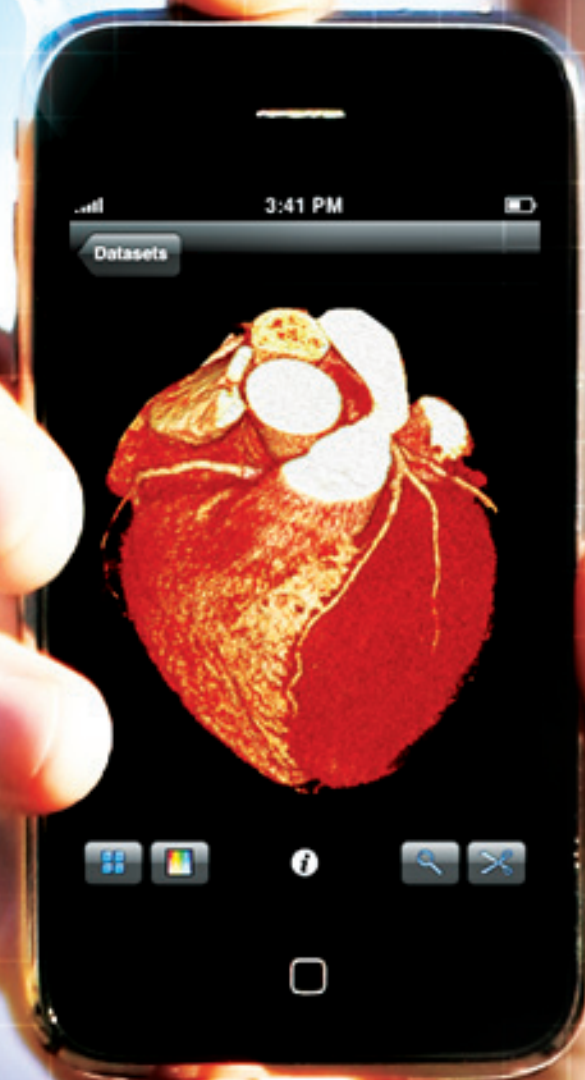


COOL

COMPANIES

Alberta's Medical Devices & Technologies



Alberta's Medical Devices & Technologies 2010



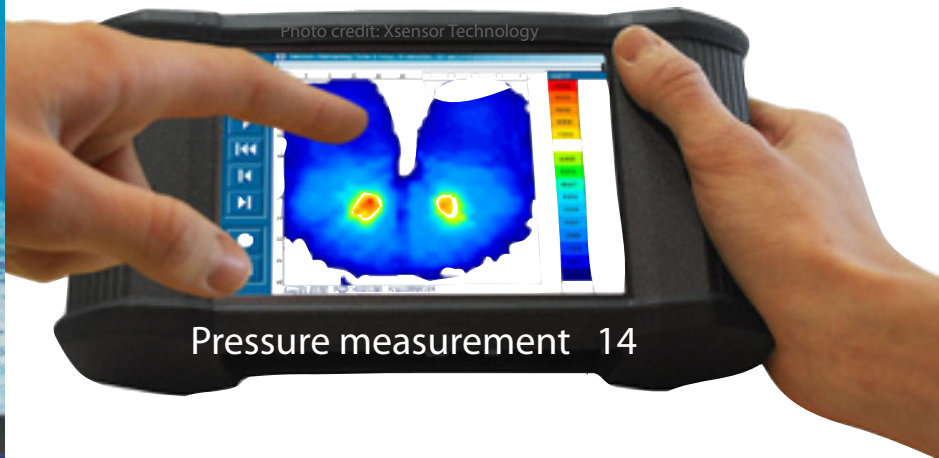
Bionic leg 23

Photo credit: Biomation

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Alberta's fast-growing medical devices and technologies industry had annual revenue of over \$195 million in 2008 produced by 93 companies with 1,632 direct employees. Its revenue is expected to grow 20% in 2009 to \$235 million.



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Photo credit: Xsensor Technology

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Photo credit: Vista Technology



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Photo credit: Jack Horst

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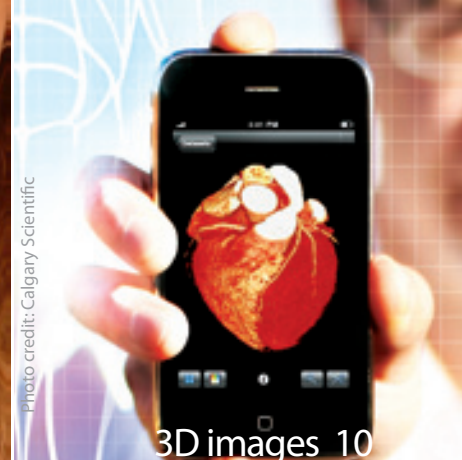


Photo credit: Calgary Scientific

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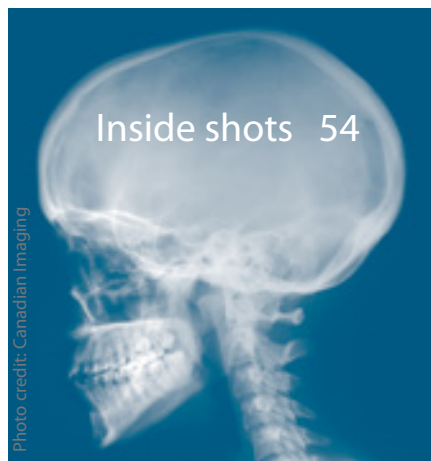


Photo credit: Canadian Imaging

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Letter from the EDITOR

Alberta's Medical Devices & Technologies 2010



For nanotechnology in Alberta, visit our website

Would you like to be notified when our next edition or industry guide is available?

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Innovative opportunities to grow your business:

Cool Companies is designed to be a business development tool to help senior-level business people quickly find innovative high tech products, companies, researchers and supporters. Please feel welcome to contact the people and companies profiled in this book to develop your own collaborative partnerships.

Scope: Starting from just above the cell and drug level, this *Cool Companies* industry guide focuses on the medical devices and technologies found in Alberta. Based on first-hand interviews with participants, this guide profiles 93 companies, 30 supporters, and a sample of 35 researchers. The impressive collection of world-class innovators include priMED, TENET Medical Engineering, Imaging Dynamics (IDC), NUCRYST Pharmaceuticals, and Calgary Scientific to name a few.

Huge industry growth: The data we collected through our hands-on research in preparing this book shows that Alberta's medical devices and technologies industry in 2008 had 93 companies, 1,632 employees and over \$195 million in sales revenue.

All the best in developing your *cool opportunities*™,

Claudia Sammer
Founding Editor and Publisher



Did we miss your company?

If we missed your Alberta-headquartered company in this edition and you would like to be part of a future edition on this subject, please contact us.



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Cool Companies acknowledges the support of the Alberta Government towards this book.

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Government of Alberta 

Industry Analysis

Alberta's Medical Devices & Technologies

Industry Summary

- **Companies:** 93 identified as of July 2009.
- **Employee Size:** 1,632 direct employees in 2008 confirmed. For 2009, 15% growth over the 2008 employee size is expected to produce an industry size of 1,872 employees.
- **Revenue Size:** Over \$195 million annual revenue in 2008. In 2009, annual revenue is expected to be \$235 million, which is 20% expected growth from 2008 to 2009.
- **R&D Expenditures:** \$27 million for 2008, which is 14% of 2008 revenue. For 2009, R&D expenditures are expected to increase to \$34 million, with a similar proportion to revenue of 14%.

	2008 (actual)	2009 (expected)	Industry Growth from 2008 to 2009 (expected)
# of Companies	93	na	na
# of Employees	1,632	1,872	240 more (15% increase)
Revenue Size	over \$195 million	\$235 million	\$40 million more (20% increase)

- **Data Source:** Cool Companies' July 2009 industry study of medical devices & technologies in Alberta

Number of Companies

Alberta is home to a young and rapidly growing medical devices and technologies industry. According to research conducted by Cool Companies Incorporated completed in July 2009, Alberta's medical devices and technologies industry has an estimated 93 small and medium size enterprises (SMEs) at various stages of development ranging from emerging companies still in the research and development phase to established companies with millions of dollars in product sales worldwide.

According to Cool Companies' research, almost half of the 93 companies in the industry have been founded since 2000. Of these, 30 companies were started in just the past 5 years, since 2004.

Founding Year	# Companies	% of Industry
2000 to 2009	42	45%
1990 to 1999	27	29%
1989 and earlier	24	26%

60% of the companies in the industry are located in Edmonton and 32% are located in Calgary.

Company Location	# Companies	% of Industry
Edmonton	56	60%
Calgary	30	32%
Other Alberta	7	8%

Employment Growth

Despite being in the early stages of development, the medical devices and technologies industry is a significant employer in Alberta's life sciences sector. Cool Companies found that the industry had 1,632 direct employees in 2008. Alberta firms expect to hire 240 new employees in 2009, a 15% increase from 2008, for a total of 1,872 employees.

Revenue Growth

The industry's revenue has more than doubled in the past four years. In 2004, it was estimated that Alberta's medical devices and technologies industry generated revenue of \$60 to \$80 million. In July 2009, Cool Companies found that the industry reported sales revenue of more than \$195 million in 2008. These firms expect that their revenue will grow by 20% in 2009 to reach \$235 million.

As shown in the pie chart, the Personal Protective Equipment & Woundcare group generated the highest revenue in 2008 at \$46 million. Looking forward, the Informatics group is expected to grow at the fastest rate over the next year, with a 49% revenue growth expected from \$27.5 million in 2008 to \$41 million in 2009.

In July 2009, Cool Companies Incorporated completed a study of Alberta's medical devices and technologies industry. Metrics on the industry's size and growth are summarized below. A comprehensive list of the 93 companies in this industry is available on page 3, and descriptions of each company are presented on pages 8 to 63.

By Ryan Leskiw

Number of companies in the industry by company's product focus

Other & Alternative Devices

	2008 (Actual)	2009 (Expected)	Growth
# COMPANIES:	6 (6% of industry)		na
# EMPLOYEES:	34	37	9%
REVENUE:	\$3.8 million	\$5.8 million	53%
R&D Expenditures:	\$60,000	\$160,000	167%

Personal Protective Equipment & Woundcare

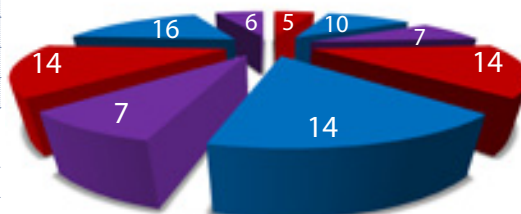
	2008 (Actual)	2009 (Expected)	Growth
# COMPANIES:	5 (5% of industry)		na
# EMPLOYEES:	146	155	6%
REVENUE:	\$46 million	\$50.6 million	10%
R&D Expenditures:	\$2.1 million	\$2.4 million	12%

Informatics

	2008 (Actual)	2009 (Expected)	Growth
# COMPANIES:	10 (11% of industry)		na
# EMPLOYEES:	380	497	31%
REVENUE:	\$27.5 million	\$41 million	49%
R&D Expenditures:	\$10 million	\$12.6 million	27%

Assistive / Rehabilitation Devices

	2008 (Actual)	2009 (Expected)	Growth
# COMPANIES:	16 (17% of industry)		na
# EMPLOYEES:	124	149	20%
REVENUE:	\$11.6 million	\$11.6 million	0%
R&D Expenditures:	\$1.2 million	\$1.3 million	4%



Product Design

	2008 (Actual)	2009 (Expected)	Growth
# COMPANIES:	7 (8% of industry)		na
# EMPLOYEES:	308	310	1%
REVENUE:	\$25.7 million	\$33.3 million	30%
R&D Expenditures:	\$3.8 million	\$4.7 million	23%

Diagnostics

	2008 (Actual)	2009 (Expected)	Growth
# COMPANIES:	14 (15% of industry)		na
# EMPLOYEES:	221	245	11%
REVENUE:	\$18.5 million	\$19.2 million	4%
R&D Expenditures:	\$3.6 million	\$3.6 million	0%

Industry Support Services

	2008 (Actual)	2009 (Expected)	Growth
# COMPANIES:	14 (15% of industry)		na
# EMPLOYEES:	122	145	19%
REVENUE:	\$21.6 million	\$26.1 million	21%
R&D Expenditures:	\$500,000	\$600,000	20%

Medical Imaging

	2008 (Actual)	2009 (Expected)	Growth
# COMPANIES:	7 (8% of industry)		na
# EMPLOYEES:	166	193	16%
REVENUE:	\$20.4 million	\$24.9 million	22%
R&D Expenditures:	\$4.8 million	\$7.5 million	56%

Medical / Surgical Supplies

	2008 (Actual)	2009 (Expected)	Growth
# COMPANIES:	14 (15% of industry)		na
# EMPLOYEES:	131	141	8%
REVENUE:	\$21.5 million	\$22.5 million	5%
R&D Expenditures:	\$1 million	\$1.1 million	9%

Companies founded in the 1990's produced 70% of the industry's revenue in 2008 and revenue for this group of companies is expected to grow a healthy 13% in 2009. (A "high growth company" is defined as having 50% growth over 3 years.) Companies founded since 2000 are expected to have a 180% increase in revenue from 2008 to 2009 with revenue increasing to \$22 million.

Company Founding Year	2008 Revenue Actual data	2009 Revenue Expected data	Growth from 2008 to 2009
2000 to 2009	\$8 million (4% of industry)	\$22 million (9% of industry)	180%
1999 to 1990	\$138 million (70% of industry)	\$156 million (67% of industry)	13%
1989 and earlier	\$51 million (26% of industry)	\$57 million (24% of industry)	12%
Total Industry	\$197 million	\$235 million	16%

R & D Expenditures

The medical devices and technologies companies also conduct a significant amount of research & development (R&D) in the province. The 2009 Cool Companies research study found that industry participants had \$27 million in R&D expenditures or approximately 14% of the industry's total revenue in 2008. Industry wide R&D expenditures are expected to grow in 2009 to reach \$34 million, or 14% of the industry's 2009 revenue.

Medical Devices & Technologies Companies 2010

Kent Imaging

Innovative imaging camera could save your skin

Just looking at it, surgeons can only tell with 60% accuracy if injured or transplanted tissue is going to live or die. However, Kent's imaging technology gives surgeons an instant and highly accurate tissue prognosis they can immediately use to save tissue that needs repair. This technology is based on a special digital camera using near-

infrared light that measures the ingredients tissue needs to survive—blood flow, oxygen and water. A picture of the tissue will show white patches that will heal on their own and dark patches that will not and need help. **Sunnybrook Hospital** in Toronto has been using Kent's technology for the past 7 years to assess burnt tissue, and even to accurately distinguish between 2nd and 3rd degree burns.

COMPANY: Kent Imaging Inc., www.kentimaging.com, 6 employees, founded 2006, startup, investor funded, Suite 1440, 720 - 13th Ave SW, Calgary, Alberta T2R 1M5, 403.228.9588

PRODUCT: Tissue viability imaging

GROWTH STRATEGIES: Seek opportunities with large international corporations with complementary products

CONTACT: Don Chapman, CEO, President and co-Founder, don@umgt.com, 403.228.9588



Photo credit: Kent Imaging

As of July 2009, Canada's province of Alberta was home to 93 medical devices and technologies companies with world-class products and services

By Claudia Sammer

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Imaging Dynamics (IDC)

A world leader in digital high resolution x-ray imaging

Just as digital cameras have replaced film-based cameras, digital x-rays are creating a similar revolution in the healthcare industry. Imaging Dynamics (IDC) is pioneering this fast-growing field, more formally known as digital radiography technology. The advantages of digital x-rays are: significantly less waiting time to see an x-ray image (which translates into seeing more patients per day), higher quality images, and electronic image storage and transfer. IDC uses a charge coupled device (CCD) which is the "film" in digital cameras. NASA also uses CCD technology in the **Hubble Telescope** to capture information from the farthest reaches of space.

COMPANY: Imaging Dynamics Company, Ltd. (IDC), www.imagingdynamics.com, 50 employees, founded 1995, revenue-funded, product sold worldwide, publicly traded on TSX as IDL, Suite 151, 2340 Pegasus Way NE, Calgary, Alberta T2E 8M5, 1.866.975.6737

PRODUCT: High-resolution, affordable digital x-ray imaging technology

GROWTH STRATEGIES: Seek expansion in international markets

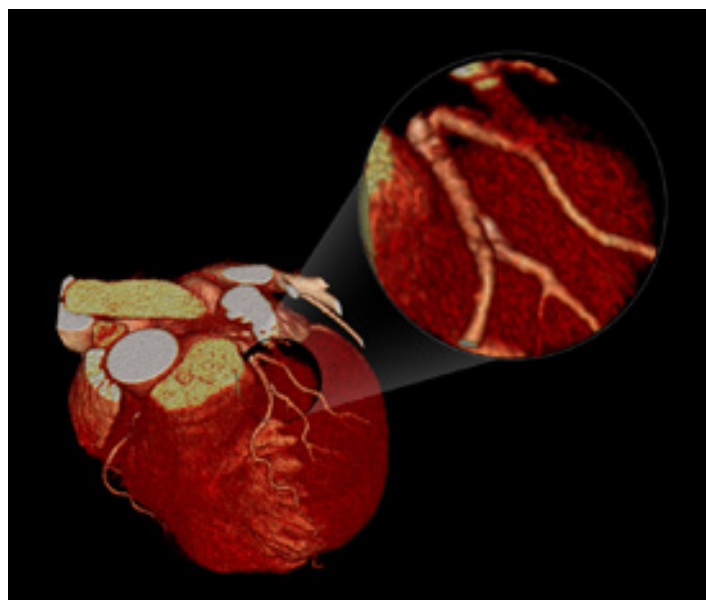
CONTACT: M. Thomas Boon, President and CEO
info@imagingdynamics.com, 1.866.975.6737





Calgary Scientific

World's first visualization platform for medical imaging software



LEFT: With Calgary Scientific's technology, radiologists can view medical imaging data in 3D on their iPhone or any other device that has web browser access, anytime and anywhere. TOP: 3D image of the human heart with detail of vessels. Photo credit: Calgary Scientific Inc.

Radiologists use advanced medical imaging data acquired by MRI or CT scanners to diagnose, treat and monitor diseases such as heart disease, stroke and cancer. Calgary Scientific Inc. is the first company in the world to enable fully interactive 3D visualization of medical images through a web browser. The same technology makes it possible to see the images on an iPhone, as pictured above. As a result, Calgary Scientific's technology is revolutionizing how radiologists access and use advanced medical imaging data.

Until now, radiologists have been tied down to an expensive, high performance computer workstation located at a hospital which they have to share with other users. With Calgary Scientific's technology, however, radiologists are free to view medical imaging data on their iPhone or any other device that has web browser

access, anytime and anywhere—at home, at the mall or on the golf course. They get immediate access to data with the same level of software speed, functionality and performance as the software they normally have on the hospital workstation.

One result of Calgary Scientific's technology is improved diagnostic response. For emergencies such as a stroke where time is of the essence, the ability to look at medical images remotely allows a doctor to quickly diagnose and start patient treatment within minutes. For rural communities without a local radiologist, this technology allows a doctor in another city to analyze the data within minutes, instead of flying the patient to the radiologist. The technology also enables more collaboration between medical specialists for diagnostics, treatment and disease monitoring. For medical conditions with long waiting lists, the technology even

allows healthcare systems to outsource analysis globally. Calgary Scientific has several different 3D imaging products that plug into its web-enabling platform technology—including one for the heart and one for the vascular system. The layout of the 3D images significantly improves a radiologist’s diagnostic and workflow capabilities. **Co-Founder, CEO and Chair, Dr. Byron Osing**, describes the cardiac product, “We take 2D images created from a CT or MRI and render them in 3D. We automatically cut out all the surrounding material to leave just the heart image. Then, the software automatically identifies the three main arteries and draws a centre line down each one. Then you can look at each individual coronary artery and straighten them out to see where the blockages are. You also have the toolset to measure exactly how much blockage there actually is, measure the calcium content, measure all the blood flow running through the heart as well as how much blood each heart beat pumps. No one has ever been able to do this virtually over the Internet. We also have the only package that can use both CT images and MRI images.”

Calgary Scientific’s technology offers significant benefits for the patient as well. The 3D body images eliminate the need for painful, risky, and invasive procedures. There is also a marked decrease in the days spent in the hospital. Calgary Scientific’s 3D product also helps doctors communicate better with patients by letting them see what is happening within their bodies.

Another world-first feature of Calgary Scientific’s technology is that it allows plug-ins from third party software applications—any medical imaging application, electronic medical records, medical image archives, even old legacy systems on any platform. Calgary Scientific’s technology harmonizes third-party software applications onto one unified platform and makes them available at their full speed and functionality over the web on any web-based device, anytime, anywhere. Thinking ahead, Calgary Scientific has already patented this capability for the seismic and gaming industries.

Calgary Scientific is also preparing to take its vision to the next level. The company’s products are based on the research by co-Founder **Dr. Ross Mitchell**, a professor of medical computing at the **University of Calgary** and the **Foothills Medical Centre**. Dr. Mitchell has developed



3D image of the bones in feet. Photo credit: Calgary Scientific Inc.

sophisticated algorithms to enable “a virtual biopsy”—the ability to take a digital medical image like a CT or MRI and, if a tumorous growth is discovered, to be able to determine, right from the image, if that tumor is cancerous or benign. This would be especially important in hard-to-reach organs such as the inner parts of the brain and the lung.

Calgary Scientific is also working with **TRLabs** to develop touch-based virtual reality technology that would allow doctors to “feel” lumps and tumors for diagnosis and surgical planning.

COMPANY: Calgary Scientific Inc., www.calgaryscientific.com, 43 employees, founded 2004, startup, first product launched December 2008, University of Calgary spinoff, investor-funded, Suite 208, 1210 – 20 Ave SE, Calgary, Alberta T2G 1M8, 403.270.7159

PRODUCT: Visualization platform for medical imaging software

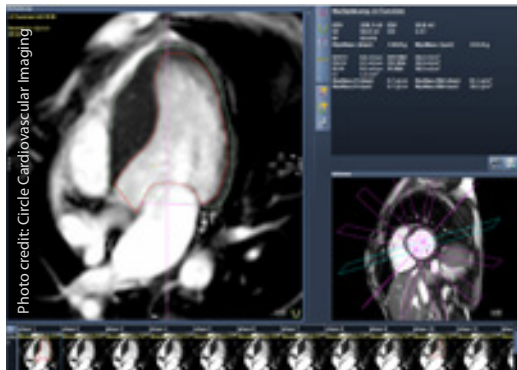
GROWTH STRATEGIES: Seek worldwide distribution and OEM licensing opportunities

CONTACT: Dr. Byron Osing, CEO, Chair and co-Founder, byron.osing@calgaryscientific.com, 403.270.7159



Circle Cardiovascular Imaging

World leader in quantitative analysis tools for cardiac MRI images



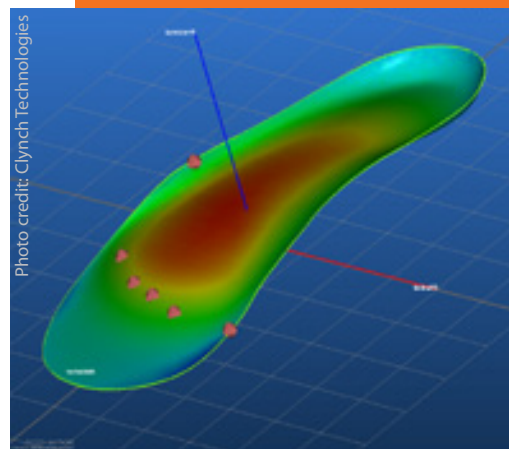
MRI is a non-invasive medical imaging technique that takes pictures of soft body tissue. Cardiologists use cardiac MRI images to tell them about the condition of a patient's heart. Software technology from Circle Cardiovascular Imaging now gives cardiologists access to a whole new set of data: automatically-generated detailed *quantitative* measurements of properties of the heart—including tissue characterization, inflammation, perfusion measurements (amount of blood in the heart muscle), and blood flow through each heart artery. Access to these new measurements (pictured) provides cardiologists and radiologists with new insights to help them diagnose heart conditions faster and more accurately.

