, business, and clinical matters. The Medical Advisory Board (MAB) consists of luminary physicians in disciplines such as orthopaedics and radiology.



# VidaCare Corp.

Address:	722 'A' Isom Road San Antonio, TX 78216	Forum Participants:	Larry J. Miller, MD, Co-founder / CEO Jim Thomsen, President Eric W. Eisbrenner, Co-founder / Controller
Phone: Fax: Homepage:	210-375-8500	Sector:	Medical Device

# **Company Overview:**

VidaCare is a medical device company leading the innovative development of handheld battery-powered devices that will initially help air-transport paramedics, emergency medical technicians (EMT's), and emergency room (ER) nurses and doctors administer lifesaving drugs and fluids. One of the greatest challenges medics face in the treatment of emergencies is to rapidly establish intravenous (IV) access. Every year, desperately needed IVs cannot be started in more than five million patients due to collapsed veins from shock or blood loss. In another seven million patients such access is extremely difficult taking over five attempts or 10 minutes to achieve. As a result, thousands die needlessly, often en route to an ER where a central line must be inserted into the chest for vascular access. A well-recognized alternative route is to give IV medications through the bone marrow (intraosseous, or IO). The medical community recognizes that the bone marrow is actually a non-collapsible vein, through which any drug or fluid can be safely given. Fluids given through the bone marrow reach the circulation at the same speed and concentration as if they were given through a vein. The problem until now was how to safely and easily get a needle into the bone marrow.

#### VidaPort – A New Solution for Emergency Medicine:

VidaCare's first product for commercialization is VidaPort, a small battery-powered device with a replaceable needle that safely penetrates the bone with a hollow drill to provide immediate IO access for any drug or fluid. VidaPort offers great promise for every serious emergency that requires rapid and reliable vascular access to administer life-saving drugs or fluids, when traditional IV access is difficult or impossible. With the VidaPort medics can reliably establish IV access in less than 10 seconds, providing the speed needed in situations with multiple casualties. VidaPort technology is an ideal alternative for treating shock, trauma, cardiac arrest, drug overdoses, diabetic coma, burns, dehydration, seizures, allergic reactions, difficult airways, and arrhythmias. Currently, the IO route is used for venous access in pediatric patients, whose bones are soft enough to permit manual insertion of IO needles. However, no practical (safe & effective) device has been available for IO access in adults, because of their harder bones.

The market for VidaPort exceeds \$1.38 billion annually – while the low cost of the device and needles coupled with the simple sales channels to Air Transport and EMS providers will facilitate rapid adoption. Additionally, VidaCare is developing VidaVacs (for bone marrow harvest), VidaProbes (for bone marrow biopsies), and other devices to eventually address other markets that exceed \$300 million annually.

#### VidaPort – A New Defense for the Military and Homeland Security:

Recent events make it evident that American civilians and soldiers face mortal danger from nuclear, biological, and chemical agents. Thousands may die from the direct insults of these agents. However, thousands more could die because lifesaving medications and fluids cannot be administered in a timely manner in a mass casualty situation. The military is spending millions to find ways to more effectively and rapidly treat large numbers of victims. VidaPort is a simple and effective device that can substantially improve a medic's ability to save lives from casualties resulting from shock trauma, chemical exposure,



and other emergency situations. The minimal learning curve, low skill level required to successfully use the device, and the speed at which it can be administered makes it ideal for users with limited experience, such as first responders and military medics. VidaPort will enable them to rapidly establish IV access in the most difficult patient and under the most difficult conditions and should be a staple in every emergency kit in the field.

High-ranking military officials believe VidaPort will save many lives in treating massive numbers of shock trauma and other patients in the field. It is anticipated that the military will conduct their own fast track clinical trials for VidaCare during the commercialization process. The new military training manual specifically recommends IO access for battlefield casualties. Col. John Holcomb, Chief of surgical research, Brook Army Medical Center said, *"If the VidaPort were available today, it would be in Afghanistan tomorrow"*.

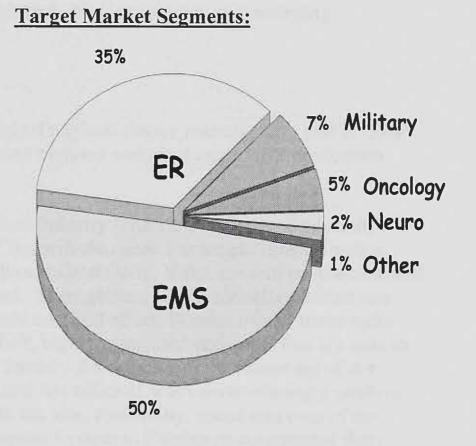
#### **Subsequent Products & Applications:**

VidaVac: For bone marrow transplants in cancer treatment and for stem cell harvesting VidaProbe: For bone marrow biopsy for diagnosing cancer and hematological diseases VidaPort: Similar to EMS use but for when veins have been destroyed by chemotherapy VidaVent: For closed head injury requiring introduction of a probe for monitoring and controlling intracranial pressure

VidaVet: To aid with the difficult venous access in animals

#### Total Market Size (\$1.6 Billion):

VidaPort, VidaVac, VidaProbe, VidaVent, and VidaVet (5 devices in total) represent the first generation in powered instruments for the medical community to use for intraosseous infusion, bone marrow aspiration and neurosurgery monitoring. VidaPorts focus on the \$1.38 billion pre-hospital EMS, Emergency Medicine (ER), and Critical Care markets. VidaVacs are targeted for the \$135 million Oncology and Hematology markets. VidaVents provide neurosurgical monitoring for head injury patients in a \$50 million market. The total annual market is over \$1.6 billion dollars and growing at approximately 5% per year. The Company expects to capture \$108 million of this market within 6 years from product launch. It is anticipated that the market will quickly adopt this technology as a new standard of care.