COMPANY: Circle Cardiovascular Imaging Inc., www.circlecvi.com, 13 employees, founded 2007, angel-funded, spinoff of University Technologies International (UTI), FDA approval received, product launched February 2009, currently sold in Canada, US and EU, #12, 3535 Research Road, Calgary, Alberta T2L 2K8, 403.338.1870

PRODUCT: Quantitative analysis tools for cardiac MRI images

GROWTH STRATEGIES: Seek investors and more collaborative partners for new product applications

CONTACT: Greg Ogrodnick, CEO and co-Founder, info@circlecvi.com, 403.338.1870



Clynch Technologies

Leader in computer-aided custom fitting

For an artificial limb or orthopedic device to be comfortable, it's critical that the fit with the patient's body be perfect. Traditionally this has been a skilled art; however, Clynch Technologies has developed a 3D imaging and design technology that allows the creation of accurate custom fitted devices in an easy to use and quantitative way. The distinguishing feature of Clynch's technology is its clinically intelligent approach using landmarks on the body (markings on key body points) as a roadmap to create a custom fitting device. Pictured is a foot orthotic with landmarks. Clynch is also applying its technology

to other industries that require an accurate custom fit. For example in the medical industry, it can be used in cancer radiation therapy to help a patient repeatedly lie in the same position.

COMPANY: Clynch Technologies Inc., www.clynch-tech.com, 7 employees, founded 1991, funded by parent company, #3 Montgomery Plaza, 4703 Bowness Road NW, Calgary, Alberta T3B 0B5, 1.866.734.5004

PRODUCT: Computer-aided design and manufacturing interface for mass customization

GROWTH STRATEGIES: Seek tactical partnerships in industries requiring highly accurate custom-fitted devices

CONTACT: George Clynch, President and Founder, info@clynch-tech.com, 1.866.734.5004

InnerVision Medical

Earlier and more accurate cancer detection

InnerVision has developed a new diagnostic tool for the earlier detection of cancer. It uses ultra-high resolution ultrasound that offers a significant increase in image resolution from conventional ultrasound. The key benefits of InnerVision's technology include the ability to take a very fast image like a camera, very high resolution, no exposure to radiation and a more comfortable experience for patients. A key target application of this technology is the screening diagnosis of breast cancer and prostate cancer, which are the most frequently diagnosed cancers in Canada. Another target application is the imaging and identification of plaque in carotid arteries in the neck, which is a major cause of strokes in the brain. The technology also has applications with imaging contrast agents and guidance systems.

COMPANY: InnerVision Medical Technologies Inc., www.innermed.com, 10 employees, founded 2002, investor funded, B100 - 2204 2nd Street SW, Calgary, Alberta T2S 3C2, 403.509.1155

PRODUCT: High resolution ultrasound for early cancer detection

GROWTH STRATEGIES: Seek worldwide distribution and licensing for technology. Seek partnerships with clinics, suppliers of capital equipment to clinics, and ultrasound OEMs

CONTACT: Geoff Bennett, Chief Financial Officer, gbennett@innermed.com, 403.509.1155



Biolithic

Next generation lab-on-a-chip technology makes chip integration simple

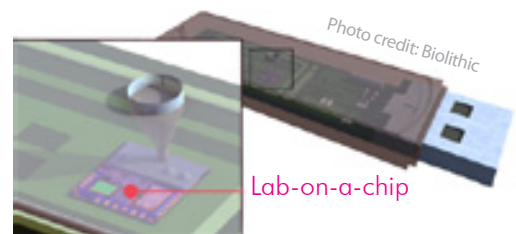
Current lab-on-a-chip technology attempts to take all of the steps needed to complete a diagnostic lab test—which are usually medical, environmental or biodefense in nature—and combine them all on a single tiny chip. However, since these devices require additional support electronics, bulky hardware and software to make them work, these devices are not true lab-on-a-chip devices. Biolithic has designed a platform technology that makes it much easier to create a true lab-on-a-chip that requires no other equipment. The final packaged lab-on-a-chip device can be in the form of a USB key (as pictured), and even be a disposable low-cost self-contained system, which is unheard of today.

COMPANY: Biolithic Corporation, (no website), (employee size not available), founded 2008, startup, early stage prototyping complete, product available 2011, grant-funded, University of Alberta spinoff, #4344 Enterprise Square, 10230 Jasper Avenue, Edmonton, Alberta T5J 4P6, 780.701.1917

PRODUCT: Portable, very small diagnostic device using lab-on-a-chip technology

GROWTH STRATEGIES: Seek investors

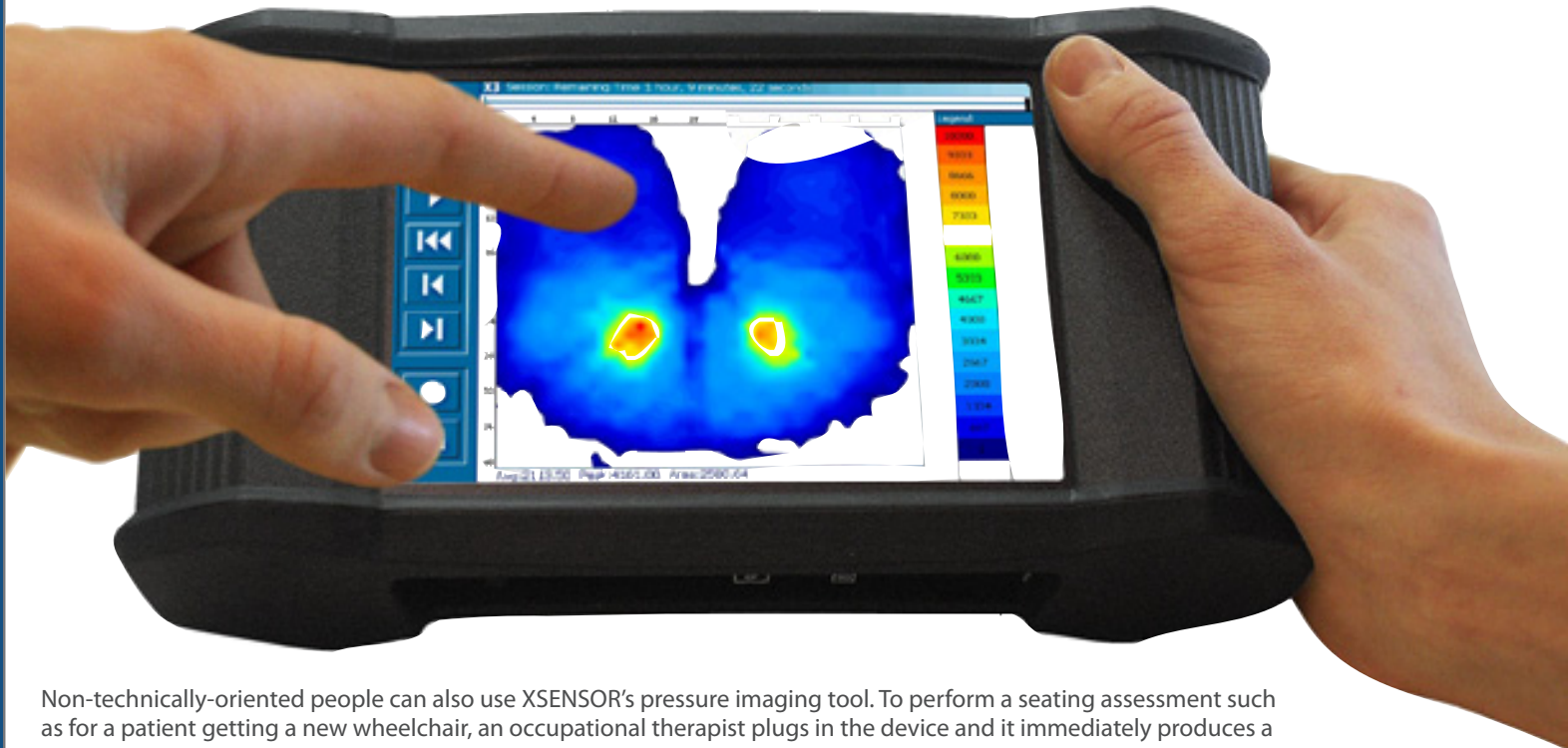
CONTACT: Maziyar Khorasani, VP Business Development and co-Founder, info@biolithic.com, 780.701.1917





XSENSOR Technology

A world leader in pressure imaging technology



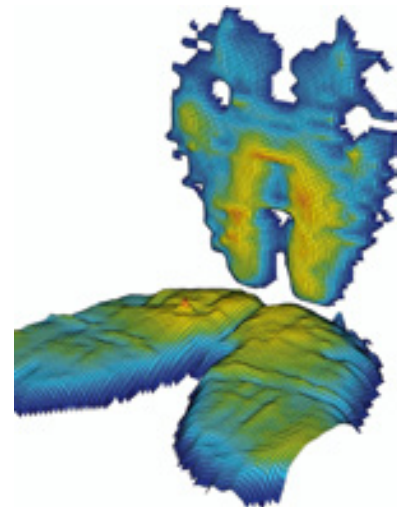
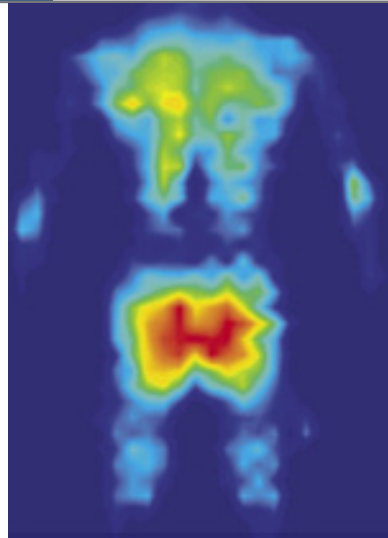
Non-technically-oriented people can also use XSENSOR's pressure imaging tool. To perform a seating assessment such as for a patient getting a new wheelchair, an occupational therapist plugs in the device and it immediately produces a pressure point image that's ready to use. Photo credit: Xsensor Technology

People unconsciously re-adjust their bodies throughout the day to be more comfortable and to prevent a part of their body from getting “pins and needles” or falling asleep. This is natural movement. However, if a person is paralyzed and requires a wheelchair, or is confined to a bed and unable to move, they may not naturally re-adjust their bodies. The pressure of the human body against a hard surface such as a bed, seat or prosthesis can cause a “bed sore”, which can be a serious, even life-threatening medical problem. (It was the cause of death for **Christopher Reeve**, the lead actor in the **Superman** movie, who became paralyzed after falling off of a horse.)

To solve this problem, XSENSOR developed pressure imaging technology. It is a thin, flexible material (picture

on the right on the following page) with thousands of sensing points that can detect pressure distributions on virtually any surface. XSENSOR's sensor pads are the thinnest and most flexible on the market. The initial prototype was used to study the pressures on the bodies of premature babies in a special care nursery. Now, XSENSOR's products are used around the world by hospitals and clinics to improve patient care.

Comparable to heat maps generated by infrared technology, pressure imaging sensors map the range of high to low pressure points between two objects. Placing the sensor pad over a surface, like a seat for example, allows the measurement of the pressure points between the seat and the person. It removes the guess work in designing or selecting a comfortable product.



XSENSOR's pad technology (above in black) is placed between a person and a flat surface (middle image) or seat (image at the right). The pad measures the pressure in real-time. This data is displayed as an image of pressure points similar to a heat map. High pressure points appear in red, orange and yellow. These points can contribute to pressure wounds in immobile individuals. Photo credit: Xsensor Technology

In the medical industry, the primary use of XSENSOR's pressure imaging technology is for the assessment of people in wheelchairs to prescribe a seating surface or to properly position the person in the wheelchair. It is also used by manufacturers of wheelchair seats and also hospital beds.

XSENSOR is also used to create high performance seats in the auto industry for the design of car and motorcycle seats. It is interesting that the **US Air Force** used to make its seating in fighter jets uncomfortable on purpose because they thought it would help the pilot be more attentive; however, they found pilots with sore butts are less productive and more distracted! To fix this problem, the **US Air Force** used XSENSOR's products to redesign their jet seats.

Even **NASA** is a XSENSOR client. **NASA** used XSENSOR's technology to help them measure the pressure distribution across the shoulders of an astronaut's spacesuit when they apply different loads to their oxygen tanks in various environments. **NASA** also uses XSENSOR's technology on pressure sensing fingertips of robotic hands. It allows the robot to adjust the pressure of its fingers on the object being picked up.

Yet another application of XSENSOR's technology is in the design and manufacturing of mattresses—**Sealy** is a user of XSENSOR technology. As a point of sales tool in a mattress store, the technology helps customers find

a proper fitting mattress, which is all about finding the right balance between pressure point distribution and support from the mattress. Pressure points can lead to tossing and turning which disrupts sleep. With the help of XSENSOR's technology, customers can see a pressure image of themselves on a half a dozen mattresses at once, which gives them quantitative information on which to base their decision. For mattress retailers, XSENSOR's point of sale tool helps increase customer closing rates and average selling price.

XSENSOR's technology is also used to help horses feel more comfortable in their saddles. As well, it is used to design large tires used in agriculture to avoid compressing the soil beyond which point seeds can no longer sprout.

COMPANY: XSENSOR Technology Corp., www.xsensor.com, 35 employees, founded 1988, revenue-funded, 111 - 309th 2 Avenue SW, Calgary, Alberta T2P 0C5, 403.205.4012

PRODUCT: Pressure imaging solutions for medical, retail and automotive industries

GROWTH STRATEGIES: Seek R&D partnerships in medical applications

CONTACT: Bruce Malkinson, COO, info@xsensor.com, 403.205.4012

Chenomx

World leading metabolic profiling service and technology provider

Metabolites are the byproducts from the chemical reactions in an organism. Leveraging the fact that a person with a disease, like cancer or asthma, will have a different combination of metabolites than a healthy person, researchers have used metabolic profiling to find disease markers and to judge the effects of a drug. A broad range of other application areas exist—for example, an Australian winery uses metabolic testing to identify the components of a fine wine and optimizes the growing conditions of its grapes based on the results. Chenomx's software makes it much easier and faster for researchers to analyze metabolic profiles, and it's the leading technology in the industry. Chenomx is also a leading provider of metabolic profiling analysis as a service.

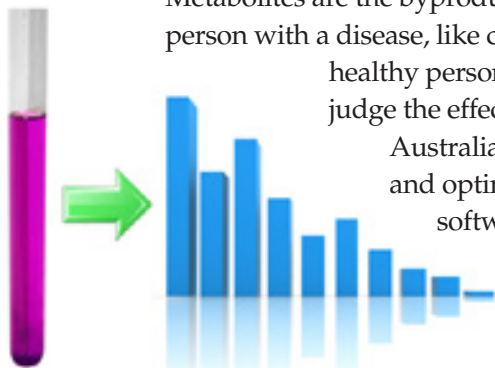


Photo credit: Chenomx

COMPANY: Chenomx Inc., www.chenomx.com, 13 employees, founded 2000, revenue-funded, University of Alberta spinoff, clients worldwide, Suite 800, 10050 - 112 Street, Edmonton, Alberta T5K 2J1, 780.432.0033

SERVICE: Metabolic profiling. The technology is also available for licensing.

GROWTH STRATEGIES: Seek marketing distribution partners and companies in related science services that want to expand their offering

CONTACT: Neil Taylor, President and co-Founder, ntaylor@chenomx.com, 780.432.0033

DriveABLE Assessment Centres

Medically impaired drivers can be as dangerous as alcohol impaired drivers!

Like alcohol, medical conditions can impair attention, memory, and judgment, making the medically impaired driver a hazard on our roadways. Medically impaired drivers are increasing in number as are the traumatic results of their crashes. To prevent a major public health crisis, a way to identify these drivers is needed, and DriveABLE has found a way. DriveABLE offers a technology that provides individually-based computerized testing with automated scoring and unprecedented quality assurance. The technology is the core of the world's only scientifically validated system available to identify medically at-risk drivers. The technology is available through the licensing of a growing number of medical centers, hospitals, and medical professionals in North America and beyond.



Photo credit: DriveABLE

COMPANY: DriveABLE Assessment Centres Inc., www.driveable.com, 9 employees, founded 1998, revenue-funded, product sold worldwide, University of Alberta spinoff, Suite 304, 10050 - 112 Street, Edmonton, Alberta T5K 2J1, 780.433.1494, 1.877.433.1494

SERVICE: Scientific assessment for medically at-risk drivers

GROWTH STRATEGIES: Seek partnerships and alliances with hospitals, medical groups, governments, and senior groups, and seek investors and more international distribution

CONTACT: Dr. Allen Dobbs, President and Founder, info@driveable.com, 780.433.1494

Dycor Technologies

The world's gold standard in airborne biodetection

Dycor Technologies makes devices to detect and collect samples of airborne biological threats. Its worldwide clients are military, civil defense, public health and agricultural security agencies. Its devices have been extensively field-proven; in fact, since 2000 the US military has been using Dycor's device as the referee standard, as pictured, against which the effectiveness of all new biological detection systems are measured. As well, Dycor develops protocols for the collection and detection of natural and man-made pathogens with military and research customers in Canada, Europe and Asia. It is also currently involved in the development of first response and compartmentalization protocols for outbreaks of Avian Influenza and other pandemic diseases.



Photo credit: Dycor

COMPANY: Dycor Technologies Ltd., www.dycor.com, 42 employees, founded 1981, revenue-funded, products sold world-wide, 1851 - 94 Street, Edmonton, Alberta T6N 1E6, 780.486.0091

PRODUCT: Detection and sampling of airborne biological threats

GROWTH STRATEGIES: Seek opportunities to demonstrate sampling and detection capabilities in indoor and outdoor scenarios

CONTACT: Markus Lemke, VP Marketing and Business Development, markus.lemke@dycor.com, 780.930.2387

Dynastream Innovations

World leader in personal monitoring technology and wireless connectivity solutions

Initially branded and sold through Nike, Dynastream's launch technology was the world's first device to practically and accurately measure a runner's speed and distance; a runner wears a special wristwatch that automatically and wirelessly monitors and records his stride from a foot sensor on his shoe. Having evolved far beyond the wristwatch and foot pod format, today many of the world's top sports, fitness, and wellness monitoring companies embed Dynastream's industry-leading foot pod and inertial sensing, ultra-low power technologies into their wireless based products. Dynastream's sensors monitor everything from heart rate to bike power to body weight, and allow seamless communication and transfer of the data to caregivers, trainers, and health coaches.

COMPANY: Dynastream Innovations Inc. (a subsidiary of Garmin Ltd.), www.dynastream.com, www.thisisant.com, 75 employees, founded 1998, University of Alberta spinoff, revenue-funded, products sold worldwide, 228 River Avenue, Cochrane, Alberta T4C 2C1, 403.932.9292

PRODUCT: Personal monitoring wireless-enabled technology

GROWTH STRATEGIES: Seek new technology development opportunities

CONTACT: Catherine Aylesworth, Marketing Manager, catherine.aylesworth@thisisant.com, 403.932.9292 x 226

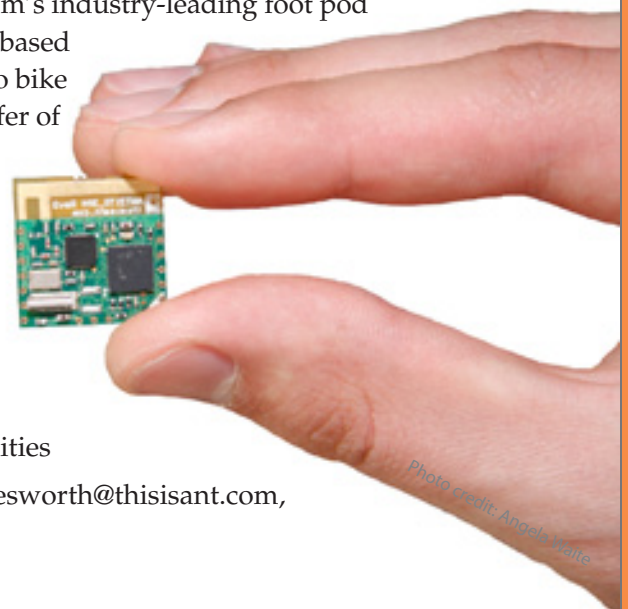


Photo credit: Angela Waite

Health Screen

Superbug testing: simple, fast, and cost-effective

The spread of superbugs in hospitals and nursing homes can be deadly. Health Screen is commercializing a technology that can detect bacteria on the scale of minutes, which is significantly faster than traditional testing methods which can take several hours or even days. Detecting a superbug faster will allow infected people to be isolated sooner and will help reduce the spread of the disease. Health Screen is adapting the technology to specifically detect the MRSA superbug and is preparing for regulatory approvals.

COMPANY: Health Screen Inc., www.thecancertest.com, (employee size not available), founded 2006, startup, advanced prototype stage, market launch 2010, University of Calgary spinoff, 1111-108 Street, Edmonton, Alberta T6J 6H7, Laboratory research facilities in Calgary, 780.665.1599

PRODUCT: Device to detect superbugs such as MRSA

GROWTH STRATEGIES: Seek marketing partnerships and regulatory consultants

CONTACT: Craig Milne, Business Development Manager, cmilne@thecancertest.com, 780.665.1599



Innovotech

World's first biofilm susceptibility test

Over 60% of all human bacterial infections—including cystic fibrosis, lung disease, pneumonia and many other serious chronic infectious diseases—are caused by “biofilms”. Unlike free floating bacteria, biofilms are complex colonies of bacteria that grow on surfaces. Unfortunately, biofilms are also very common and not easily killed by antibiotics and disinfectants. Innovotech has developed the world's first biofilm susceptibility diagnostic test to (1) test bacteria in a

biofilm state, and (2) provide guidance to doctors on the combinations of antibiotics to choose to treat biofilm infections. With over 35 million susceptibility tests conducted in the world annually, Innovotech estimates the market for a biofilm susceptibility test is approximately \$200 million.

COMPANY: Innovotech Inc., www.innovotech.ca, 20 employees, founded in 2003, University of Calgary spinoff, product launched Jan 2009, publicly traded on TSX-Venture as IOT, Suite 101, 2011-94 Street, Edmonton, Alberta T6N 1H1, 780.448.0585

PRODUCT: Biofilm susceptibility tests

GROWTH STRATEGIES: Seek distribution and marketing partners worldwide

CONTACT: Ken Boutilier, President, info@innovotech.ca, 780.448.0585



Isodiagnostika

World leader in diagnostic breath tests

Isodiagnostika develops and manufactures breath-based diagnostic kits that are reliable, cost-effective and non-invasive. They are also considerably more pleasant than existing diagnostic tests, and do not use radioactive material. Isodiagnostika's Helikit® tests for a bacteria that causes most stomach ulcers, and the Diatest® provides a diagnosis for type II diabetes and insulin resistance. In addition to these breath-based kits,

Isodiagnostika has developed a point-of-care analysis instrument to process these tests.

COMPANY: Isodiagnostika Inc. (a subsidiary of Isotechnika Inc.), www.isotechnika.com, 7 employees, founded 1993, revenue-funded, product sold internationally, publicly traded on TSX as ISA under its parent company Isotechnika Inc., 5120 - 75th Street, Edmonton, Alberta T6G 2C8, 780.487.1600

PRODUCT: Breath-based diagnostic kits

GROWTH STRATEGIES: Seek additional global distributors

CONTACT: John Porter, Senior Director of Business Development, businessdevelopment@isotechnika.com, 780.487.1600

Metabolistics

Urine-based health assessments

Metabolistics has launched a new personal health care service that can sense if cancer, liver and kidney abnormalities, infection, and neurological disorders are present in a single sample of urine. You can purchase this "virtual check up" directly from the company's website at \$249 per kit. It will also be available from natural homeopathic medicine service providers. The kit contains a sample collection container and includes shipping costs and sample analysis. The test is based on analyzing metabolites, which are the chemical byproducts from the chemical reactions that happen in living organisms.

COMPANY: Metabolistics Inc., www.metabolistics.com, 3 employees, founded 2008, service launched May 2009, bootstrapped, University of Alberta spinoff, 21 Marlboro Road, Edmonton, Alberta T6J 2C7, 780.993.3866

SERVICE: General health assessment

GROWTH STRATEGIES: Seek business development partners

CONTACT: Dr. Carolyn Slupsky, President and Founder, cslupsky@metabolistics.com, 780.993.3866





Neurosilicon

Revolutionary tool promises new insights to treating neurological diseases

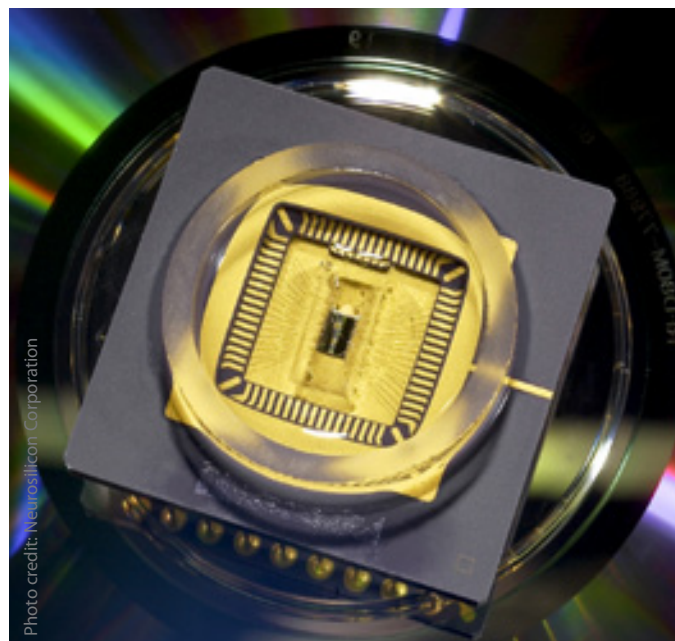
Neurosilicon is developing a lab-on-a-chip device (pictured) that is sensitive enough to monitor and track how neurons in the brain interact. This could help to improve our understanding of many neurological diseases and enable the development of new treatments for brain disorders. The target market for Neurosilicon's products is the research community.

COMPANY: Neurosilicon Corporation, www.neurosilicon.com, 5 employees, founded 2005, University of Calgary spinoff, boot-strapped and angel-funded, product launched summer 2008, (no office address yet), Calgary, Alberta, 646.943.2169

PRODUCT: Device to track how neurons interact

GROWTH STRATEGIES: Seek marketing and distribution partners in Canada and around the world

CONTACT: Veer Gidwaney, Director and co-Founder, veer@neurosilicon.com, 646.943.2169



PBR Laboratories

Rapid test system for cancer-causing chemicals

PBR Laboratories is a bioanalytical research laboratory. Using advanced material technology, PBR is prototyping a rapid test system that can determine whether a chemical has the ability to cause cancer. Compared to current testing methods, PBR expects its rapid test system to produce a significant reduction in time and cost, and increase testing efficiency and output.

COMPANY: PBR Laboratories Inc., www.pbr.ca, 14 employees, founded 1984, rapid test system in prototype stage, revenue-funded from well-established other lab services, 9960 - 67 Avenue, Edmonton, Alberta T6E 0P5, 780.450.3957

PRODUCT: Rapid test system for cancer-causing chemicals

GROWTH STRATEGIES: Seek product development and marketing partnerships

CONTACT: Bern Philip, President, pbr@pbr.ca, 780.450.3957

Picomole Instruments

Cancer detection in one breath

One day soon, you will be able to blow into a machine and know within minutes if you have breast cancer, lung cancer, colorectal cancer, asthma, diabetes, kidney disease, liver disease, tuberculosis and even mental illnesses such as schizophrenia. Picomole has developed a prototype machine that can perform this type of ultra-sensitive breath analysis. It is capable of detecting more than 90% of all known breath biomarkers (disease-indicating chemicals) in your breath. Knowing if you have the disease even before you've exhibited symptoms will get you earlier treatment and increase your chance of survival. Since it uses your exhaled breath, it's painless and patient-friendly.

COMPANY: Picomole Instruments Inc, www.picomole.com, 6 employees, founded 2005, investor-funded, expect to be on the market 2010, Suite 4-034, NINT Innovation Centre, 11421 Saskatchewan Drive, Edmonton, Alberta T6G 2M9, 780.641.1915

PRODUCT: Rapid breath analysis for disease detection

GROWTH STRATEGIES: Seek investors, and marketing and distribution partners

CONTACT: Dr. John Cormier, CEO and Founder, john.cormier@picomole.com, 780.641.1915

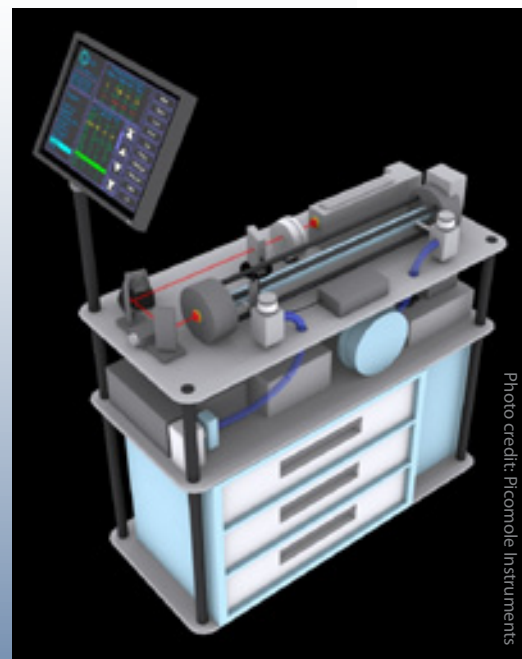


Photo credit: Picomole Instruments

SagaTech

Find out if you have sleep apnea in the comfort of your own bed

Do you snore? People that snore often have sleep apnea, which is a sleep disorder that leaves you sleepy and that can lead to stroke, heart disease and hypertension. People with sleep apnea actually stop breathing for 10 to 20 seconds up to a hundred times a night, often without even knowing it. Diagnosis of sleep apnea has traditionally involved sleeping at a sleep clinic, which can have a long waiting list, is costly and requires a technician to run tests while you sleep. SagaTech's product offers similar quality data using

a device you wear when sleeping in the privacy of your own home—and you get the results quickly. SagaTech's product can be rented and the data analyzed for about \$150 a night from a dentist or home care provider.

COMPANY: SagaTech Inc., www.sagatech.ca, 8 employees, founded 1992, University of Calgary spinoff, revenue funded, product sold worldwide, Suite 9, 1515 Highfield Crescent SE, Calgary, Alberta T2G 5M4, 403.228.4214

PRODUCT: Device for in-home diagnosis of sleep apnea

GROWTH STRATEGIES: Seek more distribution in US and Europe

CONTACT: Gary Spencer, Sales and Business Development, garys@sagatech.ca, 403.228.4214 x227



Photo credit: Lynne Lancaster



SciMed Technologies

Revolutionizing blood testing

SciMed would like to make it easier and faster for patients and doctors to get blood work results. Currently, a patient visits a doctor for a blood work order and then visits a lab to give a sample. SciMed has prototyped a lab-on-a-chip device that can perform multiple blood tests for specific diseases simultaneously using only a tiny blood sample. The tests are



easy to use and can be done in the doctor's office in less than 2 minutes. The device will also have wireless capabilities that allow a patient to perform the tests at home and automatically transmit the results to the clinic.

COMPANY: SciMed Technologies Inc., www.scimedtechnologies.com, 10 employees, founded 1999, prototype stage, supported by revenue from other products in the company, Suite 218, 9650 - 20 Ave., Edmonton, Alberta T6N 1G1, 780.468.5010

PRODUCT: Blood diagnostic tests

GROWTH STRATEGIES: Seek collaborative partners, marketing partnerships, international distributors, and investors

CONTACT: Dr. Rajan Gupta, CEO and Founder, scimed@dtechnologies.com, 780.702.1509 x223

Adaptive Engineering

A world leader in manually-operated portable wheelchair lifts

Adaptive Engineering was the first company to develop, patent and manufacture manually-operated mobile wheelchair lifts. These lifts provide wheelchair access to passenger trains, railways, buses, aircraft, stages, bleachers, schools, churches, and other public buildings. Sold throughout the world, some of the unique benefits of Adaptive's lifts are that they are light weight, reliable, economical, low maintenance, easy to operate and require no external power. Adaptive Engineering also provides metal fabrication and specialty welding to the local market.

COMPANY: Adaptive Engineering Inc., www.adaptivelifts.com, 10 employees, founded 1975, revenue-funded, product sold internationally, 419 - 34th Avenue SE, Calgary, Alberta T2G 1V1, 403.243.9400, 1.800.448.4652

PRODUCT: Manually operated mobile wheelchair lifts

GROWTH STRATEGIES: Seek greater distribution in Europe and South America, and new product development opportunities

CONTACT: Terry Clarke, General Manager, info@adaptivelifts.com, 403.243.9400 x109



Alzheimer's Innovation Institute

Brain fitness program improves memory for seniors with memory loss

Memory loss due to Alzheimer's disease already affects 26 million people around the world. The Alzheimer Innovation Institute has introduced a non-drug treatment that could outstrip the best Alzheimer's medications on the market. The technique, called the Ashby Memory Method, is a series of structured workbooks that the Alzheimer patient works through twice a week with a caregiver or family member. Preliminary clinical trials have shown that this method scientifically improves memory in people with early and mid stage Alzheimer's disease by stimulating neuronal activity in several areas of the brain.



Photo credit: Jupiter Images

caregiver or family member. Preliminary clinical trials have shown that this method scientifically improves memory in people with early and mid stage Alzheimer's disease by stimulating neuronal activity in several areas of the brain.

COMPANY: Alzheimer's Innovation Institute Inc., www.alzinnovation.com, 5 employees, founded 2007, revenue and investor funded, product sold in North America and the UK, 804 - 16th Avenue SW, Calgary, Alberta T2R OS9, 1.877.300.8988

PRODUCT: Brain fitness program for seniors with memory loss

GROWTH STRATEGIES: Seek more distribution partners in Europe

CONTACT: John Ashby, Researcher Director and Founder, jashby@alzinnovation.com, 403.455.7129

Biomech Engineering

Blurring the line between man and machine

The C-Leg[®] (pictured) was the world's first fully microprocessor-controlled knee. This smart prosthesis revolutionized artificial legs by significantly improving an amputee's movement and safety. It allows amputees to walk naturally with almost normal energy exertion and to easily walk down stairs, and even bicycle and hike on uneven terrain. With 20,000 units sold worldwide at \$40,000 each, this aesthetic-pleasing prosthesis is still the unmatched leader. The C-Leg[®] was developed by **Kelly James, CEO and Founder** of Biomech Engineering. Biomech Engineering is currently working on a new orthopedic device to improve the walking pattern of people who have polio or a spinal cord injury and wear a brace.

COMPANY: Biomech Engineering Inc., www.biomech.net, 1 employee, founded 1982, revenue-funded, products sold worldwide, 9627 - 83 Street, Edmonton, Alberta T6C 3A3, 780.446.5303

SERVICE: Innovative solutions in orthotics and prosthesis

GROWTH STRATEGIES: Seek opportunities to investigate novel solutions to engineering challenges in the prosthetic and orthotic industry

CONTACT: Kelly James, CEO and Founder, kelly.james@biomech.net, 780.446.5303



Photo credit: Biomech Inc.



Biomotion

Greater mobility, functionality and freedom for the disabled



The WalkAide® is Biomotion's most successful product so far. Photo credit: The Knee Centre

The WalkAide® has helped thousands of people with disabilities walk better. The WalkAide® treats Foot Drop, a disorder where people lose the ability to pick up their foot when they walk. Instead, the foot drops and is dragged along on the ground when they take a step. Walking is painful and exhausting. Foot Drop isn't a disease but rather a symptom of an underlying condition such as a stroke, cerebral palsy, spinal cord injury, Parkinson's disease, drug toxicity, diabetes, or multiple sclerosis.

About the size of an iPod, the WalkAide® is a discrete little device worn around the leg just below the knee. The device restores control of the foot by using electrical stimulation to recreate a natural nerve-to-muscle response that allows the user to have a more normal walking pattern. Walking is also easier for the users. They have improved stability, improved posture (which may mean less pain), and can walk

further and require less energy to walk. A byproduct of the constant stimulation of not only the muscle, but also the connections from the brain to the spinal cord and out to the muscle, is that many users build up their strength enough that they walk better even without the device.

The WalkAide® has been Biomotion's most successful product. It was invented by Biomotion's **President and co-Founder Dr. Richard Stein** and his team (p.71) at The Rehabilitation Neuroscience Group at the **University of Alberta** (p.68) where Dr. Stein is also a Research Professor in the Department of Physiology in the Faculty of Medicine and Dentistry.

In 2004, the WalkAide® was licensed to the **Hanger Orthopedic Group**, which is one of the largest prosthetics and orthotics companies in the world. It now sells the product worldwide through a network of companies. In Canada, the WalkAide® is distributed by **Karl Hager Limb & Brace Ltd.** (p.26) at 780.452.5771.

Biomotion is interested in acquiring other innovative rehabilitation products for development and eventual commercialization.

COMPANY: Biomotion Ltd., (no website), 4 employees, founded 1993, revenue-funded, products sold worldwide, University of Alberta spinoff, Suite 1503, 10010-119 St., Edmonton, Alberta T5K 1Y8, 780.492.1618

PRODUCT: Medical devices for people with disabilities

GROWTH STRATEGIES: Seek licensing partners and investors

CONTACT: Dr. Richard Stein, President and co-Founder, richard.stein@ualberta.ca, 780.492.1618

Braceworks Custom Orthotics

Non-surgical alternative to correct a chest wall deformity

Braceworks is successfully applying the principles of external bracing to correct a boney deformity of the chest wall as an alternative to the conventional surgical treatment for this condition. In this deformity the sternum is pushed outward resulting in a protrusion of the chest wall. It occurs in at least 1 to 2 per 3,000 people, more commonly in young adolescent males. The condition affects psycho-social development and may be associated with restricted cardio-pulmonary function in more severe cases. Braceworks' non-invasive brace is currently being tested with over 200 cases at major hospitals across Canada and in the United Kingdom.

COMPANY: Braceworks Custom Orthotics Inc., www.braceworks.ca, 9 employees, founded 1996, revenue funded by the service side of business, initial clinical trials to be completed 2010, 3220-28th Street SW, Calgary, Alberta T3E 2J6, 403.240.9100

PRODUCT: Orthopaedic brace to correct chest wall deformity

GROWTH STRATEGIES: Seek investors and distribution partners

CONTACT: Nancy Schneider, President and co-Founder, nancy@braceworks.ca, 403.240.9100

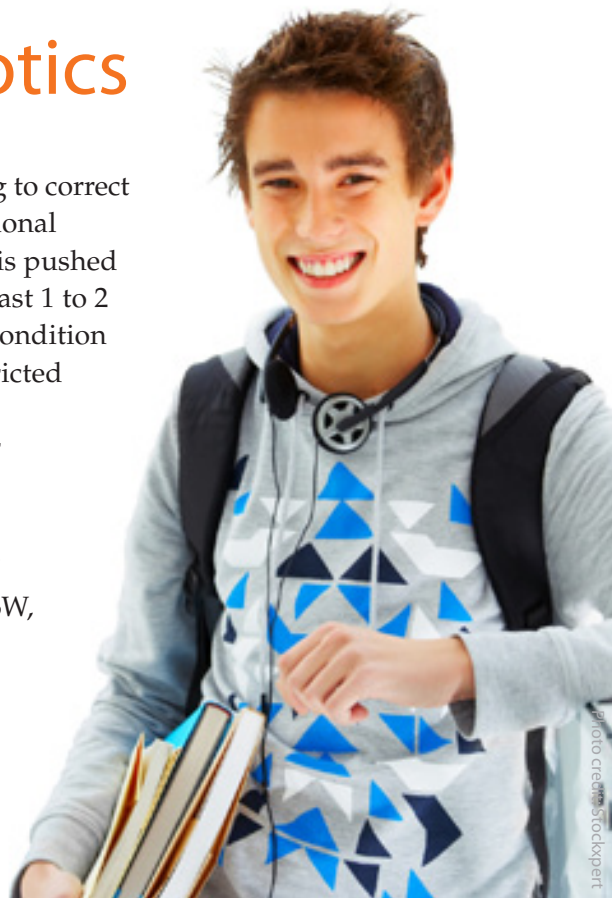


Photo credit: Chestmaster

CHESTMASTER

New mucus-clearing device could help millions

Nine million people in North America, suffering from over 350 diseases and conditions, such as cystic fibrosis, cerebral palsy, muscular dystrophy and pneumonia, have an inability to clear mucus from their lungs. This accumulation of mucus can harbour excessive bacteria growth that may be life-threatening. The CHESTMASTER enables people to independently treat themselves in 20 minutes at home. The CHESTMASTER is a non-invasive, portable vibrating frame that sits over the chest and

shoulders. The constant vibration loosens mucous in the lungs so that it can be coughed up and exit the body. The first clinical safety study was completed May 2009.

COMPANY: CHESTMASTER Inc., (no website yet), 1 employee, founded 2005, startup, commercial availability expected in 2012, investor-funded, 11420 - 142 Street, Edmonton, Alberta T5M 1V1, 780.484.5716

PRODUCT: Mechanical device to clear mucus from lungs

GROWTH STRATEGIES: Seek investors and partnerships for manufacturing and distribution

CONTACT: Tricia Cisakowski, Vice President of Product Development, chryrosoros@shaw.ca, 780.484.5716



The Knee Centre / Karl Hager

High performance custom knee braces used by NHL and CFL athletes

What do **Formula One** race cars and The Knee Centre's knee brace called Victory™ have in common? Both contain parts made of ultra-strong and ultra-light prepreg graphite.

The Knee Centre, located in Edmonton, Alberta, manufactures seven different styles of knee braces. By limiting excessive movements of the knee that cause pain or instability, a knee brace protects knees from injury or prevents a current knee injury from getting worse.

The Knee Centre's newest product is a high performance custom-fitting knee brace called

Victory™. While the Victory™ knee brace is available to anyone that has ligament damage in their knee, its celebrity status comes from the fact that **NHL** and **CFL** professional athletes are regular users of the device. The Knee Centre is also the official orthotics supplier to the **Edmonton Eskimos** and the **Edmonton Rush Lacrosse Club**.

The Victory™ knee brace is light weight, typically around 450 to 500 grams, depending on the size of the wearer. Competitive knee braces range from 600 to 750 grams. Its low profile and light weight design helps prevent gravity from pulling the brace down the leg. Pricewise, the Victory™ is surprisingly only about 20% more than regular custom knee braces that retail for \$1,400.

There are two ways you can be fit with the Victory™ custom knee brace. One is through **Karl Hager Limb & Brace Inc.**, which is a full service prosthetic, orthotic, and custom footwear clinic associated with and located right beside The Knee Centre in Edmonton. The other is through a number of orthotic clinics across North America that will make a cast impression of your leg and forward the cast to The Knee Centre. The Knee Centre produces hundreds of knee braces a year in its large central fabrication facility.

Nolan Hayday, Business Manager of The Knee Centre explains the process of creating a Victory™ knee brace using prepreg graphite material, "We fill the cast impression of the leg with plaster to create a 3D model of the person's leg. Through a series of processes, we modify the leg cast to get a good fit for the knee brace. Then we are ready to take the prepreg graphite material out of the freezer and make the brace."

Yes, from the freezer. Prepreg graphite is stored in a freezer. It is a cloth of woven carbon fibre that contains a controlled amount of resin. As soon as the resin starts to warm up, it starts to cure and harden.



Nolan Hayday, The Knee Centre's Business Manager, demonstrates the company's Bladerunner knee brace. The custom-made brace is very lightweight usually weighing around 500 grams. Photo credit: The Knee Centre



The Victory™ knee brace (pictured left) is made of prepreg graphite, the same type of material used to make the nose cone, the fins, and chassis of Formula One race cars.



The polycentric knee joint (above) supports the leg by following the natural movement of the leg. It can withstand impact tests and is efficient to repair or service if needed. Photo credit: The Knee Centre

was only through trial and error that we discovered how to make our lamination perfect.”

Interestingly, developing the idea for the high performance Victory™ knee brace also came out of trial and error. **Nolan Hayday, Business Manager** of The Knee Centre explains, “Originally we wanted to develop a brace for people with osteoarthritis because a large portion of people with that condition need knee braces. It also made sense with the population aging and baby boomers wanting to be more active. And that’s where we originally started with the prepreg graphite material. Once we realized the material gave us the opportunity to develop a high end knee brace for NHL/CFL professional athletes, we changed the direction of the project.”

The Knee Centre is now applying prepreg graphite material to its other knee brace designs. The Knee Centre is also the Canadian distributor of the **WalkAide®**, a device developed by **Biomotion Ltd.** (p.24) to improve the walking ability of people suffering from drop foot.

So, in a cold room, The Knee Centre team cut and layer the frozen prepreg graphite into the proper shape of the knee brace. Different types of prepreg graphite are used in different areas of the knee brace.

Nolan Hayday, Business Manager of The Knee Centre continues, “When the materials are ready, the leg cast and knee brace are cured under vacuum in an infrared oven. As the frozen materials heat up, they start to bond to each other and start to cure. The vacuum pulls all the materials down and gives you a better lamination. It also prevents airpockets in our lamination. Air in the lamination would be a weak spot. It took us the longest time to figure out how to do that. {We looked at} different materials, processes, and the amount of time and suction needed. There were a lot of different variables that came into play. It

COMPANY: The Knee Centre/Karl Hager Limb & Brace Ltd., www.khager.com, 17 employees, founded 1979, revenue-funded, 10733 - 124 Street, Edmonton, Alberta T5M 0H2, 780.452.5771, 1.800.387.5053

PRODUCT: Specialized custom knee braces

GROWTH STRATEGIES: Seek more orthotists who would like to outsource their knee brace work to The Knee Centre

CONTACT: Nolan Hayday, Business Manager, reception@khager.com, 780.452.5771 ext. 206



Photo credit: Clearwater Clinical

Clearwater Clinical

A new treatment for spinning dizziness (Vertigo)

Many people suffer from severe spinning dizziness, known as Vertigo. While this condition is intermittent and only lasts for a few minutes, it is debilitating for people who have it. BPPV (Benign Paroxysmal Positional Vertigo) is the most common cause of Vertigo and occurs in about 10% of

people over the age of 60, or in people who have suffered head trauma such as in a car accident. BPPV is a condition in which the body's normal balance system becomes confused by calcium stones which develop in the inner ear. Clearwater Clinical's FDA-cleared DizzyFIX™ device guides a person through a proven exercise that helps get these stones out of sensitive areas and stops the Vertigo quickly.

COMPANY: Clearwater Clinical Ltd., www.clearwaterclinical.com, www.dizzyfix.com, 8 employees, founded 2005, revenue funded, product sold worldwide, Suite 258, 100 - 111 5th Ave SW, Calgary, Alberta T2P 3Y6, 1.877.349.9934

PRODUCT: Treatment of spinning dizziness (Vertigo) due to BPPV

GROWTH STRATEGIES: Seek international marketing partners

CONTACT: Dr. Matthew Bromwich, CEO and Founder, info@dizzyfix.com, 1.877.349.9934

Deltabalance

A natural and effective solution for back pain

We weren't designed to stand or sit for long periods of time—but we do. For a number of people this behaviour leads to back pain or musculoskeletal pain in the neck, shoulders, hips, knees or feet. Deltabalance has discovered a simple and innovative way to relieve this type of pain. You just stand on their product and its curvilinear slope relieves the strain in your lower back. Deltabalance's platform technology, called eQuilibrium®, does this by slightly shifting your centre of gravity to engage fresh muscle fibers you don't normally use. Deltabalance products include energy platforms, stand-lean-sit devices, ergonomic computer work stations and movement programs.