#### Management:

VidaCare's management and scientific advisors provide the background and experience necessary to bring their products to market. Larry Miller MD and Eric Eisbrenner, the founders of LifeQuest Medical, licensed an intraosseous device from the University of Texas and developed it into a commercial product for cancer treatment. They financed the company with venture capital partners (Solomon Brothers, Essex, and Woodlands) and took the company public at \$10.50 per share in just two years. They are highly experienced in managing clinical trials, developing medical devices, and obtaining FDA approvals. The company may seek an experienced medical device CEO at the appropriate stage in its growth development.

Larry J Miller MD, Co-founder & CEO. Since training at Chicago's Cook County Hospital, where Dr. Miller earned the Intern of the Year Award in 1966, he has treated more than 120,000 emergency patients.



He was Chairman of Emergency Medicine at the 5 Baptist Health System Hospitals in San Antonio for 10 years. He is medical director for 4 EMS organizations. Dr. Miller brings a rich experience of clinical medicine (30 years as an emergency medicine specialist and opinion leader), in-depth knowledge of intraosseous physiology (directing intraosseous research, human clinical trials, and FDA device approval), and business management (20 years directing product development, engineering, manufacturing, and marketing, as president and CEO of 3 medical device companies).

**Jim Thomsen**, President. Mr. Thomsen is a seasoned medical-device sales & marketing executive with over 30 years of experience in healthcare and medical devices (12 years in IV access products). He was consistently number one in sales with Jelco, a division of Johnson & Johnson; US Surgical (sales from \$3 million to \$1 billion in 5 years); Vicra, a division of Baxter; Pioneer Viggo, a division of BOC; and Intertech Resources. His responsibilities included sales & marketing management, product management, business development, strategic planning, international markets, venture funding and M & A. Highly entrepreneurial, he founded his own medical device distribution company (Intermedway) in 1989 and grew it from \$0 to \$244 million in only 6 years. He later raised \$65 million for the creation of another device distribution company (Critical Care Concepts) that was later sold to Cardinal Health.

**Eric Eisbrenner**, Co-Founder & Chief Financial Officer. Mr. Eisbrenner has been involved in start-ups, business turn-a-rounds, mergers, divestitures, business development and strategic planning. He has significant operational experience in a variety of industries including financial, biotechnology, manufacturing, software, hardware, and pharmaceuticals with sales levels between \$5 and \$50 million. During the last 10 years Mr. Eisbrenner served as Partner, Director and Vice President - Corporate Finance for two securities firms in Western Canada, servicing the mid cap market and has been responsible for raising more than \$100 million for the high tech, biotechnologies and emerging businesses.

#### Manufacturing & Marketing:

VidaCare will subcontract its manufacturing to an established medical device manufacturer that is GMP approved to leverage the infrastructure to support increasing margins and meet aggressive production schedules.

VidaCare will establish marketing alliances with established industry (channel) leaders and specialty distributors such as Cardinal Health and Tri-anim. VidaCare will also seek a strategic alliance with a major EMS manufacturer such as BectonDickinson, Medtronics and Cook. VidaCare will supplement and manage the distribution system with in-house sales support. Management has historically utilized this approach to most rapidly penetrate the market with minimal cost and effort. Domination of these niche markets is possible because they are comprised of close-knit, highly motivated end-users that are able to rapidly make purchasing decisions. The feedback from a January 2003 focus group consisting of Air Transport paramedics, EMS administrators, and military and fire officials was overwhelmingly positive with clear expression of need for the device and interest in the size, reusability, speed and ease of use. Jim Blosser, an Air Flight Paramedic from the Mercy Hospital System in Pittsburgh commented that: *"This device and the science behind it will alter the standard of patient care throughout the world."* 

## **Patent Protection:**

VidaCare owns the exclusive rights to innovative medical device technology developed at the University of Texas Health Science Center– San Antonio. A patent covering 24 claims was issued in February 2001. Divisional patents have been allowed and a continuation in kind (CIK) application has been submitted. A second patent issued in 1996 has been acquired covering all the base technology of powered IO devices. The company has applied for provisional patents, which should result in 10 additional patents with over 100 claims.

#### **Regulatory Approval and Commercialization Schedule:**

VidaPort is a "Class I" medical device (a needle) requiring FDA 510(k) approval. This approach takes only 90 days and does not require Phase II testing in humans. Management has initiated the application



process for the FDA 510(k) and believes that final approval should be granted by August 2003. BC Tech of Santa Cruz, CA, a medical-device engineering firm, has been engaged to assist in completion of the device development utilizing off the shelf components. Product commercialization should commence by November 2003.

#### **Financial Projections:**

The VidaPort is designed with a reusable driver (handle) priced at \$150, and 20 disposable needles (drills) priced at \$75 each, providing recurring revenue. The estimated initial cost of the products are \$29 for the driver and \$3.75 for the needles. Projections are as follows:

Projections	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6
Revenues/Income (Loss)	Development	Commer	cialization			
Sales in Units	2,500	68,150	216,00 0	446,500	738,335	1,202,82 5
Revenues ('000)	225	\$6,134	\$17,82 0	\$40,185	\$66,449	\$108,254
Net Income (Loss) ('000)	(\$2,187)	\$2,400	\$ 5,500	\$12,859	\$21,929	\$36,806
Net Margin	N/A	21%	31%	32%	33%	34%

#### **Company Information & Financial Requirements:**

VidaCare Corporation is a development stage medical device company. The Company is debt free. A \$430,000 bridge note raised by Wind River Capital in December 2002 will convert at a 20% discount to the current offering. In total, VidaCare's development to date has been funded with approximately \$800,000 covering marketing studies, engineering prototyping, and patent and licensing fees. License fees have been converted to equity by the University of Texas. Currently, \$3.5 million is being raised (along with the \$300,000 in the bank) to take VidaPort beyond four milestones: 1) through development; 2) FDA approval; and 3) clinical trials; and 4) to begin the market roll-out. Proceeds will be used as follows:

Total:	\$ 3,800,000
Market Roll-Out	1,000,000
FDA Approval & Clinical Trials	600,000
Device Development (includes Beta testing)	\$ 2,200,000

Breakeven is anticipated by the middle of the second year following the market roll-out.





# **BioPath Detection Systems**

Address: Phone:	Suite 130, San Diego, CA 92126		Forum Participants:	Paul Fasi Ravi Pottathil, Ph.D.		
Fax: Homepage:	858-777-3600 NA		Sector:	Biotechnology		
COMPANY Legal Form:	PROFIL	E: Will be California C Corp	Amount of Ca	pital Raised:	0	
Date Established: Number of Employees: Stage of Development:		2 Start-up to which patented technology will be assigned by principals	Funding Soug Current Inves		\$5 Million/by milestone None	

# **Company Overview:**

The management of AccuDx Inc., a San Diego company, will form a new company, BioPath Detection Systems, Inc. ("BDS") to which it will transfer all thermal strip thermal cycler technology, intellectual property and related technologies. AccuDx plans on providing equity in BDS to potential investors in exchange for investment funding. All thermal strip thermal cycler platform products and future R&D will be developed by BDS. During the first few months of operations BDS will use AccuDx laboratories facilities for its initial development efforts. In the third quarter of Year 1 of operations BDS expects to move to expanded facilities to meet the anticipated product development and operations needs.

**Product/Technology Description:** BDS primary technology is a proprietary thermal strip thermal cycler technology platform (U.S. Patent Pending) that integrates extraction and purification, amplification and detection of targeted nucleic acid within 15 minutes of a specimen being introduced to the disposable assay test card. The thermal strip thermal cycler platform is a card device ("device card") about 6" x 2" that is placed in a portable reader containing electrical current and a fluorescent detection unit. The device card incorporates a thin layer dry membrane (nylon, nitrocellulose or other membrane material) layered over a non-electrical conductive film such as acrylic. The nitrocellulose membrane is impregnated throughout with fluorescent primers consisting of specific DNA sequences belonging to targeted pathogens and thermostable DNA polymerase, an enzyme that assists in bonding the primers with the targeted DNA sequences. The device card is placed within the reader device, which incorporates a series of 30 to 40 parallel heating elements that are perpendicular to the length of the reader device and device card when it is inserted in the reader. Above the inserted device card within the reader are another series of 30-40 sets of parallel cooling elements that are aligned alternately between the parallel heating elements below such that when the device card is seated within the reader device and the cover in depressed upon the device card the device card is tightly sandwiched between the heating and cooling elements. The specimen to be tested is placed in the sample well of the device where it is subjected to a heat element and enzymes which extract the target sequence. The extracted specimen is then pulled through the membrane by capillary action caused by the liquid attraction to the absorbent pad at the distal end of the device card. As the specimen moves through the membrane it is mixed with DNA polymerase and primers and as it flows over the first heat zone the target sequence is denatured. As the specimen continues through the membrane it is cooled which cause the primers to anneal and as it is heated again



the fluorescent primers are extended resulting in a doubling of the original target sequence. This process is repeated at least 30 times as the specimen mixture moves through the membrane. At the end of the process the target sequence has been amplified a billion-fold with each DNA strand containing one molecule of fluorescein at the 5' end. Amplified DNA is hybridized specifically using capture probes. Each hybridized DNA molecule will contain fluorescent tags that are visualized by a simple fluorescence detector. BioPath plans on developing specific assays that will detect the presence of targeted pathogens such as biological warfare agents and human disease pathogens. The device card can amplify and detect single or multiple pathogens or target sequences allowing from 1 to 100 plus possible detection which would allow this device to be used for pathogen detection, quantitation (viral load testing) and multiple detections or for example genotyping applications. A working prototype of the thermal strip thermocycler has been tested targeting Tuberculosis DNA which has been successfully applied to the device card and amplified over 10 cycles resulting in the amplification of TB DNA comparable to that of the same specimen amplified in a microtiter plate amplification on a standard Perkin Elmer thermal cycler overb 10 cycles.

#### **Industry Overview:**

The DNA testing market is generally comprised of three major market segments in order of their potential market size: (1) biomedical: life science R&D, genomics, genetic testing, clinical diagnostics and drug discovery markets, (2) biological warfare / environmental detection market and (3) various industrial markets such as food processing, building air handling systems and DNA branding. The combined market potential for BDS's first two target markets segments; biomedical markets and biowarfare / environmental testing markets is well defined and currently estimated at \$1.5 billion in annual revenues with a projected size of \$4 billion to \$5 billion by year 2005. Our first target market is the biowarfare detection market for which no FDA product approvals are required and in which we believe we can generate revenues in Year 2 with which to sustain the product development and company growth objectives.

## **Competition:**

To better address the issue of competition and competitors we will separate the competitors into 2 segments: (1) defense contractors and systems integrators and (2) Biological detection instrumentation manufacturers and assay test developers and manufacturers.

**Biowarfare Detection Instrumentation And Diagnostic Assay Developers / Manufacturers**: This is a small group of companies that have developed rapid thermocycler instruments, often licensed from Applied BioSystems (formerly Perkin-Elmer) the company that developed and now manufactures clinical laboratory thermocycler instruments used to perform PCR tests. These companies are probably the companies that will end up being BDS' competition by dint of the fact that they have invested millions of dollars to develop instrumentation products and BDS products could obsolete them in several markets. Most of these companies are involved in strategic alliances with larger defense contractors and many have recently entered development agreements with smaller biotech companies to develop reagents that will work on their systems. The following are the two major competitors in our Biowarfare detection target market.

<u>Cepheid Corporation</u>, Sunnyvale, CA: Cepheid is a public company listed on the NASDAQ. It is a thermocycler instrumentation company. Up until this date Cepheid has been ineffective in developing a large market because of other miniaturized thermocycler systems being manufactured by Idaho Technologies and sold by Roche Diagnostics.