COMPANY: Deltabalance Inc., www.deltabalance.com, 4 employees, founded 1992, startup, investor funded, product completed clinical trials November 2008, ready for market, NAIT Duncan McNeill Centre for Innovation, Suite W207B, 10504 Princess Elizabeth Avenue, Edmonton, Alberta T5G 3K4, 780.870.1021

PRODUCT: Products for ergonomics and physical fitness

GROWTH STRATEGIES: Seek investors and marketing partners

CONTACT: Gordon Lamont, President, CEO and Founder, info@deltabalance.com, 780.870.1021



Photo credit: Deltabalance

Fitterfirst

World leader in balance training products

Fitter International believes people are starting to realize that their bodies need more than just sitting all day in front of a computer and trying to make up for it later in the gym. To age gracefully, we need to make wiser use of our time at work. Fitter has designed a series of balance training products to be used with little effort as we sit. These products increase our body's stability which in turn makes us more agile and more mobile—and makes us feel younger and improves our quality of life. While Fitter is known for its FitterFirst brand of balls, balance boards and functional training products (pictured), it has many other innovative balance products. Balance training helps our bodies perform better in sports and reduces our risk of sports-related injuries.

COMPANY: Fitter International Inc., www.fitter1.com, 20 employees, founded 1985, revenue-funded, products sold internationally, Suite 3050, 2600 Portland Street SE, Calgary, Alberta T2G 4M6, 403.243.6830, 1.800.FITTER1 (348.8371)

PRODUCT: Fitness products for balance training

GROWTH STRATEGIES: Seek more distribution partners

CONTACT: Louis Stack, President, CEO and Founder, sales@fitter1.com, 403.243.6830



Photo credit: Fitter International

Lethbridge Orthotic-Prosthetic Services

Accurate custom-fitted knee braces available the same day

Like most full service orthotic and prosthetic service providers, Lethbridge Orthotic-Prosthetic Service offers custom arch supports and provides amputees with artificial limbs. However, what sets it apart is that it also manufactures custom knee braces. Made from lightweight graphite and titanium, the company's knee brace, called The ELITE (pictured), weighs only one pound. The braces are fabricated from a 3D scan of a person's leg. This technology produces a better fitting custom knee brace and allows the brace to be provided in one day. The knee brace model for arthritis is called *The Terminator* (which is not named after the movie to describe how you might feel when you wear it, but because it terminates arthritic knee pain).

COMPANY: Lethbridge Orthotic-Prosthetic Services Ltd., www.bracing.ca, 13 employees, founded 1988, revenue-funded, 542 - 13 Street North, Lethbridge, Alberta T1H 2S4, 403.328.1144, 1.877.328.1145

PRODUCT: Custom knee braces and standard orthotic/prosthetic services

GROWTH STRATEGIES: Seek state of the art materials to make knee braces even lighter and thinner

CONTACT: Tracy Duce, Managing Partner, info@bracing.ca, 403.328.1144



Photo credit: Lethbridge Orthotic-Prosthetic Services



Madentec

World leader in communication tools for the disabled

Imagine sitting on your hands and using the computer. How do you do it? The options get even more restrictive for people with severe disabilities—such as spinal cord and head injuries, multiple sclerosis, cerebral palsy, muscular dystrophy and ALS—of which there are 2.5 million in the US alone. Madentec designs and manufactures assistive products that help people with disabilities interface with a computer. Each type of disability often requires a different solution, ranging from a camera that captures head movements by following the reflection from a special reflective dot placed on a person's head or glasses (pictured) to several specialized switches that detect cheek movement, sips and puffs. Madentec's products

help its customers communicate in meaningful ways, control their environment, and even return to school or have a computer-based job.

COMPANY: Madentec Ltd., www.madentec.com, 11 employees, founded 1989, revenue-funded, 4664 - 99 Street, Edmonton, Alberta T6E 5H5, 780.450.8926, 1.800.661.8406

PRODUCT: Alternative computer input solutions

GROWTH STRATEGIES: Seek more distribution partners around the world

CONTACT: Randy Marsden, CEO and Founder, randym@madentec.com, 780.450.8926



Photo credit: Madentec

Medical Bionics

Revolutionary technology improves prosthetics dexterity

Frustrated that his patio umbrella refused to stay in a tilted position in windy conditions, **Werner O. Merlo** added a new idea to the friction ball joint system to solve the problem. To prevent the ball from moving, Werner's version of the ball is covered with nubs that interlink with a socket containing spring-loaded pin-type actuators, as pictured. This technology has unlimited 3D locking capabilities at any plane or angle. Proposed for use in the crane-like robotic arm at the **International Space Station**, Medical Bionics is currently incorporating an automated version of the technology into a robotic prosthetic wrist to provide upper extremity amputees with real life-like wrist hand coordination.

COMPANY: Medical Bionics Inc., www.medicalbionics.com, (employee size not available), founded 1995, revenue-funded, 51203 Range Road 265, Spruce Grove, Alberta T7Y 1E7, 780.987.3245

PRODUCT: Robotic 3D prosthetic wrist joint

GROWTH STRATEGIES: Seek technology licensing and distribution partners

CONTACT: Werner O. Merlo, President, CEO and Founder, werner@medicalbionics.com, 780.987.3245



Photo credit: Daniel C. Billas



Photo credit: Medical Bionics



Rehabtronics

Pioneering at home rehabilitation

Over 3 million people in North America have partially paralyzed hands, arms and shoulders as a result of stroke or other neurological injury. In many cases, such paralysis makes performing daily life tasks extremely difficult. Daily rehabilitation exercise can lead to significant improvement, but with ever tighter healthcare budgets, standard hospital-based therapy durations are becoming shorter and shorter. To fill this important gap, Rehabtronics has commercialized a remote rehabilitation workstation, pictured, that patients can use at home for rehab therapy. The patient logs onto the hometelemed.com website on a set schedule to perform progressive levels of exercise while

monitored by a therapist at a different location. There are no travel costs and it is convenient enough to use every day.

COMPANY: Rehabtronics Inc., www.rehabtronics.com, 8 employees, founded 2005, product launched Dec 2008, clients in North America and Australia, University of Alberta spinoff, bootstrapped, Suite 4000, TEC Centre, 10230 Jasper Ave, Edmonton, Alberta T5J 4P6, 780.965.1884

PRODUCT: At home rehab through the internet

GROWTH STRATEGIES: Seek marketing and distribution partners

CONTACT: Andy Prochazka, CEO and co-Founder, inquiries@rehabtronics.com, 780.965.1884

SmileSonica

Painless tooth repair technology could save countless teeth

While it can't grow new teeth, SmileSonica is commercializing the first ultrasound-based technology that can regenerate dental tissue under the gums at the root level. This helps make a tooth's roots stronger so the tooth stops wiggling and doesn't eventually fall out. While tooth root erosion can occur for numerous reasons including having a dental trauma or wearing braces, it is currently very difficult to treat. SmileSonica still has a few years of development work ahead before its product is ready for dentists to use on patients. Pictured is a prototype of what the commercialized product might eventually look like.

COMPANY: SmileSonica Inc., www.smilesonica.com, 3 employees, founded 2008, University of Alberta spinoff, investor and grant funded, product in R&D phase, Suite 4-006, NINT Innovation Centre, 11421 Saskatchewan Drive, Edmonton, Alberta T6G 2M9, 780.710.2034

PRODUCT: Dental repair technologies

GROWTH STRATEGIES: Seek investors and team members with experience in technology commercialization and business development

CONTACT: Cristian Scurtescu, CEO and Founder, info@smilesonica.com, 780.710.2034



Steenwyk Custom Shoes & Orthotics

Custom shoes for people that can't wear regular shoes

Steenwyk makes custom footwear for people with foot disorders who can't wear commercially available shoes. Some of the medical conditions that can give rise to these foot disorders include severe arthritis, the diabetic Charcot foot, polio, and trauma-related injuries. To achieve a highly accurate, custom fit product, Steenwyk uses 3D imaging technology to capture the contours of the foot. It then blends traditional orthotics with the art of shoemaking to produce a set of custom-fitting hand-made shoes.

COMPANY: Steenwyk Custom Shoes & Orthotics Ltd., www.steenwyk.com, 9 employees, founded 1984, revenue-funded, product sold across Canada, Manufacturing at #7, 7727-50 Avenue, Red Deer, Alberta T4P 1M7, 403.340.0066, 1.800.661.2211. Calgary sales office at Foot Health Centre, Suite 122, 151-86 Ave SE, Calgary, Alberta T2H 0M4, 403.250.9422

PRODUCT: Custom-made footwear for foot disorders

GROWTH STRATEGIES: Seek people with hand-made shoe manufacturing experience

CONTACT: Johan Steenwyk, President and Founder, info@steenwyk.com, 403.340.0066



Photo credit: Steenwyk Custom Shoes & Orthotics

Associated Health Systems

New products from leading western Canadian medical device distributor

Alongside the specialty medical devices that it distributes for other companies, Associated Health

Systems has developed three medical devices that it sells to Canadian hospitals and long term care facilities. One of its devices helps position a critical care patient to a face down position, as might be needed in an acute respiratory distress syndrome situation. The second device raises a leg or arm of a patient about to undergo surgery for cleaning. The third product the company produces are lab kits (pictured) that contain medical supplies used by nursing students in colleges and universities to learn nursing skills in lab courses.

COMPANY: Associated Health Systems Inc., www.associatedhealthsystems.com, 30 employees, founded 1990, revenue funded, 11779 - 186 Street, Edmonton, Alberta T5S 2Y2, 780.451.6720

PRODUCT: Distribution and development of specialty medical devices

GROWTH STRATEGIES: Seek opportunities to develop new product applications and to distribute new medical devices

CONTACT: Jim Rikley, Co-President, CEO and Founder, jimr@associatedhealthsystems.com, 780.451.6720



Photo credit: Associated Health Systems

Brightway Enterprises

High tech toilet seat offers increased hygiene

Designed to do away with the need for toilet paper, Brightway's seat (pictured) contains a seat warmer, a warm-water bottom washer, a bottom blow dryer and a deodorizing fan. Although widely used in Japan, "shower toilets" are still a novelty in North America; however, used in hospitals and nursing homes, this product can free nurses from helping patients clean themselves after toilet use. Brightway has modified their Dolphin Smart Hygiene Seat for the North America market, making it child proof and including all the pieces for installation in the product's packaging. It can be purchased for \$400 to \$800 depending on the model at **MEDIchair stores** (www.medichair.com) across Canada, or tried out at the public washroom in Calgary's **MEDIchair store**.

COMPANY: Brightway Enterprise Ltd., www.brightwayenterprise.com, 5 employees, founded 2007, boot-strapped, product available for sale in emerging North American market, 119 Sandringham Place NW, Calgary, Alberta T3K 3V8, 403.708.8236

PRODUCT: Luxury shower toilet seat/bidet

GROWTH STRATEGIES: Seek investors and marketing partners across North America

CONTACT: Yang Liu, CEO and Founder, info@brightwayenterprise.com, 403.708.8236



Dri-Line Products

Western Canada's only manufacturer of incontinence products

Dri-Line's newest product is an all-in-one baby diaper made of eco-friendly bamboo. Bamboo absorbs 60% more than cotton and is naturally anti-bacterial, breathable and cool. In addition to its wide range of baby products, Dri-Line also manufactures a wide range of environmentally-friendly incontinence products and bed linens for adults, including incontinence bedpads, wheelchair pads, isolation gowns, bed sheets, pillow protectors and laundry bags. The company's clients are hospitals, nursing homes, and retail stores that service the home healthcare market.

COMPANY: Dri-Line Products Ltd., www.dri-line.com, 15 employees, founded 1989, revenue-funded, products sold worldwide, 7210 - 76 avenue, Edmonton, Alberta T6B 0B2, 780.466.2953

PRODUCT: Adult and baby incontinence and linen products

GROWTH STRATEGIES: Seek distributors across Canada, US and Europe

CONTACT: Yasmin Rajabali, CEO and co-Founder, info@dri-line.com, 780.466.2953



Photo credit: Dri-Line

Cleankeys

New easy-to-clean computer keyboard



Keyboards are magnets for contamination. The Cleankeys™ keyboard, pictured, has a flat glass surface with a touch sensitive keyboard and mouse (far right). The Cleankeys™ keyboard takes less than 10 seconds to clean. Photo credit: Cleankeys Inc.

It turns out keyboards are a big culprit in the spread of infection among humans. The flu virus, for example, can last anywhere from a few seconds to 48 hours outside the human body and can survive on a surface such as a keyboard. While frequent and effective cleaning of hands and keyboards is a major factor in mitigating the risk posed by the flu, cleaning a regular keyboard isn't easy. Most keyboards cannot be completely disinfected, and those that are sealed require time consuming cleaning in a sink.

Cleankeys™ is the solution to this problem. It's a keyboard with a smooth flat glass surface and a touch sensitive keyboard with an integrated mouse pad.

"Cleankeys™ is the easiest keyboard to clean in the world. Just spray it with any cleaner and wipe it off in seconds. This makes it very practical to clean and disinfect after each use," says **Randy Marsden, CEO and Founder of Cleankeys Inc.** Randy is also the Founder of **Madentec Ltd.** (p.30).

There are many environments where infection control

is an issue and Cleankeys™ makes sense, such as: (1) Medical facilities like dental offices, nursing stations, and hospitals, (2) Publicly-used computers in schools and internet cafes, and (3) Manufacturing plants, especially those preparing food.

The manufacturer's suggested retail price of Cleankeys™ is US \$399.

COMPANY: Cleankeys Inc., www.cleankeysinc.com, 9 employees, founded 2008, revenue-funded, product sold worldwide, 4664 - 99 Street, Edmonton, Alberta T6E 5H5, 780.450.8926, 1.800.661.8406

PRODUCT: Easy-to-clean keyboards

GROWTH STRATEGIES: Seek investors and distribution partners globally

CONTACT: Randy Marsden, CEO and Founder, randym@madentec.com, 780.450.8926 ext. 223

Flexcorp

Rethinking dental waterlines

Several years ago the TV show **60 Minutes** revealed startling levels of bacteria in the water lines in dental offices. The problem was that the design of the water lines that feed dental tools allows the water to back wash and be stagnant, providing the perfect environment for biofilm growth, and contributing to clogged water lines in dental equipment. Flexcorp set out to find a solution. Its water line technology contains special control valves and has a single piece of tubing that streamlines the system. It does not eliminate the need for disinfecting the system, but it makes the process much more effective. An estimated 15% of Calgary's dental offices use Flexcorp's technology. It can be installed in new dental offices or as a retrofit at about \$500 per dental seat.



Photo credit: Flexcorp

COMPANY: Flexcorp Inc., www.seamlessvalving.com, 2 employees, founded 1998, revenue-funded, 208 Hartford Road NW, Calgary, Alberta T2K 2A8, 403.277.7393

PRODUCT: Hygienic dental water lines

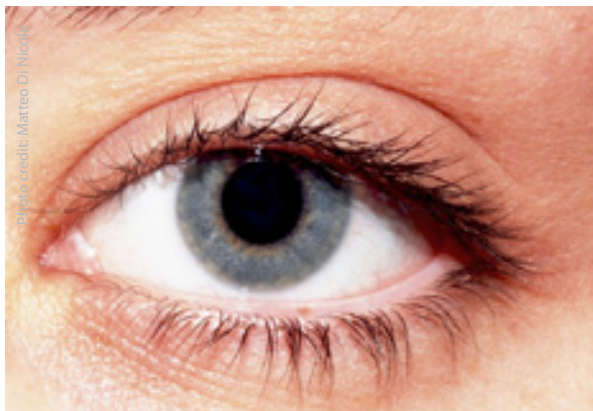
GROWTH STRATEGIES: Seek investors, US and international distributors, and licensing opportunities with industry partners

CONTACT: Neil Stewart, VP and co-Founder, flexcorp@shaw.ca, 403.277.7393

MSD Lens

Specialty contact lenses for traumatized eyes

MSD Lens produces the only mini scleral contact lens of its kind in the world. Scleral lenses are prescribed for traumatized eyes where other lenses fail, such as eye trauma from surgery, an accident or a condition called keratoconus. Most contact lenses sit directly on the cornea, which is the coloured part of the eye that covers the iris and pupil; however, the larger scleral lens sit on the sclera which is the white of the eye. Since it does not come in direct contact with the cornea, the scleral lens is more comfortable for the wearer and produces sharper vision.



COMPANY: MSD Lens Corporation, www.msdcorp.net, 3 employees, founded 2007, startup, product launched January 2008, sold internationally, Suite 409, 11456 Jasper Avenue, Edmonton, Alberta T5K 0M1, 780.426.6386, 1.800.661.6530

PRODUCT: Scleral contact lenses

GROWTH STRATEGIES: Seek license partners around the world

CONTACT: Rikke Dootjes, President, CEO and co-Founder, info@viscon.net, 780.426.6386. Also see related company on page 38.



NeuroArm Surgical

World's first MRI-compatible surgical robot is revolutionizing micro/neurosurgery



NeuroArm is a surgical robot capable of performing delicate surgeries in a way that allows the surgeon to see more and work with greater precision and safety. Watching real-time MRI and visual video of the brain through a microscope or monitors (as pictured), the surgeon's hand movements are translated into movements of the robotic arm. While the human hand can move in increments of 1 or 2 mm, NeuroArm can move in increments of 50 microns (the width of a human hair) with no hand tremors. NeuroArm has application for many types of microsurgery including neurosurgery, transplant, reconstructive, nerve, blood vessel, ENT (ear, nose and throat), and ophthalmic (eye) surgeries; it can also be used for biopsies and implantations. It was developed

by **Dr. Garnette Sutherland** and his team at the **University of Calgary** (p.70) and **Calgary Health Region**.

COMPANY: NeuroArm Surgical Ltd., www.neuroarm.org, 7 employees, founded 2006, grant-funded, product available 2009, University of Calgary spinoff, 1403 - 29th St NW, Calgary, Alberta T2N 2T9, 403.944.8001

PRODUCT: Medical robotic systems

GROWTH STRATEGIES: Seeks partners and funding

CONTACT: Dr. Michael Raymont, President and CEO, mraymont@neuroarm.org, 403.389.3488

NovaPure

Air filters proven to kill airborne bacteria, viruses and molds

Thanks to nanotechnology, NovaPure's air purifier products have redefined improved air quality. Air passing through a NovaPure air purifier comes into contact with a surface coated with nano-sized particles of titanium dioxide. In the presence of ultraviolet light like sunlight, these nanoparticles photocatalyse chemical reactions with the air particles thereby removing odors and chemicals, killing airborne microbes such as cold and flu viruses, and reducing other airborne contaminants such as dust and pollen.

COMPANY: NovaPure Inc., www.novapure.com, 5 employees, founded 2002, revenue-funded, product sold in North America, Bay 6, 3530 - 11 A Street NE, Calgary, Alberta T2E 6M7, 403.531.2091

PRODUCT: Very quiet air purifiers with unprecedented air quality results

GROWTH STRATEGIES: Seek marketing partners in Canada and around the world to sell and distribute products

CONTACT: John Pink, President and co-Founder, jdpink@novapure.com, 403.531.2091

Photo credit: Jack Horst.



Photo credit: NovaPure

Progressive Optical Research

A world innovator in easy-to-wear rigid gas permeable (RGP) contact lenses

Progressive Optical Research invents and manufactures rigid gas permeable (RGP) and silicone hydrogel lens blanks that are sold to optical labs who convert them into contact lenses that fit a patient's prescription. Compared to soft lenses, RGP lenses offer better vision and durability, but they are more difficult to get used to and wear. Through extensive research, Progressive Optical Research has developed a contact lens material that is significantly easier to adapt to and wear. Its lenses are made from advanced materials that offer improved permeability, wet-ability, stability and biocompatibility.

COMPANY: Progressive Optical Research Ltd., www.progressiveopticalres.com, (employee size not available), founded 1981, revenue-funded, product sold internationally, Suite 20, 1410 - 40 Avenue NE, Calgary, Alberta T2E 6L1, 403.250.1181

PRODUCT: Superior comfort optical quality RGP contact lenses

GROWTH STRATEGIES: Seek increased distribution worldwide

CONTACT: Nick Novicky, Chief Technology Officer and Founder, novickyn@progressiveopticalres.com, 403.250.1181



RadTag Technologies

Helping to save lives through safer blood

People with severely compromised immune systems such as organ transplant patients, premature infants, and cancer patients may require irradiated blood to prevent transfusion associated complications. As pictured, RadTag's radiation indicators attach to a blood bag and give a visual indication of whether or not the blood has received the appropriate dose of radiation. RadTag has the world's only product that provides an indication of whether the blood has received either too little OR too much radiation, thus ensuring both the safety and efficacy of the blood.

COMPANY: RadTag Technologies Inc., www.radtagtech.com, (employee size not available), founded 2001, revenue-funded, product sold worldwide, University of Alberta spinoff, Suite 137, 6325 Gateway Blvd., Edmonton, Alberta T6H 5H6, 780.433.4331

PRODUCT: Radiation indicators providing verification of radiation dose for various applications

GROWTH STRATEGIES: Seek medical researchers working with radiation for new applications

CONTACT: Karima Hudda, COO and co-Founder, info@radtagtech.com, 780.433.4331





Script Innovations

Counts 100 pills in less than 10 seconds for pharmacists

According to Script Innovations, pharmacists' staff spend 30% of their time counting pills. To remove this burden, Script Innovations created a next generation pill counter based on the needs of pharmacists: drop the pills in, push a button and get the total pill count without having to do anything else—the pharmacist is free to be more productive, like helping a customer. Script Innovations' pill counter also has a small footprint, is easy to clean, requires nothing to learn, counts fast, is quiet, and has a price tag of under \$3,000.



COMPANY: Script Innovations Inc., www.scriptinnovations.com, 3 employees, founded in 2004, investor funded, Suite 202, 1439 - 17th Ave SE, Calgary, Alberta T2G 1J9, 1.866.2.SCRIPT

PRODUCT: Automatic pill counter

GROWTH STRATEGIES: Seek investors and international distribution

CONTACT: Bruce Jacobs, CEO and Founder, info@scriptinnovations.com, 1.866.2.SCRIPT (1.866.272.7478)

Viscon Contact Lens Manufacturing

Specialty contact lenses when off-the-shelf lenses won't do

Some people can't wear off-the-shelf soft contact lenses and, in some cases, can not wear eyeglasses at all. They need the more stable surface of a gas permeable contact lens. Viscon Contact Lens manufactures this type of specialty contact lens for extreme prescriptions, bifocal contact lenses, lenses for certain traumatized eyes, and compromised corneas. It also manufactures custom-made soft lenses.



COMPANY: Viscon Contact Lens Manufacturing Limited, www.viscon.net, 9 employees, founded 1974, revenue funded, Suite 409, 11456 Jasper Avenue, Edmonton, Alberta T5K 0M1, 780.426.6386, 1.800.661.6530

PRODUCT: Specialty contact lenses

GROWTH STRATEGIES: Seek international marketing partners

CONTACT: Rikke Dootjes, President, CEO and co-Founder, info@viscon.net, 780.426.6386. Also see related company on page 35.

Vista Technology

World's leading automated petri dish streaking machine

Each day in hospitals and microbiology laboratories, thousands of petri dishes are streaked with samples, the most common samples being urine, stool, and throat swaps. Within a few days, different types of bacteria in the sample grow and are identified. Sometimes the samples contain disease-causing bacteria. The majority of petri dishes in these labs have been prepared by an automated petri dish streaking machine from Vista Technology (pictured). Vista invented this technology and has pioneered this market. Vista's machine streaks a petri dish with a uniform distribution of a sample (pictured), which produces a better result. It also saves lab personnel from this tedious and often dangerous task, and it saves money, as the machine pays for itself in one year.