<u>Idaho Technologies Inc.</u> ("IT"), a privately held Salt Lake City, Utah company. IT management positions the company "as the home of the fastest thermocycler on the market". This is an innovative company that had largely focused its development efforts on rapid thermocycler instruments for medical diagnostics. In 1996 IT introduced the LightCycler rapid thermocycler with technology and in 1997 IT entered an OEM agreement with Roche Diagnostics.



**Human / Medical Diagnostic Competitors:** As with the biowarfare competitors we view the current participants in human diagnostic DNA testing to be potential partners and or licensors of our technology. The participants identified in Section 5 identify potential human diagnostic product competitors as well as biowarfare detection product competitors.

<u>Roche Molecular Systems</u>: The leader in DNA testing assays and systems. Roche has over \$300 million in annual revenues in molecular diagnostic product sales. Roche is also a company that acquires and or license technology that enhances their market position. Roche is a prime target for the license and or sale of BDS technologies. Recent Roche licensing/OEM deals include the Lytecycler rapid PCR system licensed from Idaho Technologies identified in the biowarfare competition section of this plan.

Others: Abbott, Bayer/Chiron, Digene, Ortho Clinical Diagnostics, etc.

## **Distribution/Marketing Plans:**

BDS's product distribution strategy is develop OEM product licensing and manufacturing business with major industry participants within our targeted market segments as well as to identify, qualify and appoint direct product distributors for major targeted market segments and geographical territories. BDS will develop distribution channels for products through existing national and regional specialty chemical and laboratory supply companies such as Sigma, Fluka, VWR Scientific, etc and through in-house major account focused marketing efforts. BDS plans to target its initial marketing effort at Military Specifications Commands, Defense Contractors / Systems Integrators, Government and Emergency Services Agencies and major security, building systems, transportation, manufacturing industries, diagnostic manufacturers and specialized clinical laboratories in the United States, Canada, Europe, The Middle East and Asia. To rapidly gain product acceptance and market penetration BDS will develop strategic technology licensing, OEM and marketing relationships with companies marketing systems that are complementary or that incorporate our technology as disposable detection media.

## Fifth Year Revenue & Earning Projections:

By the end of the 5th year of operations, BDS project's gross annual revenues of \$410 million with net after tax income of \$95 million or 23% of gross revenues.

## Management Team:

**Paul F. Fasi is the President of BDS**. He is currently Managing Director of AccuDx International business development. Before assuming these duties, Mr. Fasi was a business advisor to AccuDx and before that the Managing Director of Specialty Laboratories Asia Pte Ltd, Singapore. He has extensive experience with start up and management of diagnostic product and service businesses. He created and managed Specialty Laboratories Asia Pte Ltd. one of the first Asia wide health care companies that included a Singapore based holding company with advanced product development and R&D laboratories and two subsidiary joint venture companies in India and Malaysia. He successfully developed, started-up and managed both Asian joint venture esoteric reference laboratory companies in Mumbai, India and Kuala Lumpur, Malaysia. He also created one of the first diagnostic products manufacturing companies in South East Asia and raised over \$15 million in investment funding for this Asia wide healthcare company. Mr. Fasi has a degree in engineering from the United States Military Academy at West Point, New York. CV is available on request

**Ravi Pottathil, Ph.D. is the Chief Scientist of BDS**. He was the founder, President and Chief Scientist of AccuDx. He is a recognized expert in molecular diagnostics and in particular the purification and detection of genetic material through various biotechnologies such as PCR. He lead the development of the first Roche Amplicor® PCR (polymerase chain reaction) products while managing diagnostic product development at Roche Diagnostics as well as many of Roche's automated tumor marker assays and



infectious disease assays. He has a Ph.D. in Applied Biology from the Cancer Research Institute of the University of Bombay. His postdoctoral work was accomplished at the Jackson Laboratory in Bar Harbor, Maine and Duke University in Durham, North Carolina. CV is available on request.



# Molecular InSight, Inc.

Early

Address:	800 Bradbury SE	Forum	Ries Robins	son, MD – CEO
	Albuquerque, NM 87106	Participants:	Pete Kern -	CFO
Phone:	505 272 7302			
Fax:	505 272 7112	Sector:	Medical Device	
COMPANY	Y PROFILE:			
Legal Form:	Delaware Corporation	on Amount of Cap	ital Raised:	\$3M
Date Establis	hed: April 10, 2003	Funding Sough	t:	\$3M
Number of	5	Current Invest	ors:	InLight Solutions, Inc.
<b>Employees:</b>				

# **Company Overview:**

**Stage of Development:** 

Molecular InSight, Inc. is a medical device company developing products to improve cancer screening and detection while dramatically reducing clinical laboratory labor costs. The first product is an automated slide reading instrument for cervical (Pap) samples, that offers cytopathology laboratories a more accurate, faster, and cost effective solution to today's error prone and manual sample analysis approach. Molecular InSight was established April 10, 2003 as an independent spinout of InLight Solutions and benefits from the parent company's \$50MM investment made in the area of medical spectroscopy.

#### **Product/Technology Description:**

Molecular InSight is developing automatic slide reading systems that recognize molecular or biochemical characteristics of cancerous and precancerous samples. Molecular InSight will sell instruments and consumables to clinical laboratory customers who process the cervical samples. Molecular InSight's initial product consists of two components: a proprietary slide (consumable) and a slide analyzer instrument. The proprietary slide is designed to be compatible with existing thin layer slide processors (sold by Cytyc, Inc. and TriPath Imaging, Inc.) so that the laboratory can continue to use their existing slide preparation systems. The slide analyzer classifies slides as 'within normal limits' (normal), or 'in need of further review' (abnormal). In the majority of laboratories 100% of the samples undergo human analysis. The Molecular InSight system reduces the percentage of slides undergoing human analysis to 20% by accurately recognizing the approximately 80% of Pap slides that are normal, enabling these slides to go directly to file without human analysis.