Photo credit: Vista Technology

COMPANY: Vista Technology Inc., www.vistatechnology.com, (employee size not available), founded 1976, revenue-funded, product sold in North America and Europe, 8432 - 45 Street NW, Edmonton, Alberta T6B 2N6, 780.468.0020, 1.888.468.0020

PRODUCT: Automated petri dish streaking machine

GROWTH STRATEGIES: Seek European distribution partners

CONTACT: Colin Wylie, President and Founder, sales@vistatechnology.com, 780.468.0020

Alberta Nanometals

New long-lasting pathogen and fungi killing high tech coating

Silver nanoparticles are very effective in killing microbial growth that can cause infection and disease, as pictured. Alberta Nanometals is currently testing its silver-based nanomaterial in paints and coatings to assess how quickly the material kills selected pathogens and fungi on hospital walls, stainless steel process machinery used to cut fresh chicken, and water piping in commercial greenhouses. An important property of Alberta Nanometal's technology is that the nanosilver is chemically bonded to a surface. This makes the technology an extremely tough, long-lasting antibacterial barrier suitable for high-use environments. The company is also developing technologies to capture xenon gas from operating room applications, and radon gas which is known to cause lung cancer.

COMPANY: Alberta Nanometals Inc., www.albertananometals.com, 4 employees, founded 2008, University of Alberta spinoff, product testing with lead clients, NINT Innovation Centre, 11421 Saskatchewan Drive, Edmonton, Alberta T6G 2M9, 780.437.7666

PRODUCT: Anti-pathogen nanomaterials for paints and coatings

GROWTH STRATEGIES: Seek development partners to apply technology to new applications

CONTACT: Dr. Steve Kuznicki, President and Founder, stevekuznicki@albertaadsorbents.com, 780.492-.8819 or Carl Hunter, carl.hunter@albertananometals.com, 780.437.7666

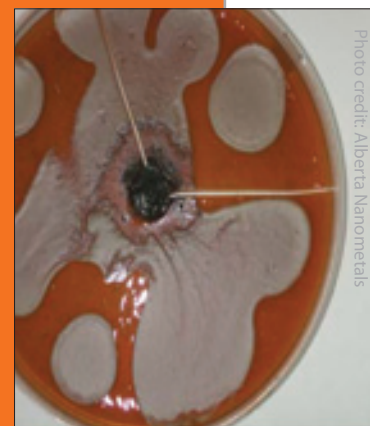


Photo credit: Alberta Nanometals



TENET Medical Engineering

World leader in surgical positioning equipment



LEFT: TENET's T-MAX Beach Chair gives surgeons easy access to a patient during shoulder surgery. The patient's arm is held in place with TENET's SPIDER Limb Positioner product. RIGHT: Front view of TENET's T-MAX Beach Chair. Photo credit: TENET Medical Engineering

The world's leading extremity surgeons—who work on shoulders, arms, wrists, hands, legs, knees, and feet—position their patients during surgery with products designed and manufactured by TENET Medical Engineering, Inc. located in Calgary, Alberta. TENET's products significantly improve the result of their surgical work.

TENET's first successful product was the T-MAX Beach Chair used for shoulder surgery, pictured above. It is a reclining chair that attaches to an operating table, and allows a surgeon to position a patient in a convenient location. While the T-MAX was similar to existing products, the reason for its success is rather surprising. **Brent King, VP of Operations and Head of Engineering**

at TENET explains, "The competition was very focused on the visual aesthetics of the product. Instead, we started by listening to surgeons' problems with existing products, and we came up with a very simple, robust solution based on their direct feedback. We spent a lot of time talking not only to surgeons, but also to nurses, equipment managers, purchasers, the heads of the ORs, and asking them what they were looking for in this type of product."

TENET is best known for its second product, which is the SPIDER Limb Positioner, pictured above. This innovative product introduced in 2000 was again discovered through TENET's interactions with surgeons. The SPIDER is an adjustable robotic arm that holds a patient's arm or leg perfectly still while the doctor performs surgery.



LEFT: TENET's SPIDER Limb Positioner is an adjustable robotic arm that holds the patient's arm or leg still during surgery. The SPIDER is very flexible in its uses. With different attachments for different procedures, it is used for surgery on shoulders, arms, wrists, hands, legs, knees, and feet. RIGHT: Patient prepared for shoulder surgery using TENET's SPIDER Limb Positioner product. Photo credit: TENET Medical Engineering

Previously, an assistant had to hold and reposition the patient's limb throughout the entire surgery which can last from 45 minutes to 2 hours.

TENET's SPIDER product has made a huge impact toward making minimally invasive procedures like arthroscopic surgery more accurate. As **Bob Spence, TENET's VP of Sales and Marketing** explains, "During arthroscopic surgery, a small camera is inserted through the skin at the operative site. The SPIDER ensures that the patient's limb is stable, which provides a clear and steady image for the surgeon to work with. The surgeon can perform the surgery without being concerned with the patient's limb moving, and their view of the surgical site being affected. Many experts believe that minimally invasive procedures like arthroscopy results in less time for the patient to heal. It is the future of surgical medicine."

The SPIDER and T-MAX products are currently used by some of the top orthopaedic surgeons in 49 countries. Word of mouth among surgeons was very important to initial sales. However, securing distribution through **Smith & Nephew Inc.**, one of the world's top three largest medical device distributors, was instrumental to TENET's current marketing and financial success. According to **Ken Moore, TENET's President and co-Founder**, "Since we signed with **Smith & Nephew** in 2004, TENET has grown 20 to 80% per year....We bootstrapped the company

the entire way. We've never borrowed money, just a few dollars from family to get the company rolling. From there, we worked off of our profits. All of our products are designed to be low-cost, long-lasting, and fit the surgeon's need rather than just look like it does."

However, TENET had a slow start. The company was started in 1994 by a handful of graduate students who had studied together at the Joint Injury and Arthritis Research centre at the University of Calgary. **TENET's President, Ken Moore**, was one of them. Ken had played pro-football for 12 seasons in the Canadian Football League with the **Saskatchewan Roughriders** and the **Calgary Stampeders**. Ken said, "I had lots of injuries and had done lots of rehabilitation. That got me interested in this area. I'd play football six months of the year and spent the other six earning my master's degree in biomechanics, and later selling medical devices from other companies. It took us a while to learn about the industry and to figure out what we would be good at."

COMPANY: TENET Medical Engineering Inc., www.tenetmedical.com, 27 employees, founded 1994, revenue-funded, University of Calgary spinoff, #203, 11979 - 40th Street SE, Calgary, Alberta T2Z 4M3, 403.571.0750, 1.866.571.0750

PRODUCT: Surgical positioning equipment

GROWTH STRATEGIES: Seek opportunities to expand the use of the SPIDER Limb Positioner beyond orthopaedics

CONTACT: Bob Spence, VP of Sales and Marketing, info@tenetmedical.com, 403.571.0750

Classic Health Supplies

Leading product distributor also has own product line

Classic Health Supplies has developed a line of super absorbent products that are being use for incontinence, woundcare and other health related applications. It is the sole Canadian distributor of oat beta-glucan based woundcare products for chronic wounds, burns and post cosmetic surgery. The company also distributes products for incontinence, ostomy, skin/wound care, and ambulatory care (walkers and wheelchairs) to stores and hospitals in Western Canada and direct to the public. It is looking to expand to new product lines with innovative niche healthcare products.

COMPANY: Classic Health Supplies Ltd., www.classichealth.com, 7 employees, founded 1991, revenue-funded, 8317 Argyll Road, Edmonton, Alberta T6C 4B2, 1.888.421.0488

PRODUCT: Variety of niche healthcare products

GROWTH STRATEGIES: Seek innovative new medical products, technology and applications

CONTACT: Murray Ellis, President and Founder, email@classichealth.com, 1.888.421.0488



Photo credit: Vangelis Thomaidis

Exciton Technologies

Silver-based infection control technology

Exciton has created two platform technologies that leverage the anti-microbial properties of silver in preventing infection and the spread of disease. One technology is used to coat wound dressings to produce silver-based wound care products at lower cost and equivalent efficacy than existing products.

It can also be used to coat medical devices such as urinary catheters, stitches, and implants. Exciton's other technology is a complex silver solution used to create disinfectant products from liquids and gels, to foams and wipes. This technology has the properties of non-corrosive active ingredients, rapid pathogen kill-times combined with long lasting residual action, while being environmentally friendly.

COMPANY: Exciton Technologies Inc., www.excitontech.com, 10 employees, founded 2001, launch of first product in 2009, investor-funded, 4000 Enterprise Square, 10230 Jasper Ave, Edmonton, Alberta T5J 4P6, 780.248.5868

PRODUCT: Silver-based infection control and disinfectant products

GROWTH STRATEGIES: Seek opportunities to license platform technology

CONTACT: Rod Precht, President and CEO, rprecht@excitontech.com, 780.248.5868



Photo credit: Robert Almy

NUCRYST Pharmaceuticals

World's first commercially successful application of nanotechnology to a medical therapeutic

NUCRYST was the first company to create an antimicrobial wound dressing based on silver nanoparticles, as pictured. Called Acticoat®, there are numerous testimonials of its astonishing power to heal wounds, reduce inflammation and kill bacteria. Sales of Acticoat® in 2008 were an impressive \$20.9 million, making it one of the world's most successful medical applications of nanotechnology so far. Acticoat® was developed by **Dr. Robert Burrell** (p.68), who is now Professor and Chair of the Department of Biomedical Engineering at the **University of Alberta** (p.68).



COMPANY: NUCRYST Pharmaceuticals Corp., www.nucryst.com, 100 employees in Alberta, founded 1997, product sold worldwide, publicly traded on NASDAQ as NCST and TSX as NCS, 10101 - 114 Street, Fort Saskatchewan, Alberta T8L 3W4, 780.992.5500

PRODUCT: Nanotechnology-based antimicrobial wound dressing

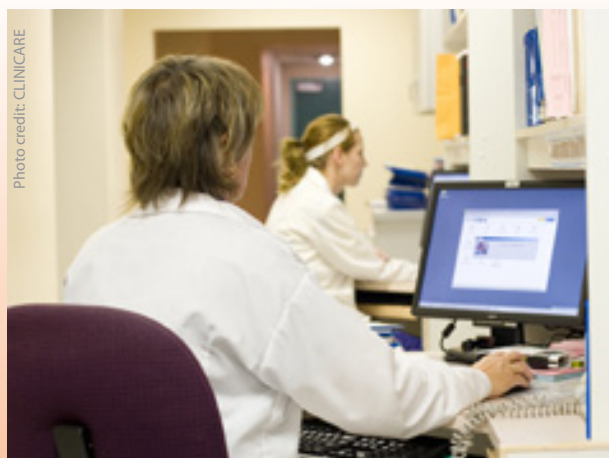
GROWTH STRATEGIES: Seek additional investors

CONTACT: David Fields, Investor Relations, info@nucryst.com 780.992.5500

CLINICARE

Canada's largest provider of electronic medical records

CLINICARE produces software that supports the medical and business operations of private physician offices. Its electronic medical records (EMR) system captures and organizes patient information, and this system is integrated with CLINICARE's business management software which supports billing and scheduling. CLINICARE's software has the unique property of allowing each physician in a group practice to customize the look and feel of the system to their own preferences thereby improving workflow. CLINICARE has the largest customer



base in Canada, which it has built by leading the definition and adoption of EMR in Canada for the past 25 years. Alberta physicians lead Canada in going digital, with electronic medical records software installed in 60% of doctor's offices in Alberta compared to 15% or less in other Canadian provinces.

COMPANY: CLINICARE Corporation, www.clinicare.com, 55 employees, founded 1984, revenue-funded, software sold in Canada and the US, Alastair Ross Technology Centre, 300, 3553 - 31 Street NW, Calgary, Alberta T2L 2K7, 403.259.2273

PRODUCT: Electronic Medical Records (EMR) and practice management applications

GROWTH STRATEGIES: Seek innovative valued-added software partners

CONTACT: Karim Kanji, President, marketing@clinicare.com, 403.259.2273



priMED Medical Products

Innovation leader in surgical masks and gowns for acute care



priMED produces surgical masks for acute care, as pictured, and other disposable protective apparel including isolation gowns, surgical gowns and drapes. **Guy Plamondon, co-founder at priMED** says, "Innovation is how we meet the AAMI levels at low cost. (AAMI are the industry's manufacturing protection levels targets). For people working in healthcare, knowing the protection level of their equipment is important." Photo credit: priMED Medical Products

In 2007, priMED started selling surgical face masks for the acute care market. Going up against large multinational competitors, in just 2.5 years priMED has already secured 20+% market share in the Canadian market—a significant accomplishment. Having just received sizable orders from the EU, priMED is now working to establish the same success in other countries. High growth is something priMED is used to; each year since it started in 1995, it has achieved 30% annual growth, and often more. priMED will soon exceed \$30 million in annual sales. How does it achieve its growth? How does it cope? What is it planning next? Let's take a look.....

priMED manufactures a commodity product: disposable personal protective equipment such as surgical masks, gowns, gloves, headwear and footwear used in surgical suites, emergency rooms and acute care hospitals. Its products are sold through a network of distributors in Canada, the US, the EU and Australia, which **David Welsh, priMED's President** says, "are huge markets with so much room to grow."

priMED's surgical masks are a product line of 45 individual products for different levels of protection to meet the different needs of healthcare workers in acute care—fluids, bacteria/virus and particle filtration. Surprisingly, the difference between priMED's masks and the competition are only small incremental improvements. priMED's success in the surgical mask space has been achieved through production of a high quality product at a competitive price.

"One thing that makes us very different is that we have our own manufacturing plant in China. By controlling our quality, management and IP there, we manufacture to Canadian standards," explains **David Welsh**. Although it has been manufacturing through joint ventures and other arrangements in China since it started, priMED opened its first wholly-owned manufacturing facility of 2,500 m² in 2006. It added another 6,895 m² of capacity in 2007 and has almost 1,000 production workers. Since it has outgrown capacity again, it's currently adding another 8,500 m² of space

scheduled to go online late 2009.

Guy Plamondon, co-Founder of priMED says, "One of the biggest challenges in manufacturing is producing high quality levels." At a time when the large multinational medical supply companies outsource their manufacturing, priMED's manufacturing strategy seems odd. It was one of the first companies in its industry to manufacture in China, and remains one of the few manufacturers with fully owned production capability.

Interestingly, priMED's unique manufacturing strategy created another contributor to its success. Impressed by the top quality of priMED's line of branded products, large multinational medical supply companies contract priMED to manufacture products made to their unique product specifications. "Our branded business gives us the credibility to be a viable outsource manufacturer. The two sides of the business feed off each other greatly. The outsource manufacturing adds massive volume to our plant, gives us economies of scale and access to world-class pricing on raw materials," explains **David Welsh**.

priMED started out competing on price and then distinguished itself by adding quality. It will be interesting to see what happens in the surgical mask market in the near future when priMED takes the competitive battlefield to the next level: innovation. According to **David Welsh**, "priMED has been innovating new mask designs which provide enhanced protection in comparison to what is currently available on the market. They have a good seal to the face to prevent leaks, and offer greater fit and comfort." According to **Guy Plamondon**, "a big part of our ability to be innovative is because we can be innovative in our manufacturing. With

having our own plant, we have control of the product development process from end to end."

priMED started development of its new line of innovative surgical masks in 2004 in partnership with the **University of Alberta** and **Capital Health**. Having both worked in multinationals, **Guy Plamondon** and **David Welsh**, know the importance of incorporating customer feedback into the innovation process. "For a sales rep in a big company, there is no where to take your customer feedback. Your input and feedback from the customer is nearly never heard. Here, our feedback loop between the sales and marketing group, design group and manufacturing group is very short. We all sit in the same room. (priMED has 25 employees based in Edmonton.) We don't have bureaucracy," explains **David Welsh**. **Guy Plamondon** adds, "we can take an idea and implement it into our (current) design within weeks or months, not years. One of our challenges as we get larger is to maintain that nimble rapid response, and the ability to innovate with the voice of the customer incorporated into the product."

COMPANY: priMED Medical Products Inc., www.primed.ca, 25 employees in Canada and 1,000 employees in China, founded 1995, revenue-funded, #900, 10707-100 Avenue, Edmonton, Alberta T5J 3M1, 780.497.7600, 1.877.877.4633

PRODUCT: Disposable medical supplies

GROWTH STRATEGIES: Seek marketing partners to access additional global markets

CONTACT: David Welsh, President, info@primed.ca, 780.497.7600



Unlike most of its competitors, priMED controls its manufacturing and innovation process from end to end. Its manufacturing is done in its fully-owned factory in China which is designed to produce products to the highest North American standards. Photo credit: Karee Davidson



Clinitrust

First secure online email for communication between physicians and their patients

For years medical licensing bodies have warned doctors not to use regular email packages to communicate sensitive patient information to their colleagues or patients, because regular email services do not meet governments' security and privacy requirements. Clinitrust has solved this problem by developing the first FREE secure online email for healthcare providers. Clinitrust is also developing the first service that will allow doctors to electronically charge patients and others on a per email basis. Additionally, in partnership with healthcare organizations like the AMA, CMA, and CARNA, Clinitrust is developing a verification system to assure patients that they are communicating only with their doctor and no one else.

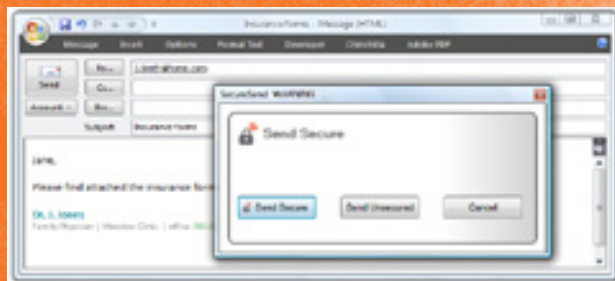


Photo credit: Clinitrust

COMPANY: Clinitrust Global Inc., www.clinitrust.com, 7 employees, founded 2006, investor-funded, products launched Fall 2008, Suite 108, 9650 - 20 Avenue, Edmonton, Alberta T6N 1G1, 780.468.8778

SERVICE: Secure online mail for the health care industry

GROWTH STRATEGIES: Seek channel partners around the globe

CONTACT: Todd Herron, CEO and Founder, info@clinitrust.com, 780.468.8778



Photo credit: Commerx

Photo credit: RIGHT:
Maciek Pelc



Commerx

Leader in emergency ambulance patient care recordkeeping

Commerx's customizable software helps emergency medical service (EMS) professionals do their job faster, more accurately and more efficiently. On the way to the hospital, a paramedic can input a patient's data such as symptoms, treatment details, and insurance facts. Commerx software communicates this directly to hospital staff to help them prepare for the patient's arrival. The software also captures billing information to speed up the collection process, as well as insurance facts and signatures.

Commerx also offers other EMS products and can support a hospital's data systems, email and website.

COMPANY: Commerx Corporation, www.commerx.com, www.commerxems.com, 27 employees, founded 1999, revenue funded, products sold internationally, Suite 200, 555 - 11th Ave SW, Calgary, Alberta T2R 1P6, 403.301.3883

SERVICE: Support EMS professionals in their delivery of client care

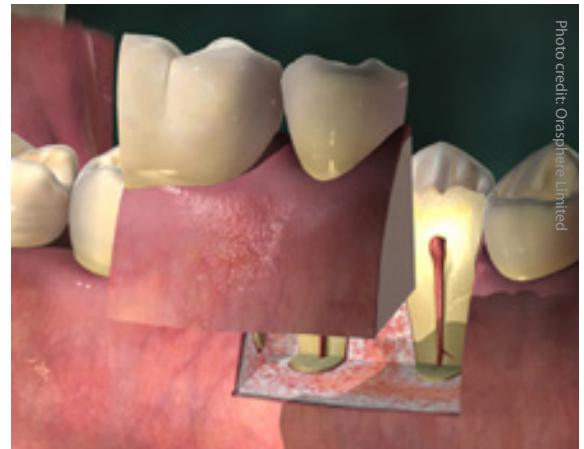
GROWTH STRATEGIES: Seek more global distribution and more clients

CONTACT: Robert Kulhawy, President, CEO and Founder, info@commerxems.com, 403.301.3883

Curve Technologies

The next revolution to the dental office is web-based

With Curve's technology, dental offices are paperless—all patient records, digital x-rays, billing and even a patient education system are online. Being web-based offers dental practices numerous innovative productivity enhancements such as giving patients the choice of booking their own appointments online. Since dentists purchase access to Curve's technology as a subscription-based service, the need for the current complex and expensive inhouse IT infrastructures is eliminated. This means a significant cost savings and no more hassles associated with software and hardware updates, support, security and liability.



COMPANY: Curve Technologies Inc., www.curvedental.com, 25 employees, founded 2004, investor and revenue funded, service sold internationally, Suite 303, 1109 - 17th Avenue SW, Calgary, Alberta T2T 5R9, 403.245.4088, 1.877.245.4088

SERVICE: Fully integrated web-based practice management solution for dentists

GROWTH STRATEGIES: Seek talented software developers

CONTACT: Matthew Dorey, Founder, info@curvedental.com, 403.245.4088

Cybernius Medical

World leader in electronic medical records for renal (kidney) healthcare

For Cybernius Medical's founder, Ulrich Simonsmeier, getting kidney disease was a life-changing experience in many ways. While waiting for a kidney transplant and using a dialysis machine to remove toxins from his blood, Ulrich realized he could save medical staff countless hours by automating the data charting activity of the thousands of dialysis machines used in hospitals and private dialysis centres. Cybernius Medical was born. Since the data is collected directly from the dialysis machine, two additional benefits of this product are that it produces less charting errors and sends data directly to the billing system. The company has also pioneered an emergency alert communication device to monitor patients who choose to have dialysis done at night in their own home while sleeping.



COMPANY: Cybernius Medical Ltd., www.cyberren.com, (employee size not available), founded 1993, revenue-funded, product sold globally, office in Switzerland, headoffice: Suite 403, 22 Sir Winston Churchill Avenue, St. Albert, Alberta T8N 1B4, 780.458.4989, 1.800.276.8128

PRODUCT: Electronic medical records for renal (kidney) healthcare

GROWTH STRATEGIES: Seek increased worldwide distribution

CONTACT: Ulrich Simonsmeier, CEO and Founder, info@cyberren.com, 780.458.4989 x746

EMIS

Leader in preventive care enabled electronic medical records

Preventive care is already part of our everyday routine. We brush our teeth to prevent tooth decay. We exercise and eat certain foods or avoid certain foods to keep our bodies healthy. Similarly, if a physician notices an increase in weight and blood sugar in a patient with a family history of diabetes and/or heart disease, they can discuss this with the patient before it gets out of control. However, paper charting and billing focused electronic medical record systems can make recognizing these medical trends difficult. To make it easier for physicians to be more proactive, EMIS produces electronic medical records software with a preventive care focus, meaning that EMIS' unique solution tracks all patient health and wellness data as well as medical and family history, in addition to billing and patient scheduling.