Molecular InSight replaces the manual, pattern recognition approach to sample analysis with automated spectroscopic analysis. Molecular InSight "sees" molecular level signatures that manifest as the cell-level morphology characteristics that cytotechnologists attempt to find. The Molecular InSight system will have better classification performance and higher throughput than existing methods due to its ability to measure chemical and molecular changes in the cells.

#### **Industry Overview:**

Clinical laboratories want and need an effective way to automate cervical cancer (Pap) screening thereby reducing labor and overhead costs. Currently, the 55 million Pap samples (US only) processed each year



require trained cytotechnologists to peer through microscopes to subjectively assess cell shape patterns. A cytotechnologist spends less than 10 minutes to examine over 50,000 cells to determine sample adequacy and sort the normal from the abnormal samples. Manual analysis costs clinical laboratories more than \$10 per slide for labor and incremental overhead: \$550 million annually. There is a chronic 20% shortage of skilled labor necessary to perform the screening task. Additional costs include recruiting expenses, cytologist management costs, and microscopy workstation costs. Automation is the key to clinical-laboratories reducing the cost of all high volume tests including the Pap test.

## **Competition:**

While many companies recognize that cervical cancer screening represents a tremendous opportunity, Molecular InSight has taken a unique approach that will satisfy the market need for lower labor costs where others cannot. Unlike other automation competitors who are now and for the foreseeable future are taking an "Assistive Technology" approach, Molecular InSight will replace cytotechnologist labor with "Automated Analysis Technology." Assistive technologies make reading slides easier for the cytotechnologist but do not significantly impact the labor requirement, the real customer need. Being an additive as opposed to replacement technology is a key reason that the current automation competitor, TriPath Imaging, lacks market acceptance. Assistive product strategies do not substantially impact cytotechnologist labor or costs; Molecular InSight will.

The Molecular InSight process supports clinical laboratory sample processing, the current and foreseeable standard in cancer screening. Companies taking the *in vivo* approach are actually working to improve cervical cancer <u>treatment</u> as opposed to cervical cancer <u>screening</u>. *In vivo* based tissue analysis systems (still in early stages) may allow the specialist to clarify whether biopsy is necessary during a colposcopic exam. While some companies speculate that in vivo approaches to screening may replace the current labbased approach, Molecular InSight interviews with physicians and payers indicate unwillingness to shift the current standard. Key reasons sited for rejecting in vivo physician office diagnosis without confirmation by the pathologist are: the increased appointment time that this approach would require, physician reluctance to purchase expensive capital equipment, and concerns over liability for diagnosis. *In vivo* technology developers include: LifeSpex, SpectRx, MediSpectra, and Polartechnics.

## **Distribution/Marketing Plans:**

Molecular InSight will build market share through a direct sales and marketing program. Since Quest Diagnostics and LabCorp analyze more than 40% of US PAP tests annually, Molecular InSight is developing relationships with these laboratories today so that the product line will meet these key customer requirements. Molecular InSight will secure volume-based contracts with these key accounts effective upon FDA approval of the instrument and slide package. In addition, Molecular InSight may consider selling its system through other companies in the cervical cancer screening market as an OEM. Companies that are currently selling or developing kits for cervical cancer sampling and slide preparation could potentially become interested in an automated analysis system if they have access to the required technology.

#### Fifth Year Revenue & Earning Projections:

Fifth year revenue and cash flow projections are \$267M and \$42M respectively. Molecular InSight estimates average annual product adoption at 7.5% per year, reflecting the actual rate at which commercial laboratories adopted and continue to adopt the liquid based slide preparation methods. The actual adoption rate could be accelerated due to the current existence of a premium reimbursement code, expanding shortages of cytotechnologist labor, increased pressure on laboratory margins, a corporate



decision by one or both of the major labs to adopt the technology at all of their laboratory locations, or a combination of these factors.

Recurring revenue is driven by the sales of the single-use slide. Each percentage point of market share currently represents about 550,000 consumable slides. To achieve slide sales targets, Molecular InSight will first place automated screening devices into commercial labs through variety of methods including direct sale, lease or reagent rental arrangements. Revenue projections represent only US sales of Pap analysis products.

#### Management Team:

*M. Ries Robinson*, *MD*, *President and CEO*. Dr. Robinson is the visionary responsible for establishing and raising funds for Molecular InSight. Current president and CEO of InLight Solutions, Inc. MD 1991; BS/MS Mechanical Engineering, 1987.

*Pete Kern*, *CFO*. Mr. Kern is a specialist in healthcare financial issues. Current VP Finance, InLight Solutions, Inc. Formerly VP Corporate Finance, Presbyterian Healthcare Services; Manager, Arthur Andersen. BA Accounting 1991; CPA, 1992.

*Mike Powers*, *VP Product Development*. Mr. Powers' expertise is medical device manufacturing. Current VP Manufacturing, InLight Solutions, Inc. Formerly VP and General Manager, CMED Manufacturing division of Colorado Medtech (RELA). MBA, BS, Industrial Technology, 1985.

*Howland Jones*, *Product Manager*. Current cancer development program manager, InLight Solutions, Inc. Formerly a member of the research staff at Sandia National Laboratories, Mr. Jones is a co-inventor on a seminal patent in the field to which Molecular InSight has an exclusive license. BS Chemistry, 1988.

*zV. Gerald Grafe, General Counsel.* Mr. Grafe's expertise is establishing competitive strategies for early stage technologies. Current General Counsel at InLight Solutions, Inc. Former Senior Manager and Patent Attorney, Sandia National Laboratories. JD, 1996; MS Computer and Electrical Engineering 1987; BS Electrical Engineering 1985.



# Diakron Pharmaceuticals, Inc.

Address: 4570 Executive Drive, San Diego, CA 92121		Forum Participants:	Srirama Rao, Jeff Bibbs and/or Mario Bourdon			
Phone:			S t			
	Fax: 858-587-6769		Sector:	Life Sciences		
Homepage:						
COMPANY	PROFIL	LE:				
Legal Form:		C corporation	Amount of Capital Raised:		:\$ 850,000	
Date Established:		1999	Funding Sought:		Up to 10 M	
Number of		3	<b>Current Investors:</b>		Co-founders	
Employees:					Windamere Venture Partners	
Stage of Development:		Seed				

# **Company Overview:**

Diakron is a cardiovascular drug development company focused on the development and commercialization of novel compounds for the treatment of hypertension, dyslipidemia and metabolic disorders. The company in-licenses novel products and develops those compounds using its internal expertise. The company is seeking up to \$10M is series A financing to complete preclinical studies and enter clinical trials.

## **Product/Technology Description:**

Calcium Channel Blockers: Diakron has licensed a series of 60+ compounds synthesized on the backbone of the dihydropyridine molecule, nifedipine and its pyrimidinone analog. The compounds are all novel, new chemical entities (NCEs) with provisional patent filings in 2002 for structure and use. The Company has completed *in vitro* screening of the first 20 compounds and found at least 10 compounds that block the T-type calcium channels with high potency. The prototype compound from the series, DP-2005, has been shown to have a 40X selectivity for blocking the T-type over the L-type calcium channels. When studied by IV administration in hypertensive rats, DP-3005 has met the target product profile of an anti-hypertensive effect with a slow onset and long duration.

**HDL Agonists:** HDL elevation for reverse cholesterol transport. Diakron has licensed a partially purified plant extract that has been studied in an animal model for hyperlipidemia. In this initial study, cholesterol-fed rabbits (a model of familial hypercholesterolemia) that were given the extract demonstrated a near 60% increase in HDL levels. The Company plans to repeat this study in a cholesterol-fed hampster model in which characterization of the mechanism of action via one of several pathways can be clearly elucidated. This *in vivo* assessment will allow (1) confirmation of activity in another species, (2) transfer of results to well characterized *in vitro* systems where (3) more efficient determination of the active moiety can be completed.

**Diabetes:** The Company has completed in-licensing of a series of partially purified plant extracts that have demonstrated their ability to lower blood glucose and glycosylated hemoglobin in animal models. The company has already identified an active ingredient and is pursuing the isolation and other active moieties for the treatment of type I and type II diabetes.

# **Industry Overview:**

Primary market research and thought leader interviews have indicated clear unmet needs and corresponding



opportunities in cardiovascular therapy:

There are over 50 million people in the US with hypertension. The vast majority of patients require more than one anti-hypertensive drug for management, although it is estimated that less than 30% are able to achieve the levels of blood pressure control necessary to reduce risk of stroke or heart attack. Within the calcium channel antagonist category, which currently consists only of L-type channel blockers, a new, potent and selective T-type calcium channel blocker should offer superior blood pressure control without the potential for negative impact on the contractility of the cardiac muscle. This is because T-type calcium channels do not exist in cardiac muscle cells, while the L-type channels targeted by current drugs (i.e. Norvasc, Lotrel) are present in cardiac muscle cells. Thus, using currently available drugs to block the calcium channels in the heart can have a negative effect on contractility. Opinion leader interviews have confirmed that physicians view the CCBs as an important medication that they frequently prescribe and will continue to prescribe.

In addition, the market dynamics in the calcium channel blocker segment over the next 5-7 years will be changing as Norvasc, the dominant player faces patent expiry in 2007. Two other large market share holders (Adalat, Bayer; Plendil, AstraZeneca) will also come off patent between 2007-2010. This opens up a significant marketing opportunity for a new, differentiated CCB. Lotrel, a combination CCB and ACE inhibitor from Novartis, is a more recent entrant to the class and has demonstrated the ability of a new CCB with marketing differentiation to achieve significant success, growing their sales from \$200M to over \$800M in the last 3 years.

The need to raise HDL as a potential for reversing atherosclerosis along with the lowering of LDL is fast gaining clinical acceptance. It has been demonstrated in several epidemiological studies that each 1% increase in HDL, predicts a 3% reduction in cardiovascular events independent of changes in LDL. It is estimated that over 20 million people in the US have sub-optimal HDL levels. Only niacin and the fibrates raise HDL levels; however, they have modest activity and marginal side effect profiles.

In each of these drug categories, the Company believes that its compounds will have significant market and clinical differentiation and thus have peak sales potential of \$1+ billion. The Company will complete development and commercialization of all acute care applications for its drug compounds while seeking to partner later stage clinical development and commercialization opportunities for chronic care indications.

# **Competition:**

# The Cardiovascular Drug Market

The cardiovascular drug market is the largest of all therapeutic categories and was estimated at \$44 billion with a 9% growth rate for all segments combined (Merrill Lynch, 2001). New product introductions have been a significant driver to growth in recent years. Over the next 5 years, there will be a number of drugs from several major drug classes (ACE inhibitors, Calcium Channel Blockers and HMG Co A Reductase Inhibitors) that will see the expiration of exclusivity or come off patent that could lead to shifts in the market dynamics of the sector and potential opportunities for new entrants. The following is the breakdown of cardiovascular drug sales taken from the 2001 list of the top 200 selling drugs for all categories.

The hypertension market includes three major classes of drugs, the angiotensin converting enzyme (ACE)

inhibitors, calcium channel blockers (CCB) and the angiotensin II receptor blockers (ARB) each comprising roughly one third of the market. The angiotensin II receptor antagonists are the newest and fastest growing class, while the entire hypertension category is dominated by Pfizer's calcium channel blocker, Norvasc with \$3.6B in 2001 worldwide sales. Patent protection on Norvasc is scheduled to expire in 2007. The dyslipidemia market today is almost exclusively comprised of the HMG CoA reductase inhibitor class of drugs (i.e. statins) with Zocor and Lipitor splitting 70% of the market with 2001 worldwide sales of \$6.5B each.