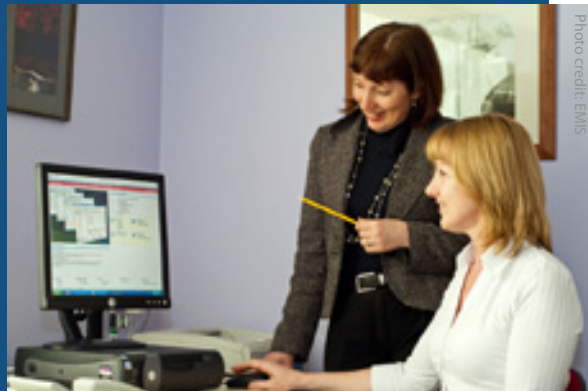


Photo credit: EMIS

COMPANY: EMIS Inc., www.emis.ca, 53 employees, founded 2003, revenue-funded, product sold in North America, 10250A - 176 Street Edmonton, Alberta T5S 1L2, 780.409.8277, 1.866.443.3647

PRODUCT: Electronic medical records (EMR) software for physician offices

GROWTH STRATEGIES: Seek more clients and strategic partners

CONTACT: Eric Gombrich, CEO, info@emis.ca, 780.409.8277

Haemonetics Software Solutions

World leader in blood and plasma information management

Many life saving pharmaceutical products are derived from human blood and plasma. Haemonetics makes software that supports the collection and management of blood and plasma units throughout the supply



Photo credit: haemonetics

chain. Its integrated software solution starts with an automated donor questionnaire that allows a donor to enter their health history. This donor screening information is stored in a donor management system along with test results and unit tracking data. Haemonetics' software, and its devices and services support ongoing management of plasma units into the warehouse where large volumes of units are pooled for eventual processing.

COMPANY: Haemonetics Software Solutions Inc., www.haemonetics.com, 150 employees in Alberta, founded 1992, revenue funded, product sold worldwide, publicly traded on NYSE as HAE, Suite 500, 10025 - 102A Avenue, Edmonton, Alberta T5J 2Z2, 780.425.6560

PRODUCT: Blood and plasma information management

GROWTH STRATEGIES: Seek opportunities for product integration and more clients in Asia and Europe

CONTACT: Lionel Eshleman, Senior Marketing Manager, leshleman@haemonetics.com, 780.409.0865

Ormed Information Systems

Canada's largest supplier of healthcare information management systems

Ormed Information Systems' integrated healthcare software covers financials, supply chain management, executive reporting, payroll, and human resource management. It is the most widely used healthcare information management system in Canada's hospitals, medical clinics and long term care facilities. Some of the unique reasons for its success are that the product has been tailored to the unique needs of Canada's healthcare providers, it incorporates the best practices of all Ormed's clients, it is relatively easy to install, and it has an extensive e-commerce exchange that makes it easier to coordinate orders with vendors.

COMPANY: Ormed Information Systems Ltd., www.ormed.com, 47 employees, founded 1989, revenue supported, Suite 700, 10216 - 124 Street, Edmonton, Alberta T5N 4A3, 780.482.7200, 1.888.464.3172

PRODUCT: Healthcare management information system

GROWTH STRATEGIES: Seek more US clients

CONTACT: Isaac Calon, Corporate Communications Manager, info@ormed.com, 780.482.7200 x 337



Photo credit: Ormed

Redengine Health

First-of-its-kind, wireless personal health monitoring watch

Commercializing the research and innovations of partners the **University of Alberta** (p.68), **Seiko Instruments, M.I. Labs** (a Sony spin-off), and **Alberta Health Services**, Redengine Health is commercializing a monitoring solution developed to monitor your vital signs—such as pulse, blood sugar and other vitals—and wirelessly transfer the information over the Internet to your care provider. Equipped with two-way communications capabilities, the watch-based monitoring device (pictured) can remind you to take your medicine, or send help if you are in an emergency situation such as having a stroke or deadly allergy attack. Additional wireless sensors are now being integrated and linked to mobile phones. Initial target users for the device are chronic care patients such those with diabetes, complex cardiac conditions or breathing problems. In addition to delivering peace of mind, this technology offers significant savings in healthcare costs.

COMPANY: Redengine Health Inc., www.redenginehealth.com, (employee size not available), founded 2008, angel-funded, clinical trials complete, product launch late 2009, University of Alberta spinoff, Suite 2060, 10303 - Jasper Avenue, Edmonton, Alberta T5J 3N6, 780.414.0975, 1.877.837.5087

PRODUCT: Wireless two-way personal health monitoring devices and service

GROWTH STRATEGIES: Seek investors and channel partners

CONTACT: Tom Ogaranko, President, togaranko@redenginehealth.com, 780.414.0975



Photo credit: Redengine Health

TSI Medical

Telehealth helps pharmacies, hospitals, and clinics do more for their patients

Some pharmacies currently offer patients a self-serve blood pressure kiosk. However, this may be the beginning of a new direction. TSI Medical has developed a unique telehealth application that allows a wide variety of common tests to be done through the pharmacy and then be sent to the patient's doctor for interpretation. Tests that can be done include hearing, tympanometry (for middle ear infection), 24 hour blood pressure, spirometry (for asthma), bone density testing (for osteoporosis), holter (electrical activity of the heart), and sleep apnea (snoring). Helping patients get their medical issues resolved faster makes patients happier and offers pharmacies significant competitive advantages. Pharmacies can purchase or lease the system and select only the medical devices they need. Installation, training, and ongoing technical support is included.



Photo credit: TSI Medical

COMPANY: TSI Medical Ltd, www.tsi-medical.com, 6 employees, founded 1994, revenue funded, #105, 47 Athabasca Avenue, Sherwood Park, Alberta T8A 4C8, 780.417.1719, 1.800.661.7263

SERVICE: Sales, service and integration of specialized medical diagnostic equipment

GROWTH STRATEGIES: Seek innovative products and licensing opportunities

CONTACT: Randal Roberts, President and Founder, info@tsi-medical.com, 780.417.1719

Electronic Dietary Foods

Long-anticipated magic pill for the treatment of obesity

Obesity is a chronic medical condition without a "cure", where the only effective treatment for some is surgery that reduces the size of the stomach. Electronic Dietary Foods has been working on another option that is currently being tested with excellent results in preparation for commercial launch in 2009; their "magic pill" is an advanced biocompatible, non-nutritional material that expands in the stomach to make a person feel full as pictured and then disintegrates after 10 days and flushes out of the body.

COMPANY: Electronic Dietary Foods Inc., www.electronicfoods.com, 3 employees, founded 2005, startup phase, product in clinical trials in 2008 and launch expected 2009, 531 Ranchridge Court NW, Calgary, Alberta T3G 1W8, 403.890.1557

PRODUCT: A new idea in diet supplements

GROWTH STRATEGIES: Seek marketing partnerships and international distributors

CONTACT: Dr. Martin Mintchev, President and CEO, mintchev@shaw.ca, 403.890.1557

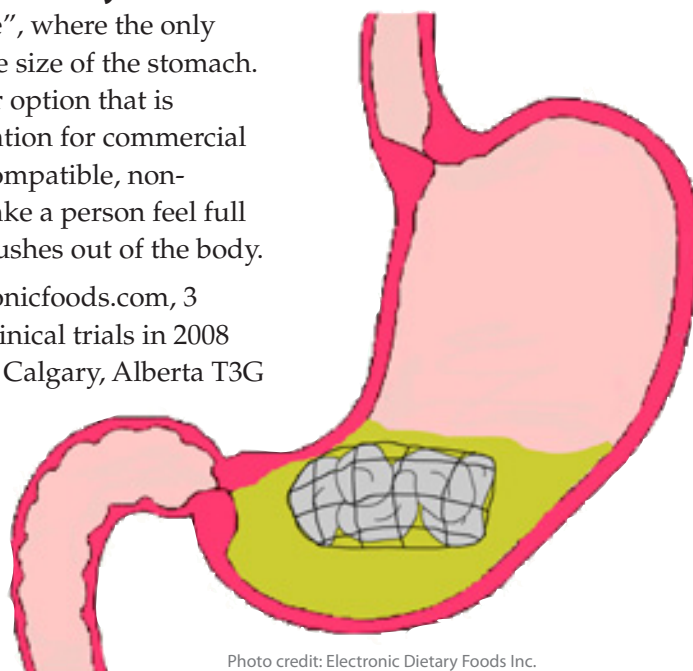


Photo credit: Electronic Dietary Foods Inc.

IntelligentNano

Safer mechanism for gene therapy and regenerative medicine

Introducing stem cells to the bone marrow is an important therapy for leukemia patients. IntelligentNano has developed a technology, called M-nanodart, to deliver a “homing” and “repopulation” gene, into stem cells. The M-nanodart, pictured in green, programs the stem cell to (1) find its way home to the bone marrow, and (2) encourage the stem cell to develop in the bone marrow tissue. This technology makes the stem cells go to the bone marrow much faster and grow better in-situ than present therapy. Because M-nanodarts have a very low level of toxicity and will not reproduce themselves, using this technology is safer in gene therapy than the traditional technique of using viruses. The company is exploring other medical uses of its technology.

COMPANY: IntelligentNano Inc., www.intelligentnano.com, 4 employees, founded 2008, University of Alberta spinoff, startup, NINT Innovation Centre, 11421 Saskatchewan Drive, Edmonton, Alberta T6G 2M9, 780.492.9820

PRODUCT: Gene therapy nanotechnology

GROWTH STRATEGIES: Seek technology development partnerships with pharmaceutical and biodiagnostic companies

CONTACT: Dr. James Xing, Executive Chair of the Board and co-Founder, 780.862.7496

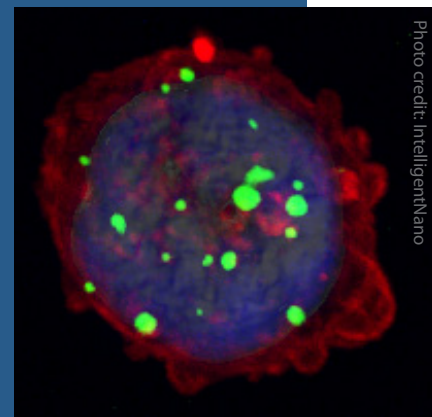


Photo credit: IntelligentNano

Litebook

Sunshine in a box makes you feel good and sleep better

The Litebook® is a patented, clinically-proven light therapy device that helps people overcome the “Winter Blues” and the more severe Seasonal Affective Disorder (SAD). Employing white LEDs to replicate the beneficial wavelengths of sunlight, the lithium battery-powered Litebook is compact, lightweight and completely portable, and is believed to suppress melatonin (the natural sleep hormone) while increasing serotonin (the natural “feel good” brain chemical that improves mood). Light therapy has also been used to reduce symptoms of jet lag, shift work and many sleep disorders. It can also improve concentration, reduce carbohydrate cravings, and increase libido. The device costs about \$199.

COMPANY: The Litebook Company Ltd., www.litebook.com, 5 employees, founded in 1999, revenue-funded, #6, 941 South Railway Street SE, Medicine Hat, Alberta T1A 2W3, 403.504.1533, 1.877.723.5483

PRODUCT: LED-based light therapy

GROWTH STRATEGIES: Seek strategic partnerships, international distributors and investors

CONTACT: Larry Pederson, Founder, info@litebook.com, 403.504.1533



Photo credit: The Litebook



Photo credit: Mind Alive

Mind Alive

Relaxation through altered brain wave activity

The idea behind Mind Alive's product developed from trying to help theatre students overcome stage fright. Using flashes of lights and pulses of tones, Mind Alive's product gently guides a person's brain waves into increased relaxation. Using a different dial setting, the product can also be used to boost your mood, help with sleep, and sharpen your mind. It has also been used for chronic pain, fibromyalgia, PMS and Attention Deficit Disorder as well as increasing creativity, and improving sports and peak-performance. The \$260 product is non-invasive and with no side effects.

COMPANY: Mind Alive Inc., www.mindalive.com, 8 employees, founded in 1981, product sold internationally, revenue funded, 9008 - 51 Avenue, Edmonton, Alberta T6E 5X4, 780.465.6463

PRODUCT: Relaxation devices based on audio-visual entertainment

GROWTH STRATEGIES: Seek investors, and Canadian and global market distribution

CONTACT: David Siever, President and Founder, info@mindalive.com, 780.465.6463

Q-Chuck Technologies

New technology facilitates organ transplants with incompatible blood groups

There is a mismatch in blood type between an organ donor and recipients in 15 to 20% of the 30,000 organ transplants done worldwide each year. Q-Chuck Technologies has a medical device that allows these types of organ transplant recipients to permanently accept their new organs. The device depletes the recipient's antibodies so that they will not attack the transplant. The device has proven effective in FDA-equivalent clinical trials; the device is currently used in Japan and the company is looking to bring the device to North America and Europe.



Photo credit: Lisa Ozden

COMPANY: Q-Chuck Technologies Inc., www.q-chuck.com, 2 employees, founded 2003, startup, bootstrapped, #120 Advanced Technology Center, 9650 - 20 Ave, Edmonton, Alberta T6N 1G1, 780.469.7789

PRODUCT: Facilitates blood group mismatch organ transplants

GROWTH STRATEGIES: Seek investors, clinical trial partners, and distribution partners

CONTACT: Doug Busse, VP of Technical Operations and co-Founder, dbusse@q-chuck.com, 780.469.7789



Thermotex

Deep penetrating heat for pain relief

Thermotex's non-invasive products provide relief from injury or chronic joint conditions such as arthritis, tendonitis and repetitive strain injuries such as carpal tunnel syndrome. Similar to a heat lamp but covering a larger treatment area, Thermotex products emit far infrared energy that you target onto the injured area. When the body absorbs the radiant energy, it increases the body's temperature triggering an increased blood flow. This increases the oxygen moving to the inflamed body area and removes the surrounding toxins resulting in reduced inflammation and less pain. As an example of price, the company's Platinum pad retails for

\$249.50.

COMPANY: Thermotex Therapy Systems Ltd., www.thermotex.com, 12 employees, founded 1997, revenue funded, product sold internationally, #15, 6115 - 4th Street SE, Calgary, Alberta T2H 2H9, 403.252.5335, 1.800.975.0253

PRODUCT: Portable infrared therapy pads

GROWTH STRATEGIES: Seek investors and increased international distribution

CONTACT: John Crerar, Vice President, john@thermotex.com, 403.252.5335

Biomedical Inspection Services

Western Canada's largest inspector of medical gas piping systems

Canadian hospitals are equipped with wall-tap access to gases needed to treat patients. These gases include oxygen, medical air, nitrous oxide (laughing gas) and carbon dioxide (used in non-invasive surgery). After several deaths from gas mix-ups in the 1970s, Canada now mandates hospitals to test their medical gas piping systems regularly. Biomedical Inspection Services is the largest such inspector in Western Canada. The company also tests and repairs medical electronics equipment such as heart monitors, defibrillators, IV pumps, physiotherapy equipment and sterilizers.

COMPANY: Biomedical Inspection Services Ltd., (no website), 6 employees, founded 1979, revenue-funded, 9550 - 45 Avenue, Edmonton, Alberta T6E 5Y9, 780.463.3877

SERVICE: Testing of medical gas piping systems and electronic equipment

GROWTH STRATEGIES: Seek warranty servicing opportunities for manufacturers of medical equipment

CONTACT: Don McFarlane, President and Founder, donm@connect.ab.ca, 780.463.3877

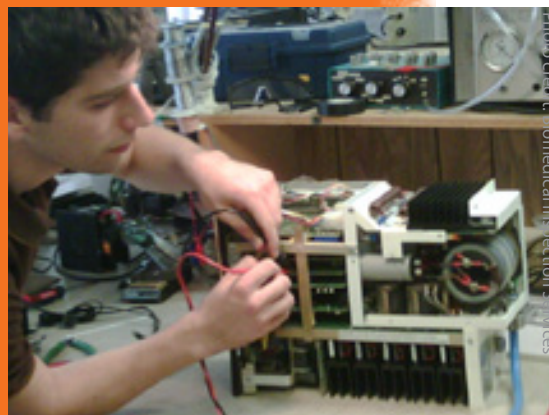




Photo credit: Canadian Imaging

Canadian Imaging

Medical imaging equipment service and sales

Canadian Imaging is one of the largest companies in Western Canada to sell, service and install medical diagnostic imaging equipment including digital x-ray, ultrasound and software that allows doctors to archive patients' digital imaging files. By servicing their equipment locally, the company's clients don't need to fly in technicians for maintenance and repair, which saves them money and keeps their clinics running.

COMPANY: Canadian Imaging Supplies Inc., www.canadianimaging.ca, 7 employees, founded 2002, revenue-funded, Suite 101, 18224 - 105 Avenue, Edmonton, Alberta T5S 2R5, 780.455.3030, 1.866.455.3050

SERVICE: Service and sales of medical diagnostic imaging equipment

GROWTH STRATEGIES: Seek additional diagnostic imaging equipment and supplies product lines

CONTACT: Don Little, President and Founder, dlittle@canadianimaging.ca, 780.455.3030 x102

Contract Clinical

Leader in finding clinical trial partners around the world

To get FDA or Health Canada approval, new drugs and new invasive medical devices are rigorously tested on human subjects for safety and effectiveness through clinical trials. It is a highly regulated process that is extremely fragmented. It could involve doctors from around the world to conduct research on their patients, clinical consultants to design and manage the clinical study or write a marketing brochure, and biostatisticians to analyze the data. Contractclinical.com is a FREE service for drug and medical device companies to find a specific clinical trial partner anywhere in the world.

COMPANY: Contract Clinical Inc., www.contractclinical.com, (employee size not available), founded 2009, revenue-funded, 3553 - 31 Street NW, Calgary, Alberta T2L 2K7, 403.770.1992, 1.877.353.0451

SERVICE: Free independent online service for finding clinical trial resources

GROWTH STRATEGIES: Seek marketing, media and technology partnerships

CONTACT: Pamela Wertalik, CEO and Founder, pwertalik@globalregulatory.com, 403.770.1992. Also see related companies page 55 and 57.



Photo credit: www.dreamstime.com

Contract Laboratory



Photo credit: Steve Johnson

Free match-making service for finding research labs worldwide

ContractLaboratory.com is a web-based service that helps companies, such as medical device companies, quickly find testing labs and research partners anywhere in the world. Since ContractLaboratory.com is an independent service, there are no commissions and no finder's fees. The service has access to all types of labs including biomedical, preclinical, toxicology, product safety, engineering, microbiology, and analytical chemistry labs. There are many reasons a medical device company might need an independent laboratory: (1) they need testing to comply with specific regulations, standards or certifications, (2) their testing equipment broke or laboratory is backlogged, (3) there is a chance of a product recall or in-house failure, or (4) they need specialized testing or expertise.

COMPANY: Contract Laboratory Inc., www.contractlaboratory.com, (employee size not available), founded 2003, revenue-funded, 3553 - 31 Street NW, Calgary, Alberta T2L 2K7, 403.770.1992, 1.877.353.0451

SERVICE: Free independent online service for finding contract laboratories

GROWTH STRATEGIES: Seek marketing, media and technology partnerships

CONTACT: Pamela Wertalik, CEO and Founder, pwertalik@globalregulatory.com, 403.770.1992. Also see related companies page 54 and 57.

CQI Consulting

FDA, Health Canada and ISO quality assurance and compliance

Whatever the quality standard its clients aim to meet—FDA, Health Canada, ISO—CQI Consulting strives to balance its clients' quality assurance needs with the regulatory requirements affecting them. In addition to building formal quality assurance processes, the company is also well experienced in performing quality audits and licensing. CQI has done international consulting engagements and has worked on the ground in China. It also provides customized quality assurance training, and is currently authoring a book on quality systems for a major publisher. CQI has experience working with pharmaceutical, biotechnology, natural health products, medical devices and veterinary products.

COMPANY: CQI Consulting Ltd., www.cqicanada.com, 1 employee, founded 2004, revenue-funded, Canadian and international clients, 16 Hampton Crescent, St. Albert, Alberta T8N 6K8, 780.919.0958

SERVICE: Health Canada and FDA compliance and quality assurance

GROWTH STRATEGIES: Seek more clients and referral sources

CONTACT: Kelly Anderson (pictured), President and Founder, cqi@shaw.ca, 780.919.0958



Photo credit: Cathy Anderson



Firetec Health & Safety

One stop for all healthcare communication equipment

There have been many recent innovations in healthcare communications electronics that help make life easier and safer for both patients and medical staff in hospitals and nursing homes. This includes next generation nurse call stations,

systems that prevent patients from wandering away, and staff distress alarms. Under its brand name Logicom, Firetec Health & Safety has made itself an expert in the challenge of installing and integrating the many communication products from multiple vendors into one coherent package that's easy to use for the end user.

COMPANY: Firetec Health & Safety Ltd., www.firetec.ca, 15 employees, founded in 1985, revenue-funded, Suite 204, 9074 - 51 Avenue, Edmonton, Alberta T6E 5X4, 780.469.5555, 1.800.661.6173

PRODUCT: Healthcare communications integration

GROWTH STRATEGIES: Seek more market partners and product vendors

CONTACT: Rod Aubichon, Operations Manager, rod@firetec.ca, 780.463.9490



Photo credit: Firetec Health & Safety

Global IQ

A Canadian leader in the management of human clinical trials

Clinical trials are research studies on humans that test how safe and effective a new drug treatment is compared to the current standard treatment. Global IQ helps pharmaceutical and biotechnology companies perform these complex and expensive clinical trials that can cost up to \$15 million each. The company can run international clinical studies in up to 60 countries with its partners. Global IQ is one of the few companies that has its own electronic data capture system that digitally captures data related to the study, and offers up-to-the minute information on treatment progress, adverse effects, costs and timeframes.

COMPANY: Global IQ Inc., www.globaliq.com, 30 employees, founded 1999, revenue-funded, satellite offices in US, Mexico, and Argentina, headquarters at Suite 903, 10088 - 102 Avenue, Edmonton, Alberta T5J 2Z1, 780.420.0633, 1.800.497.0260

SERVICE: Management of human clinical trials

GROWTH STRATEGIES: Seek additional clients

CONTACT: Paul Braconnier, President and CEO, info@globaliq.com, 780.420.0633



Photo credit: Andres Rodriguez

Global Regulatory

Free service for finding regulatory consultants

Many industries are regulated. It's not easy for a company in these industries to keep on track with these demands, but they have to. Often they seek outside regulatory consultants to help them with compliance, training, audits, and special problems. Companies looking for a regulatory consultant can post their detailed request for FREE on globalregulatory.com, who will prepare a list of appropriate regulatory experts tailored to their needs. Global Regulatory provides this service for many different industries, including medical devices, pharmaceuticals, biotechnology, in-vitro diagnostics, food & beverages, chemicals, healthcare, nutraceuticals, consumer products, organics, clinical trials, and veterinary medicine.

COMPANY: Global Regulatory Inc., www.globalregulatory.com, (employee size not available), founded in 2005, revenue-funded, 3553 - 31 Street NW, Calgary, Alberta T2L 2K7, 403.770.1992, 1.877.353.0451

SERVICE: Free independent online service for finding legal and regulatory consultants around the world

GROWTH STRATEGIES: Seek marketing, media and technology partnerships

CONTACT: Pamela Wortalik, CEO and Founder, pwortalik@globalregulatory.com, 403.770.1992. Also see related companies page 54 and 55.



Photo credit: www.dreamstime.com

GlycAlta Chemicals & Technical Services

FDA, Health Canada and international regulatory compliance

To ensure they are safe for humans, medical devices, pharmaceuticals, biologics, natural health products, dietary supplements and foods are regulated by government health organizations, such as the FDA and Health Canada. GlycAlta Chemicals & Technical Services develops quality assurance and quality control systems that ensure these type of products comply with the FDA, Health Canada, EU and Japanese requirements, including GMPs and ISO requirements. The company also has extensive experience in implementation, maintenance and auditing of these systems for a number of local and international clients.

COMPANY: GlycAlta Chemicals & Technical Services Inc., www.glycalta.com, 1 employee, founded 1998, revenue-funded, 11307 - 8 Ave NW, Edmonton, Alberta T6J 6W5 780.445.8063

SERVICE: FDA and Health Canada compliance and quality assurance

GROWTH STRATEGIES: Seek additional clients

CONTACT: Doug Busse (pictured), President and Founder, info@glycaltaservices.com, 780.445.8063



Photo credit: Sandy Busse



John Simon & Associates

FDA approval, compliance and quality assurance systems

FDA is a marketing authorization for a medical product to be sold in the US. John Simon & Associates helps medical companies get FDA and Health Canada approval, continue to meet the FDA's ongoing compliance requirements and quality assurance systems, and prepare for FDA audits. Its range of hands-on experience includes medical devices, drugs, biologics, natural health products, and health-related software. The company also has experience with 510(k) applications.