Distribution/Marketing Plans: Diakron is an early stage pharmaceutical company that is focused on accelerating



the drug development process from preclinical studies to clinical stage development followed by establishing strategic partnering and licensing agreements.

Diakron products will be marketed and distributed via its strategic partners.

**Fifth Year Revenue & Earning Projections:** Revenue projections are likely through licensing agreements with larger pharmaceutical companies. Revenues are expected in the form of up-front cash payments, milestone payments and royalties from sales.

#### Management Team:

**Srirama Rao, Ph.D., Co-founder, President and CEO.** Dr. Rao brings both research and management experience to Diakron. Dr. Rao has worked as Vice President of Research at the La Jolla Institute for Molecular Medicine and has held other senior scientific and administrative positions including Vice President of Research Regulatory Affairs, Director of Inflammation Research and Professor and Head of Vascular Biology at this institute. In these capacities, Dr Rao has directed several research programs in the area of inflammation and vascular biology. Dr. Rao has held research positions at the Pharmacia - Experimental Medicine and California Institute for Biological Research, La Jolla, CA. Dr. Rao is also a co-founder of Mardil Inc., a cardiovascular device company focusing on the development of a minimally invasive cardiac device for the treatment of mitral regurgitation and heart failure.

Shayne Gad, Ph.D. DABT, ATS, Clinical/Regulatory. Dr. Gad has over 19 years experience as a toxicologist, statistical consultant, manager and consultant on research and development in the biotechnology, medical device, pharmaceutical, chemical, consumer product, and contract testing industries. Experienced in development program (both preclinical and clinical) and study design, conduct and reporting; in recruiting; in evaluating clinical and product safety data, in training and managing staff; in dealing with a wide range of U.S. and foreign regulatory bodies, commercial concerns, and contract research organizations; in identifying, developing and putting into everyday use new technology; in writing reports, position papers, Material Safety Data Sheets, MAA/PLA/IND/NDA toxicology summaries and package inserts; in developing and managing operations and capital budgets; and in designing experiments, designing and executing surveys, in the statistical analysis of both experimental and clinical data and risk assessment and in providing litigation support. Dr. Gad is a principal of Gad Consulting Services and was previously Director of Toxicology at Synergen 1993-1994, Director of Medical Affairs Product Support Services, Becton Dickinson, 1991-1993, Senior Director of Product Safety and Metabolism, G.D. Searle, 1989-1991, Director of Toxicology, G.D. Searle, 1986-1989, and Manager, Mammalian Toxicology, Allied Corporation, 1980 1986. Dr. Gad earned a Ph.D. in Pharmacology/Toxicology from the University of Texas at Austin in 1977. Irvin Hurn, CFO: Irwin Hurn is also a partner with Tatum CFO Partners LLP, and practices in the San Diego office. With over 20 years of experience, Hurn is skilled at rapidly analyzing situations, developing an effective (and often creative) solution, and implementing the strategy to improve profits and productivity. He has increased revenues and profits or cut costs in each assignment he has held. Hurn's recent assignments have been with biotechnology companies such as NewBiotics in drug discovery for cancer and infectious disease; Tragen Pharmaceuticals in therapeutic treatment for leukemia; and Applied Gene Technologies in diagnostics for tuberculosis, HIV, and hepatitis. He developed cash flow projections, created financial models for revenues and expenses, created operating budgets, and provided information for investor presentations. Prior to joining Tatum CFO Partners, Hurn served as president of PrimaMed Inc., a management and finance services firm serving the healthcare and biomedical industries. Hurn served for seven years as vice president of finance for BrianPaul & Associates, an architectural firm. He raised \$6.8 million in financing in an extremely tight lending market. Previously, Hurn was a medical researcher for five years with the School of Medicine at the University of California at San Diego. Hurn holds an MBA in Management from San Diego State University and a BA in Biology from Humboldt State University.



He founded the Institute for Negotiation Education. He is past executive committee member and past chair of the marketing committee for MIT Enterprise Forum. He is a member of BioCom, the MIT Enterprise Forum, and Mensa.



# **GlySens Inc.**

	k Blvd., Suite E-109 o, CA 92121	ForumJoseph Y. LucParticipants:David A. Gou		cisano, PhD, President and CEO Igh, PhD	
Phone:(858) 638Fax:(858) 638		Sector: Healthcare – m		nedical device	
COMPANY PROFII	LE:				
Legal Form:	California C-Corp	Amount of Ca	pital Raised:	\$3.25M (Series A &	
Date Established:	1998			development grants/contracts)	
Number of Employees:	6	Funding Soug	ht:	\$2M	

**Current Investors:** 

Angel

# **Company Overview:**

**Stage of Development:** 

GlySens Incorporated is a privately held California corporation that is developing a new glucose monitoring system for the treatment of diabetes. Our fully implanted sensor will unobtrusively provide *continuous* glucose monitoring, setting a new standard of care in diabetes treatment.

Mid-development

Currently, diabetics must determine their blood glucose levels by periodically lancing their skin and assaying a drop of blood with a portable meter. In contrast, the GlySens system under development will automatically measure glucose using a completely implanted, enzyme electrode sensor; it will then transmit the measurement to a device similar to a pager and display the patient's current glucose level. Once implanted, the system will provide a convenient automatic means of glucose monitoring. Non-medical, industrial monitoring applications are also planned.

The Company's founding team has a demonstrated record of success in medical sensors, in both early and late stages of product development, as well as in market introduction. The Company's product approach is the result of over 20 years of university research, leading to a number of recent advances.