COMPANY: John Simon & Associates Ltd., www.johnsimon.ca, 1 employee, founded 2004, revenue-funded, local and international clients, 1416 - 115 Street, Edmonton, Alberta T6J 7B8, 780.433.5559

PRODUCT: FDA and Health Canada compliance and quality assurance

GROWTH STRATEGIES: Seek opportunities to work with companies with new products

CONTACT: John Simon (pictured), President and Founder, john@johnsimon.ca, 780.433.5559



Photo credit: Corinne Simon

Keystone Labs

Innovative and customized QC testing solutions

While Keystone Labs has a menu of standard lab tests for medical devices and pharmaceutical products, its clients love the company's ability to work off the menu. Keystone Labs' specialty is developing custom testing solutions for regulated companies. This means the company is very flexible, works closely with its clients to develop tests that have meaningful outcomes specific to the clients' products, and helps its clients understand the interpretation of the test results. Keystone Labs performs routine testing as well as specialized R&D, validation and stability testing.

COMPANY: Keystone Labs Inc., www.keystonelabs.ca, 6 employees, founded 2005, revenue-funded, local and international clients, 250 Karl Clark Road, Edmonton, Alberta T6N 1E4, 780.450.5496

PRODUCT: Custom testing solutions for regulated companies

GROWTH STRATEGIES: Seek new testing opportunities with more clients

CONTACT: Jodi McDonald, President and Founder, key@keystonelabs.ca, 780.450.5496



Photo credit: Keystone Labs

Lambert Radiation Shielding

Easy-to-install modular-based lead radiation shielding

Since thin sheets of lead attenuate ionizing radiation like x-rays, a hidden lead-lined barrier inside the walls of rooms where x-rays are taken (as pictured) protects x-ray technicians from harmful radiation exposure. Lambert Radiation Shielding has been installing these radiation barriers for over 60 years. However, in its experience repairing and testing existing radiation shields, it discovered shields with radiation leaks caused by improper installation of the barrier, or electrical and mechanical components. Lambert partnered with **American Radiation Shielding Products Inc.** to develop a product for this problem: it is a modular-based premanufactured/demountable radiation shielding barrier system that qualified trades people can easily install and guarantee 100% shielding integrity.

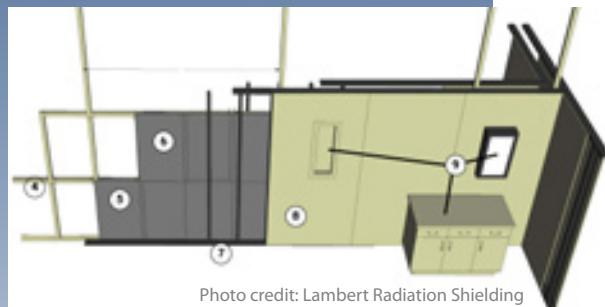


Photo credit: Lambert Radiation Shielding

COMPANY: Lambert Radiation Shielding Ltd., (no website), 5 employees, founded 1948, revenue-funded through services, new product launched 2008, 22244 Highway 16, Ardrossan, Alberta T8E 2L4, 780.922.4663, 1.866.224.9940

PRODUCT: Modular-based radiation shields

GROWTH STRATEGIES: Seek investors and worldwide distribution

CONTACT: Dave Lambert, President, dlambert@can.rogers.com, 780.922.4663

Mountain Integrated Medical Devices



Photo credit: Mountain Integrated Medical Devices

Subassembly of sterile and non-sterile medical device packages

Mountain Integrated Medical Devices assembles medical components into a kit (as pictured) required for a medical procedure. For example, when an off-the-shelf kit doesn't give an eye surgeon exactly what he needs, the company can prepare a custom kit with the surgeon's preferred gloves, gauze, syringe, eye drain, and other specialty items. The kit is then sterilized and wrapped according to Health Canada protocols. The company's clients are surgeons, clinics, acute care facilities, other medical device companies, and distributors. It does private labeling, and can source and mix vendor's products.

COMPANY: Mountain Integrated Medical Devices Inc, (no website), 7 employees, founded 1997, revenue funded, 11787 -186 Street, Edmonton, Alberta T5S 2Y2, 780.451.4692

SERVICE: Subcontract assembly of medical device kits

GROWTH STRATEGIES: Seek subcontract opportunities in any industries where products are sensitive to dust and dirt

CONTACT: Gail Fergusson, CEO, mimd@telus.net, 780.451.4692

Saf-T-Pak

World leader in infectious substance packaging and training

Patient specimens containing infectious substances (pathogenic microorganisms such as bacteria and viruses that cause diseases in humans) are classified as dangerous goods and all aspects of their handling and transport is closely regulated by Transport Canada and the International Air Transport Association. Saf-T-Pak manufactures and sells a range of packaging solutions for the safe transport of infectious substances. Saf-T-Pak also offers regulatory training on the proper classification, identification, marking, labeling, documentation and packing of infectious substances requiring transport. This training is available through seminars, CDs or online.



Photo credit: Saf-T-Pak

COMPANY: Saf-T-Pak Inc., www.saftpak.com, 35 employees, founded 1988, revenue-funded, product sold internationally, publicly traded on NYSE as CMN under its parent company Cantel Medical Corp., 17854 - 106A Ave, Edmonton, Alberta T5S 1V3, 780.486.0211, 1.800.814.7484

PRODUCT AND SERVICE: Infectious substance packaging and regulatory training

GROWTH STRATEGIES: Seek licensing and distribution partners in Asia and South America

CONTACT: Alex Schabel, General Manager, alexschabel@saftpak.com, 780.486.0211

Artsinteg

Lab-on-a-chip product development services

Artsinteg offers clients product design and development services for lab-on-a-chip devices customized to the specific needs of the client. A lab-on-a-chip device contains a computer chip that can be used in numerous clinical applications including medical diagnostics, DNA analysis, and drug discovery and delivery. Lab-on-a-chip devices integrate multiple laboratory functions to produce a result in the span of a few minutes instead of hours or days. Artsinteg's technology is made in a clean room, as pictured.



Photo credit: Norcada Inc. at NanoFab at University of Alberta

COMPANY: Artsinteg Corporation, www.artsinteg.com, 4 employees, founded 2004, revenue-funded, 5008-122 A Street, Edmonton, Alberta T6H 3S7, 780.443.5881

SERVICE: Custom design and development of lab-on-a-chip devices

GROWTH STRATEGIES: Seek investors and partners for new applications development

CONTACT: Huy Nguyen, CEO and Founder, huy@artsinteg.com, 780.443.5881

CBF Systems

Designing unique solutions to complex problems

CBF Systems expertise is in designing unique products for complex, high technology applications such as medical devices and industrial instruments. It has developed products such as respiratory gas analysis systems, drug delivery devices and body-worn instrumentation along with many other early stage technology evaluation platforms. The company's product solutions have a strong foundation in sensors, interfacing, data acquisition, process control and system design, and often incorporate intelligent, embedded control to monitor and react to process variations and the environment. CBF Systems also has detailed and practical experience implementing quality systems and developing quality assurance practices for clients, especially in risk adverse markets such as those for life-critical medical devices.

COMPANY: CBF Systems Inc., www.cbfsystems.com, 8 employees, founded 2005, revenue-funded, NINT Innovation Centre, Suite 4038, 11421 Saskatchewan Drive, Edmonton, Alberta T6G 2M9, 780.628.2072

SERVICE: Product development for complex technology problems

GROWTH STRATEGIES: Seek to work with more clients and partners in co-development or cooperative projects

CONTACT: Curtis Figley, Manager and Founder, invention@cbfsystems.com, 780.628.2072



Deltatee Enterprises

Well-rounded scope of product development services

Deltatee has new product design and development capabilities that encompass industrial design, mechanical design, electronics, and software development. The company can also manufacture products in small quantities of 100 units or oversee the production of larger quantities in China. Deltatee works on a fee-for-service basis, or exchanges services for equity in its client's companies.

COMPANY: Deltatee Enterprises Ltd., www.deltatee.com, 12 employees, founded 1978, revenue-funded, #202, 1439 - 17th Ave. SE, Calgary, Alberta T2G 1J9, 403.250.3533

SERVICE: New product design and development

GROWTH STRATEGIES: Seek opportunities to work with startups

CONTACT: Gary Gunthrope, President and Founder, garyg@deltatee.com, 403.250.3533





Matter Industrial Design

Creating competitive advantage for medical devices

Product development and product design are not the same thing. And, product design is also not just about making a product look really good. Rather, product design is about making sure your new product is easy to sell because users want it, it uses an efficient and economical manufacturing process, and it has protectable intellectual property. Matter Industrial Design has extensive product design and development experience in many areas including medical and therapeutic devices. The company's strengths include kinesiology, fabrication, and the capability to test many new product concepts at low cost.

COMPANY: Matter International Design Corporation, www.matterdesign.ca, 2 employees, founded 2003, revenue-funded, 46B - 28th Avenue SW, Calgary, Alberta T2S 2Y1, 403.630.1429

SERVICE: Industrial design for product development and manufacturing

GROWTH STRATEGIES: Seek more client relationships

CONTACT: Travis Colley and Darren Jakal, Partners and co-Founder, matterinternational@shaw.ca, 403.630.1429



Photo credit: Matter Industrial

Micralyne

Manufacturing leader of custom "lab on a chip" devices

Microfluidics or "lab-on-a-chip" are devices that integrate many laboratory operations to produce a lab result in a few minutes or hours instead of several days. This miniaturization also saves costs associated with laboratory equipment and staff. It requires only a tiny sample size and is a few millimeters to a few square centimeters in size. Micralyne is the world's 4th ranked independent manufacturer of miniaturized devices like the lab-on-a-chip device, which it designs and manufactures to the particular needs of its clients.

COMPANY: Micralyne Inc., www.micralyne.com, 270 employees, founded 1998, University of Alberta spinoff, revenue-funded, clients from around the world, 1911 - 94 Street, Edmonton, Alberta T6N 1E6, 780.431.4400

SERVICE: Miniaturized device product development and manufacturing

GROWTH STRATEGIES: Seek growth of customer base in Europe and Asia

CONTACT: Chris Lumb, President and CEO, clumb@micralyne.com, 780.431.4400

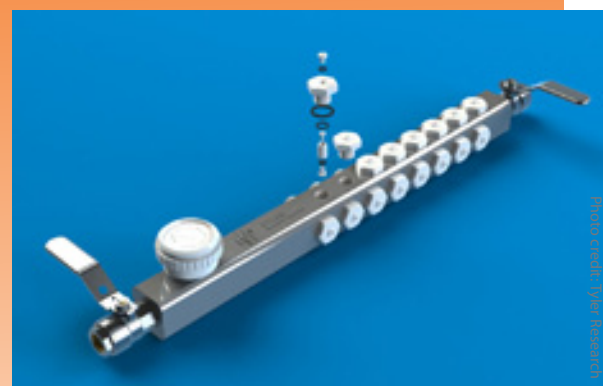


Photo credit: Micralyne

Tyler Research

Elegant product solutions to tricky problems

Tyler Research's wide range of clients that include university researchers, clinicians and giants like **NASA**, **DuPont**, **Pfizer** and **Nalco** usually have one thing in common: an interesting problem to which they seek an elegant solution. Tyler Research has designed and developed a variety of highly specialized products for scientific research and the medical, biomedical, industrial and environmental fields. Tyler Research has developed applications as diverse as devices for the analysis and treatment of bacterial biofilms (as pictured), postsurgical implant infection and industrial corrosion controls, and the tooling and chambers required to grow organized nerve cells in compartmented cultures to analyze their interactions at the subcellular level. Tyler Research can also perform small quantity manufacturing runs up to 100 units.



COMPANY: Tyler Research Corporation, www.tylerresearch.com, 9 employees, founded 1986, revenue-funded, clients worldwide, 10328 - 73 Avenue, Edmonton, Alberta T6E 6N5, 780.448.1249

SERVICE: Solutions to problems, especially encountered by scientists and clinicians

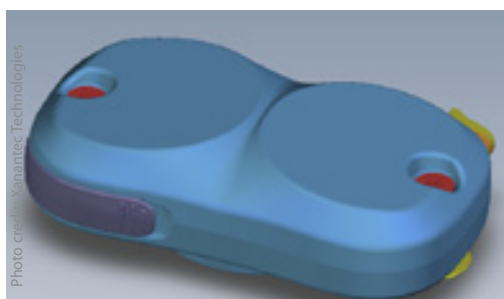
GROWTH STRATEGIES: Seek more product development opportunities and marketing distribution to support its product portfolio

CONTACT: Dr. Jonathan Tyler, President and Founder, biomedical@tylerresearch.com, 780.448.1249

Xanantec Technologies

Develops medical devices and low-powered embedded systems

Working as a service provider or technology partner, Xanantec Technologies can take a medical device or low-powered embedded system from the idea to the sales-ready stage. Its development capabilities include software, electronics, engineering and industrial design, and it has experience managing manufacturing in China. The company also develops and markets its own products which include



an electronic patient records system, an automated brace adjustment system for scoliosis patients, and a wireless device (pictured) to detect sick animals in a feedlot.

COMPANY: Xanantec Technologies Inc., www.xanantec.com, 4 employees, founded 2000, revenue-funded, products sold worldwide, Suite 200, 17612 - 107 Avenue, Edmonton, Alberta T5S 1G8, 780.421.9181

SERVICE: Product development of medical devices and low-powered embedded systems

GROWTH STRATEGIES: Seek more development partners and distributors for company's products

CONTACT: Mark Fedorak, President and co-Founder, sales@xanantec.com, 780.421.9181

Research & Support

for Alberta's medical devices & technologies

Health research centres & institutes

Institute for Reconstructive Sciences in Medicine (iRSM)

iRSM is an internationally recognized leader in the medical reconstruction and rehabilitation of the head and neck. One key factor that sets the institute apart is that its research activities are fully integrated with its clinical care activities. iRSM is also a pioneer in using the most advanced technologies and developing the best evidence-based care practices.

Established in 1993, iRSM is a partnership between the **University of Alberta** (p.68), **Covenant Health** and **Alberta Health Services** and is based at the **Misericordia Hospital** in Edmonton. iRSM has a long history of working with industry partners and can conduct R&D contract research and clinical studies for industry partners, as well as work collaboratively with them on new product development or research projects. iRSM has five research laboratories with integrated research and clinical care activities in multidisciplinary environments. Examples of two of iRSM's research focus areas follow.

CONTACT: www.irmsm-canada.com, Dr. Diana Shaw, Director of Business Development, 780.735.2660



Photo credit: Institute for Reconstructive Sciences in Medicine (iRSM)

Development

Canada's province of Alberta is bursting with world class research, development and commercialization activities in medical devices and technologies.

By Claudia Sammer

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- University of Calgary, p. 70
- NRC National Institute for Nanotechnology (NINT), p. 70
- Alberta Ingenuity Centre for Biomedical Technologies, p. 73
- Industry support & funding programs, p. 74
- Nanotechnology product development support, p. 75

Bone anchored hearing aids

Some people think their voice sounds different on a recording. That's because half of the sound we hear our voices make comes from what we hear by air conduction through the outer and middle ear and the other half comes from the bone conducted sound through our skull. The Baha hearing aid is for people that cannot wear conventional hearing aids, and it works on the same principle (bone conduction). It requires a titanium screw be surgically implanted into the skull behind the ear, as pictured. Titanium is a metal with the impressive property of having the ability to bind with human bone. The electronics attached to the titanium implant then transmit sound vibrations to the implant which sets up vibrations in the skull and inner ear to stimulate the auditory nerve and eventually the brain, where sound is ultimately heard.

iRSM was one of the first groups to work with the Baha hearing aid and has grown into one of the world's largest centres with this expertise. It continues to work with the

original inventors of the Baha hearing aid to enhance continued product development.

CONTACT: Dr. Bill Hodgetts, iRSM Program Director of Bone Conduction Amplification, University of Alberta Rehabilitation Medicine, bill.hodgetts@ualberta.ca, 780.735.2660

Innovations in skull and facial implants

Cancer and trauma patients often require bone replacements. iRSM is a world leader in osseointegration (bone) implanted biotechnologies for the prosthetic replacement of skull and facial defects. Current craniofacial implants often fail from the strain placed on the bone. iRSM is developing innovative new craniofacial osseointegration systems and materials tailored for specific bone regions and types. iRSM employs its rapid prototyping machines to build 3-D solid models of the skull cavity into which the systems and materials mould would need to fit.

CONTACT: Dr. Johan Wolfaardt, co-Founder and Director of iRSM, University of Alberta Medicine & Dentistry, jwolfaar@cha.ab.ca, 780.735.2660

Health research centres & institutes

Medical Ward of the 21st Century (W21C)

Each year more than 220,000 people contract infections in Canadian hospitals and as a result more than 8,000 of them die—which is over double the number of people killed in car accidents. Research in the past few years has demonstrated however that hospital-acquired infections can be reduced by as much as 70% and billions of dollars can be saved by simply providing more handwashing stations and a toilet for every patient.

The Medical Ward of the 21st Century (W21C) based at Calgary's **Foothills Medical Centre** is a Canadian pioneer and leader in exploring and testing healthcare innovations to enhance infection control. Developed in partnership with the **Alberta Health Services** and the **University of Calgary** (p.70), it is a living laboratory and collaborative testing environment where clinicians, researchers, decision makers and industry partners work together to develop evidence-based care practices. Examples of new technologies being developed at W21C follow.

CONTACT: www.w21c.org, 403.667.8001

Wireless temperature monitor

Sticking to a patient like a bandaid, a wireless sensor can continuously monitor a patient's core body temperature without wires or requiring a nurse to disturb the patient from their sleep. Ultimately it should increase patient safety and mobility, be more efficient, and lessen staff workloads.

CONTACT: Dr. Jim Haslett, Electrical and Computer Engineering at the University of Calgary, haslett@atips.ca, 403.220.5808

Automatically detecting patient emergencies

Technology being commercialized by **Intelliview Inc.** can alert medical staff of unusual patient activity, such as a patient needing help, or situations that increase the patient's risk of falling. Clinical trials began July 2009.

CONTACT: Dr. Wael Badawy, Electrical & Computer Engineering at the University of Calgary, badawy@ucalgary.ca, 403.220.8357

Mazankowski Alberta Heart Institute

The Mazankowski Alberta Heart Institute is the first heart institute of its kind in western Canada, and is a product of a partnership between **Alberta Health Services** and the **University of Alberta** (p.68). This \$200 million facility provides a full range of heart care services with a focus on prevention of heart disease and complex heart care such as pediatric cardiac surgery and heart transplantation. Both adults and pediatric cardiac patients are under the same roof.

The new \$20 million **ABACUS** research facility located in the lower level of the Mazankowski Alberta Heart

Institute is loaded with the latest technology to study cardiovascular disease from all levels—molecular science, treatment, clinical trials, population health outcomes.

CONTACT: www.capitalhealth.ca/hospitalsandhealthfacilities/hospitals/albertaheartinstitute/default.htm, 780.407.8583



Photo credit: W21C

Cancer care in Alberta

Alberta Health Services hosts two world-class research and medical treatment centres that provide highly specialized diagnostic and clinical services using the latest cancer therapies. These two centres are the **Cross Cancer Institute** in Edmonton and the **Tom Baker Cancer Centre** in Calgary.

CONTACT: www.albertahealthservices.ca, 780-432-8771

NRC-Institute for Biodiagnostics West (NRC-IBD)

Located at the **Foothills Medical Centre** in Calgary, NRC-IBD West is focused on research in medical optical imaging techniques and magnetic resonance imaging (MRI) technology.

CONTACT: www.reno.nrc-cnrc.gc.ca/eng/facilities/ibd/satellite-labs-west.html, Paul Wiebe, Director of Business Development, 204.984.6223

Glenrose Rehabilitation Hospital

The Glenrose is the largest free-standing rehabilitation facility in Canada. As an academic teaching hospital, the facility provides rehabilitation care of both adults (including the elderly) and children. Through the development of the **Courage Centre**, the Glenrose offers its facility and population of people with disabilities and chronic conditions to rehabilitation device companies looking to test or evaluate innovative technology.

Companies already participating are **Madentec** (p.30), **Medical Bionics** (p.30), **Redengine Health** (p.49), and **Xanantec Technologies** (p.63).

CONTACT: www.albertahealthservices.ca/12344.htm, Jim Raso, Research & Technology Development jim.raso@albertahealthservices.ca, 780.735.8290

The Edmonton Clinic

Scheduled to open in 2011, The Edmonton Clinic will be a state-of-the-art outpatient care facility that provides one-stop coordinated assessment, diagnosis and treatment of a complex illness or injury in a SINGLE visit. The result will be reduced waiting time and visits as well as more timely treatment for the patient—a patient focused approach. It should also make healthcare more cost effective. This \$909 million health facility is a partnership between **Alberta Health Services**, the **University of Alberta** (p.68) and the **Government of Alberta**.

CONTACT: www.edmontonclinic.ca, 780.407.2602

Hotchkiss Brain Institute (HBI)

The HBI is a world leader in neuroscience and mental health research and education. Its clinicians and scientists investigate how the brain and nervous system work and what goes wrong when injury, disorders or diseases occur. Its three main research themes are: brain repair and regeneration; neural cell signaling and mental health disorders; and high-tech brain imaging. Companies featured in **Cool Companies** with HBI based scientists and research teams are:

- **NeuroArm Surgical Ltd.** (p.36): World's first MRI-compatible neuro-microsurgery robot
- **Calgary Scientific Inc.** (p.10): World's first visualization platform for medical imaging software
- **Neurosilicon Corporation** (p.20, 73): Device to monitor and track how neurons in the brain interact

CONTACT: www.hbi.ucalgary.ca

Robot to measure stroke recovery outcomes

Based on the idea that the brain can heal itself, stroke survivors can regain some of their physical and cognitive skills through a wide range of therapeutic treatments. Since current assessment tools are subjective, measuring how well patients respond to treatments is a problem. Using a robot from **BKIN Technologies** of Kingston, Ontario, Dr. Dukelow of the Hotchkiss Brain Institute is developing assessments that objectively test patients' treatment progress. He is also in the process of developing treatment protocols using the robot to deliver therapy following a stroke.

CONTACT: Dr. Sean Dukelow, Hotchkiss Brain Institute, University of Calgary Faculties of Medicine and Kinesiology, and Alberta Health Services, sean.dukelow@albertahealthservices.ca, 403.944.5930



Health research centres & institutes

Alberta Bone & Joint Health Institute (ABJHI)

Every 60 seconds, someone in Alberta seeks medical help for a bone or joint illness and demand is expected to grow as the population ages. A not-for-profit institute, ABJHI designs effective and efficient ways to deliver health care services and conducts research on devices, drugs and service delivery approaches. An example is given below.

CONTACT: www.albertaboneandjoint.com, 403.670.0886

Metal-on-metal hip resurfacing

ABJHI is managing a long-term study to assess the outcomes of metal-on-metal hip resurfacing devices. These devices can release metal ions into the patient's blood but the health consequences are as yet unknown.

CONTACT: Dr. Deborah Marshall, Director Health Technology Assessment and Research, damarsha@ucalgary.ca, 403.210.6377

University of Alberta (U of A)

The University of Alberta, based in Edmonton, has over 37,000 students and is one of Canada's largest research-intensive universities. Here's a sample of discoveries and opportunities related to medical devices and technologies:

Targeted drug delivery system for lungs

To make treatment for respiratory diseases such as lung cancer more effective, the first controlled and non-invasive way to deliver a drug to where it is needed in the lung has been developed. Seeding the drug with magnetic nanoparticles allows a magnet held outside the body near the diseased lung area to control the orientation of needle-shaped drug particles while airborne and to deposit them in the right location.