#### **Product/Technology Description:**

GlySens is developing a glucose monitoring system to satisfy identified needs of the diabetic community. GlySens' innovation is the system's long-term implantable design, which will function in a solid tissue environment and serve a wide segment of the diabetic population. The design is unique in that it combines proprietary membrane and electrode technologies to overcome previous impediments to long-term tissue monitoring. The product will include a totally implanted sensor with telemetry that sends glucose signals to an external, belt- or wrist-mounted receiver. The system may be expected to operate for one to several years before replacement or renewal will be necessary. This configuration would be safe and potentially acceptable for use in children, as well as adults. The sensor could be used to: (1) warn of hypoglycemia and other blood glucose excursions; (2) indicate the timing and amount of insulin injection for patients utilizing insulin therapy; and (3) specify automatic insulin administration from an external or implanted insulin pump. In this latter use, our system represents the key missing component of the long sought "artificial pancreas."

While eliminating the need for "fingersticks" will dramatically improve quality of life, the greatest benefit of the device is expected to be in ameliorating the long-term effects of diabetes. By providing more accurate and timely glucose readings, the system is designed to enable patients to better control their blood glucose levels, which has been definitively established to reduce the severity of long-term complications.



The enzyme-based principle of the GlySens design is *specific for glucose*, in contrast to other designs, which at best can provide only relative selectivity for glucose over other chemicals present in the body. In addition, the GlySens design utilizes an *inherently stable* enzyme electrode, which is expected to minimize the need for periodic calibrations. Some approaches under development by others will require multiple daily calibrations, with each calibration requiring a fingerstick analysis by the patient. Since the GlySens system is based on an implanted, *non-obtrusive* sensor, it is expected to be suitable for children, unlike devices that would require frequent intervention. Also, because it is *independent of user initiative*, the GlySens system will allow for automatic advisories at user-defined setpoints, a feature not possible in systems that require the patient to initiate measurements.

# **Industry Overview:**

The economic impact of diabetes is staggering. In the United States alone, the disease and its complications are responsible for an estimated \$132 billion per year of direct and indirect costs. A significant improvement in therapy would have an enormous economic impact and consequent value. In the U.S., there are 12 million diagnosed diabetics, an additional 6 million undiagnosed, and 1 million new cases diagnosed each year. Worldwide, \$5 billion is spent annually on glucose monitoring.

The treatment goal for all types of diabetes is the stabilization and normalization of the blood glucose level. This is approached by self-injection of insulin (for all type 1 diabetics, and some type 2) and by oral agents (type 2). Control of diet and exercise are also required. In all cases, patients are instructed to self-monitor blood glucose (SMBG) by fingerstick and adjust their self-treatment on a daily or multiple times-per-day basis.

Current treatments, however, only approximate the normal function of the pancreas, and the blood glucose profiles of even the most diligent patients remain markedly abnormal. Directly associated with the abnormal glucose profiles are the serious and debilitating long-term complications of the disease, including degeneration of the kidneys, retina, microvasculature, nervous system, and other organs. In the U.S., diabetics are 2-4 times more likely than non-diabetics to suffer heart attacks and strokes. Diabetes is the leading cause of blindness, kidney failure, and circulatory compromise requiring limb amputations.

# **Competition:**

The current SMBG market is dominated by four suppliers, Lifescan/Johnson & Johnson, Roche, Bayer, and Medisense/Abbott, supplying hand-held glucometers and disposable test strips. Current technology is mature, with only incremental improvements being offered by these major suppliers, and we expect that variants of current SMBG methods will remain the dominant competing technology for the near future. Major impediments from this sector to the introduction of new monitoring methods will be posed principally by the marketing resources available to the major players.

While several firms are competing to bring to market the next new glucose monitoring technology, none of these competing technologies possess all of the advantages of the GlySens methodology. GlySens' approach provides distinct competitive advantages in the areas of anticipated patient/physician acceptability, applicability across age groups, accuracy and stability, and convenience.

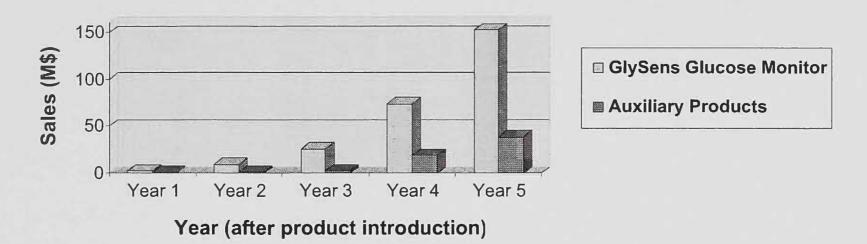
## **Distribution/Marketing Plans:**

GlySens intends to develop a specialty direct sales force for introduction of the product, although we do not rule out strategic marketing alliances as an alternative, should such arrangements prove attractive. We will initially target renowned centers for diabetes treatment associated with respected leaders of the diabetes treatment community. Market introduction through these centers will provide the most effective access to an identified early-adopter population and will speed dissemination of product information to the broader marketplace. The Company will sponsor carefully designed and monitored clinical trials, to be published in respected, peer-reviewed journals. Both short-term trials to demonstrate accuracy/reliability and longer-term outcome studies will be pursued.



#### Fifth Year Revenue & Earning Projections:

For the first five years following regulatory approval, the Company projects U.S. annual sales of the implantable system and auxiliary products as shown below. Sales projections are based on a conservative, phased market introduction, designed to assure product success. After five years of product sales, predicted sales volume represents only 2.5% of the conservatively estimated total U.S. market potential.



#### Management Team:

Joseph Y. Lucisano, PhD, Co-Founder, President and CEO. Dr. Lucisano has broad experience in the development of implantable medical devices with a long-standing focus in medical glucose sensors. He was previously Program Director at VIA Medical Corp (Metracor Technologies) during development and product launch of the world's first practical, commercial, patient-attached blood glucose sensor system. He holds 12 patents on glucose monitors and related technology.

**David A. Gough, PhD, Co-Founder and Technical Advisor.** Dr. Gough is Professor of Bioengineering at the University of California San Diego (UCSD) and a recognized world expert in implantable glucose sensor development. He has over 80 publications and 13 patents in the area of glucose sensors, bioinstrumentation, and biomaterials.

84

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