CONTACT: Dr. Warren Finlay, Mechanical Engineering, warren.finlay@ualberta.ca, 780.492.4707

3-D surgical trainer

Tracking tool movements and forces applied by experienced surgeons during minimally invasive surgeries, Dr. Boulanger has developed one of the world's most advanced surgical trainers. Using virtual reality (VR), and 3-D position/force sensing technologies, surgical trainees can compare and improve their surgical skills by constantly comparing their performance to the best surgeons. Clinical trials begin 2009.

CONTACT: Dr. Pierre Boulanger, Computing Science, pierreb@cs.ualberta.ca, 780.709.1260

New noble-metal drug delivery system

The inventor of Nucryst's product platform (p.43), Dr. Burrell, continues to work on nanostructured noble metals such as silver, gold and platinum for therapeutic purposes. He is developing a new combination product (part device/part drug). Pre-clinical trials begin 2010.

CONTACT: Dr. Robert Burrell, Biomedical Engineering, robert.burrell@ualberta.ca, 780.492.4972

Getting closer to personalized medicine

Machine learning looks for patterns in data. Using this technique to analyze the medical data of thousands of patients, Dr. Greiner is working with many medical collaborators to understand why some patients respond better to different treatments than others, and is developing a suite of tools to predict which treatment would produce that best outcome for a new patient based on their individual medical characteristics.

CONTACT: Dr. Russ Greiner, Computing Science, greiner@cs.ualberta.ca, 780.492.5461

Investing in Innovation

AVAC is proud to have invested strategically in 2008 in these promising companies that are putting innovation to work in Alberta.

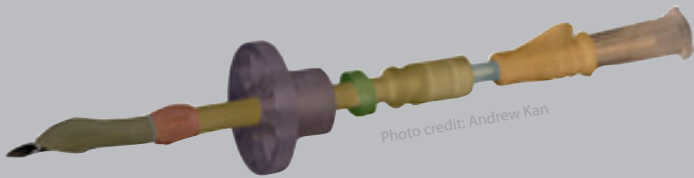


AVAC also invests as a limited partner with these venture capital funds.



To learn how AVAC can help you put your innovation to work, visit us at www.avactd.com





New device can clear more upper airway blockages and save more lives

About 3,000 people in the US die each year from upper airway blockage because they didn't receive a procedure such as a Cricothyrotomy (an incision through the neck into the windpipe to assist breathing). Working with **Dr. Finegan of the UofA Faculty of Medicine**, Drs. Carey and Toogood have developed a device that is less invasive on the patient and makes it easier to administer the life-saving procedure.

CONTACT: Dr. Jason Carey, Mechanical Engineering, jason.carey@ualberta.ca, 780.492.7168

Light-activated bacteria-destroying coating

Dr. McDonald is developing a new hard-faced nano-structured ceramic surface that can destroy bacteria when exposed to ordinary fluorescent light. Since the novel coatings adhere well to steel surfaces, possible applications are surfaces in hospitals and food processing plants.

CONTACT: Dr. André McDonald, Mechanical Engineering, andre.mcdonald@ualberta.ca, 780.492.2675

Recovering hand movements after a stroke

Dr. Prochazka has developed a medical device to help some people who have suffered a stroke or spinal cord injury recover basic hand movements. The device is a cuff worn on the forearm that stimulates the hand to open or close, allowing everyday objects to be grasped and manipulated.

CONTACT: Dr. Arthur Prochazka, Medicine and Dentistry, arthur.prochazka@ualberta.ca, 780.492.3783

Hip replacement and bone loss monitoring

Dr. Moussa has developed a microsensors that will enable doctors to speed recovery of hip replacement patients, better fit prostheses wearers, and monitor bone loss in osteoporosis patients. A similar device can be used to monitor mechanical strain in mining

equipment, airplanes, and bridges.

CONTACT: Dr. Walied Moussa, Mechanical Engineering, Walied.Moussa@ualberta.ca, 780.492.6027

Measure your stress level

High stress is a precursor to many diseases. A new lab-on-a-chip will measure a person's stress level in seconds.

CONTACT: Dr. Sushanta Mitra, Mechanical Engineering, sushanta.mitra@ualberta.ca, 780.492.5017

Robot moves patients through physical therapy

In collaboration with the **Glenrose Rehabilitation Hospital** (p.67), a prototype of a new robot capable of performing physical therapy on patients has been developed. It is flexible enough to work on upper and lower extremities. Clinical trials begin 2010.

CONTACT: Dr. Saeed Behzadipour, Mechanical Engineering, saeed.behzadipour@ualberta.ca, 780.492.2791

Finding the sweet spot for orthodontic braces

Drs. Toogood and Carey have developed the world's first device to measure the force that orthodontic arch wires ("braces") exert on all teeth in the mouth simultaneously (pictured below, the teeth are in red). In a few years, orthodontists will use software based on this device to optimize the forces applied to their patient's teeth during orthodontic treatment to reduce treatment time and the number of visits to the orthodontist.

CONTACT: Dr. Roger W. Toogood, Mechanical Engineering, Roger.Toogood@ualberta.ca, 780.492.4412

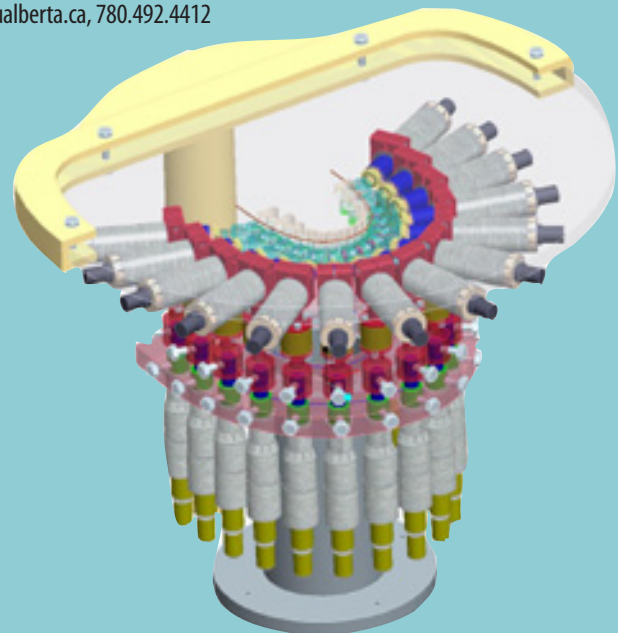


Photo credit: Roger Toogood

NRC National Institute for Nanotechnology (NINT)

Located at the **University of Alberta**, NINT is the centerpiece of Canada's emerging nanotechnology sector. Its researchers are focused on the nano-scale, the world of individual atoms or molecules. Nanotechnology enables the atom-by-atom design and fabrication of structures that are very small, typically 1 to 100 nanometres, and which have new properties and powerful applications. The \$52.2 million, 20,000 square metre building is one of the world's most technologically advanced research facilities and houses ultra quiet laboratory space—the quietest such space in Canada

NINT can assist companies with nanotechnology-based projects, such as the development of lab-on-a-chip medical devices, by providing access to research expertise and commercialization support. NINT has established the **NINT Innovation Centre** where scientific collaborators can rent office space in the NINT building. **Alberta Nanometals** (p. 39), **IntelligentNano** (p.51) and **Picomole Instruments** (p.21) have done this.

CONTACT: nint-innt.proteus.cisti.nrc.ca/index_e.html, 780.641.1600

Metabolic disease signatures

Finding a disease at an early stage saves lives. One disease diagnosis approach being developed to do this is called metabolics (looking at the chemical byproducts of organisms). In addition to exploring the combinations of metabolites indicative of certain diseases, Dr. Wishart is also exploring how to miniaturize the equipment needed to do this analysis.

CONTACT: Dr. David Wishart, U of A Nano Life Sciences and NINT (National Institute for Nanotechnology), Human Metabolome Project, david.wishart@ualberta.ca, 780.492.0383

Delivering peptide therapeutics

Peptides are an emerging class of drugs. To deliver these drugs to an exact location in the body, say to augment the natural wound healing events that occur after a heart attack, Dr. Unsworth is developing nanofibres decorated with therapeutic peptides. Using cues common to the disease of interest, peptide therapeutics are released. Thus, the conditions of the local environment control how much, and when, these peptides are allowed to influence the local cellular environment.

CONTACT: Dr. Larry Unsworth, U of A Biomedical Engineering and NINT (National Institute for Nanotechnology), larry.unsworth@ualberta.ca, 780.492.6020

University of Calgary (U of C)

The University of Calgary has over 26,000 students. One of its strengths is biomedical engineering. Here is a sample of discoveries and opportunities:

Mosquito-like device to help diabetic patients

Drs. Mintchev and Kaler have developed a device that can help automatically regulate insulin levels for people with diabetes. When attached to the body, micro-needles embedded in the device would draw a minute blood sample as a mosquito would, and then electronically analyze its glucose level and transmit the result to a wireless device that controls an insulin dosage.

CONTACT: Dr. Martin Mintchev, Electrical & Computer Engineering, mintchev@enel.ucalgary.ca, 403.220.5309 / Dr. Karan Kaler, Electrical & Computer Engineering, kaler@enel.ucalgary.ca, 403.220.5809

Heart simulation software

Dr. Vigmond is developing simulation software that models the electromechanical functioning of the heart. It is being developed into a product that can help pharmaceutical companies assess potential



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arrhythmogenic (irregular heart rhythm) consequences of new drugs, aid device companies in devising new products, allow cardiologists to understand diseases and test therapies, as well as complement basic experimental research.

CONTACT: Dr. Edward Vigmond, Electrical and Computer Engineering, vigmond@ucalgary.ca, 403.210.3887

Understanding biofilms

Biofilms growing in micro cracks of surfaces like implants and catheters show increased and very high resistance to antibiotics and silver. Dr. Martinuzzi is exploring the forces exerted by liquid flowing over biofilms and how different surface coatings affect their growth. For example, biofilms in a pulsating flow grow differently than in a steady flow.

CONTACT: Dr. Robert Martinuzzi, Mechanical and Manufacturing Engineering, rmartinu@ucalgary.ca, 403.220.6627

'Smart' underwear prevents pressure ulcers

With a \$25-million grant from the **Alberta Heritage Foundation for Medical Research** (p.74), a team of 16 researchers is focused on three major research projects: (1) to design 'smart' underwear that will stimulate muscles and prevent pressure ulcers for people who are bed-ridden or in wheelchairs; (2) to create new devices which will help people with spinal cord injuries to stand and walk; (3) to create new devices that restore walking, a sense of touch, and the sensations of pressure, movement, temperature and pain for people with injuries, multiple sclerosis, ALS and other degenerative diseases. Team partners include the **Foothills Medical Centre** in Calgary and the **Glenrose Rehabilitation Hospital** (p.67) and **Allen Gray Continuing Care Centre** in Edmonton.

CONTACT: Leader: Dr. Vivian Mushahwar, U of A Cell Biology and Centre for Neuroscience, vivian.mushahwar@ualberta.ca, 780.492.4519 and co-leaders Dr. Zelma Kiss, U of C Clinical Neurosciences, zkiss@ucalgary.ca, 403.944.8602, and Dr. Richard Stein, U of A Physiology and Centre for Neuroscience, richard.stein@ualberta.ca, 780.492.1618.

New treatment for eye disease

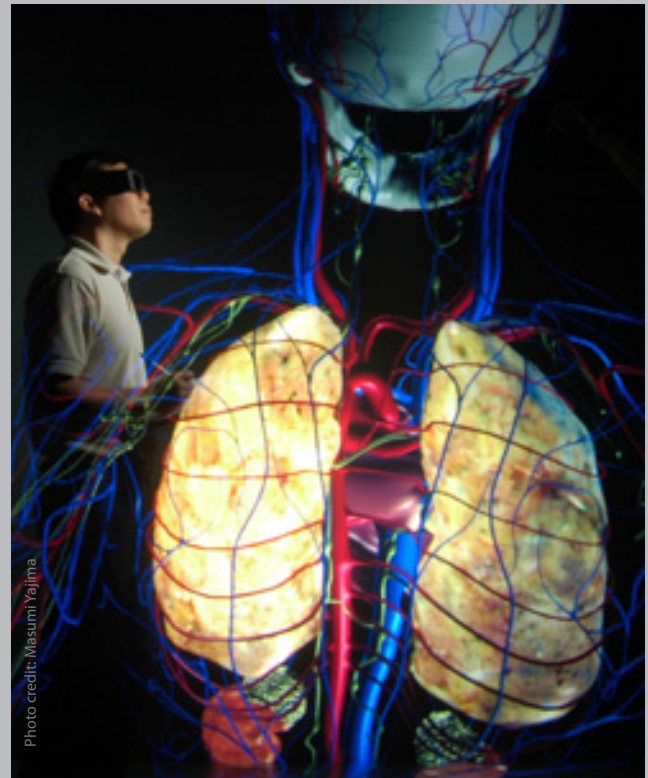
Age-related Macular Degeneration (AMD) is a retinal eye disease that affects 50% of the population over 60 years of age. A new technology using an ultrafast laser has been developed that will allow destruction of the diseased eye tissue with no damage to surrounding healthy tissue in the retina. Testing in animal models is underway.

CONTACT: Dr. David Cramb, Chemistry, Nanoscience Program, dcramb@ucalgary.ca, 403.220.8138

Looking inside a 3-D body

Dr. Sensen's team has created a 3-D virtual human (pictured below) that allows one to monitor how a virtual body metabolizes medicine. One day it could allow doctors to see how big a tumor is, identify how to treat it and see what the outcome will be.

CONTACT: Dr. Christoph Sensen, Faculty of Medicine, csensen@ucalgary.ca, 403 220-4301



New drug class with innovative delivery system

Dr. Santamaria has discovered special nanoparticles that can couple with a protein (a drug) to protect the protein from decay in the body much longer than if the protein was on its own. The nanoparticles carry the protein to a tiny group of white blood cells whose job is to inhibit undesirable immune responses such as an attack of the body's own tissues by rogue killer white blood cells (i.e. autoimmune diseases like diabetes, multiple sclerosis, and arthritis). The protein helps the white blood cells do their job. **Parvus Therapeutics Inc.** is a new **University Technologies Inc.** (UTI, p.75) spinoff to commercialize this technology.

CONTACT: Dr. Pere Santamaria, Microbiology & Infectious Diseases, psantama@ucalgary.ca, 403.220.8735

More University of Calgary (U of C)

New painless drug delivery a “bed of nails”

‘Needle phobia’ causes many people to avoid visiting their physicians. The disadvantages of needles are insertion pain, tissue trauma, and the need for an expert

to perform an injection. Drs. **Peiyu Zhang, Colin Dalton and Graham Jullien** are developing a new drug delivery method. It is a bed of micro-sized needles (pictured left) that is placed on the skin; the needles are the right

length to reach the blood vessels under the skin but not long enough to touch the nerves (that causes pain).

CONTACT: Dr. Colin Dalton, Manager of AMIF (p.75) at the University of Calgary, cdalton@ucalgary.ca, 403.210.8464

Predicting sudden death

Each year about 50,000 Canadians die suddenly and unexpectedly from heart rhythm abnormalities. Alberta researchers have developed a simple more accurate approach to identify people at high risk for sudden death after a heart attack. Instead of looking at one predictive factor, Dr. Exner and his team combined several factors: One is the presence of a scar in the heart. The second is the regularity of heart beats. The final one measures the nervous system controlling the heart.

CONTACT: Dr. Derek Exner, Libin Cardiovascular Institute of Alberta, exner@ucalgary.ca, 403.220.3219

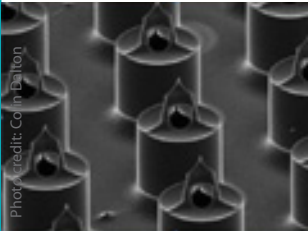


Photo credit: Colin Dalton

Associations

BioAlberta Association

With over 130 members, BioAlberta advocates, promotes and facilitates the growth of the life science sector. Member benefits include networking and education events as well as publications, industry reports, marketing campaigns and discount programs.

CONTACT: www.bioalberta.com, 780.425.3804

Alberta Health Industry Association (MEHIA)

With over 40 members, this Edmonton-based association advocates a strong collaborative relationship between industry, care delivery, researchers and government. Its benefits include breakfast meetings with industry expert speakers.

CONTACT: www.mehia.ab.ca, 780.997.0051

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Alberta Ingenuity Centre for Biomedical Technologies

The first-of-its-kind in Canada, the Alberta Ingenuity Centre for Biomedical Technologies based at the **University of Calgary** (p.70) develops and commercializes healthcare technologies. It also has the capability to test and characterize engineered tissues, as well as the interface between a medical device and a biomaterial such as skin, ligaments, cartilage, or blood vessels.

CONTACT: www.eng.ucalgary.ca/biomedical

Improving the treatment of scoliosis

Scoliosis is a debilitating curvature of the spine. Dr. Ronsky and colleagues at the **Alberta Children's Hospital** have created a 3-D imaging and assessment technology that dramatically improves diagnosis and therapy for patients with scoliosis. While reducing the number of potentially harmful X-rays children with scoliosis normally require for treatment, the imaging system also allows for customized torso braces that are far more effective than standardized products at correcting mild spinal deformities in young people before the disease progresses with age.

CONTACT: Dr. Janet Ronsky, Biomechanics, cbre@ucalgary.ca, 403.220.8134

Brains on a chip

Dr. Syed has grown a network of brain cells (neurons) on a specially designed silicon chip, and through this experiment, provided the first direct evidence that a bionic hybrid between nerve cells and electronics can be created. In his experiment, the neurons survived, regenerated their processes and connectivity, and established electrical contacts with the chip—such that the neurons ‘talked to the chip and the chip talked back to them’. Dr. Syed is one of the researchers supporting the **University of Calgary** spinoff **Neurosilicon Inc.** (p.20)

CONTACT: Dr. Naweed Syed, Faculty of Medicine, nisyed@ucalgary.ca, 403.220.5479

3-D breast imaging using microwaves

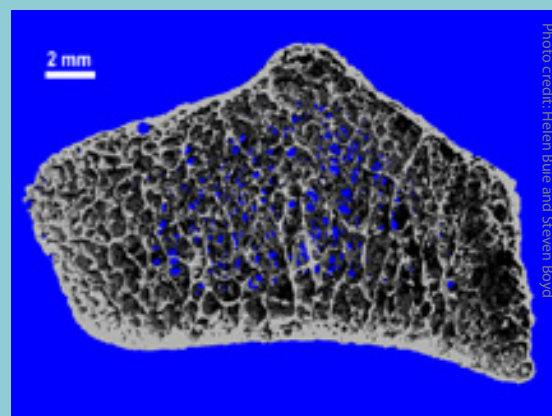
A new approach to breast imaging is being developed using low-power microwaves. Since microwaves are non-ionizing and there would be no breast compression, this device would be a patient-friendly

alternative to current x-ray-based mammograms. Its first clinical study started July 2009.

CONTACT: Dr. Elise Fear, Electrical and Computer Engineering, fear@ucalgary.ca, 403.210.5413

Non-invasive bone strength testing

Applying a sophisticated computer model to 3-D medical imaging CT scans, Dr. Boyd has found the world's first non-invasive way to determine human



bone strength. It is currently being used in research to understand the causes for bone loss in diseases such as osteoporosis. Pictured is a bone cross-section. The technique could also be used to strength test products or materials.

CONTACT: Dr. Steven Boyd, Biomechanical Engineering, skboyd@ucalgary.ca, 403.220.4173

Human cell testing will benefit drug discovery and human health

Drug discovery is a long and costly undertaking where it isn't until the end of the process that you know if a drug is effective on humans. Dr. Rinker has developed a working prototype that will enable drug companies or researchers to test a cardiovascular drug or MRI contrast agent on human cells at the beginning stages of their research. The prototype contains human cells attached to a surface that is bathed in blood simulating fluid that flows over them similar to the conditions in the blood vessels in the human vascular system.

CONTACT: Dr. Kristina D. Rinker, Biomedical Engineering, kdrinker@ucalgary.ca, 403.210.9733

Industry support & funding programs

Alberta Heritage Foundation for Medical Research

Since 1980 AHFMR has contributed more than \$1 billion to the health-research community in Alberta.

CONTACT: www.ahfmr.ab.ca, 780.423.5727, 1.877.423.5727

Alberta Ingenuity

Alberta Ingenuity has various funding opportunities for researchers at companies. Companies who have participated include **Calgary Scientific** (p.10) and **TENET Medical Engineering** (p.40).

CONTACT: www.albertainguinity.ca, 780.423.5735

Alberta Innovation Voucher Pilot Program

Alberta-based companies can apply for vouchers worth \$10,000 or \$50,000 to develop technology-based ideas into marketable products or services.

CONTACT: www.aet.alberta.ca/technology.aspx, 780.427.2192

Alberta Research Council (ARC) (Health & Wellness)

For medical devices and technologies, ARC offers access to non-clinical animal research testing for product development and for establishing product safety in support of regulatory approval.

CONTACT: www.arc.ab.ca/areas-of-focus/health-and-wellness, Calgary 403.210.5222, Edmonton 780.450.5111

Alberta SR&ED Tax Credit

This program is a refundable tax credit of 10% of a company's Scientific Research and Experimental Development (SR&ED) expenditures. It is over and above the federal SR&ED credit.

CONTACT: www.aet.alberta.ca/technology.aspx

AVAC

AVAC Ltd. invests in promising early-stage businesses focused on value added agribusiness, information and communications technologies (ICT), life sciences, and other industrial technology sectors. AVAC has invested in and provided guidance to more than 110 early-stage companies including medical device companies **Madentec** (p.34), **KENT Imaging** (p.8), **SciMed Technologies** (p.22) and **Calgary Scientific** (p.10). It is also Alberta's leading fund-of-fund investor in early stage venture capital.

CONTACT: www.avactd.com Calgary: 403.274.2774, Edmonton: 780.485.2411

Business Link

The Business Link offers access to advisors and resources (most are free) to help entrepreneurs and small businesses.

CONTACT: www.canadabusiness.ca, 403.221.7800, 780.422.7722

Biomedical Engineering Research & Results Initiative (BERRI)

BERRI offers product development and R&D services for health technologies (pharmaceuticals, biologics, medical devices and assistive technologies). Product development services are available at any stage—from early stage (design and engineering) to late stage (clinical trial). It also offers guidance on how to get through the FDA regulatory process, get a reimbursement code in the US and Canada, and promote product adoption. BERRI is a collaboration between research, academic and healthcare institutions in Alberta.

CONTACT: Dr. Ernst Bergmann, Director of Business Development, 780.492.8249 or 780.720.1705, eb1@ualberta.ca

NAIT Shell Manufacturing Centre (NSMC)

This \$14.6 million facility is likely the first of its kind in Canada. NSMC is loaded with tools and expertise to help companies with product design, prototyping, manufacturing, trouble shooting and productivity enhancements. Companies large and small are welcome to use its equipment and services.

CONTACT: www.nait.ca/nsmc, NAIT Main Campus, 780.471.7400

Northern Alberta Clinical Trials and Research Centre

NACTRC connects medical device and drug companies with experienced clinical researchers for Phase 1 to 4 clinical research needs. It can also implement a clinical research project, including overseeing contracts, operational approvals and Health Canada applications.

CONTACT: www.nactrc.ca, 780.407.8007, Dr. Richard Fedorak, Director, richard.fedorak@ualberta.ca

novaNAIT's Product Development Services

Through its product development services, novaNAIT can help medical device companies develop or improve a product prototype. It also offers access to NAIT's laboratories for applied research and product testing.

CONTACT: www.novanait.ca, Mark Holtom, 780.378.6184

NRC-IRAP (Industrial Research Assistance Program)

Each year NRC-IRAP helps 12,400 small and medium-sized Canadian companies meet the technological challenges they face in delivering new products, processes or services. A number of grants are available to companies.

CONTACT: http://irap-pari.nrc-cnrc.gc.ca/main_e.html, 1.877.994.4727

Product Commercialization Centre (PPC)

Alberta's Action Plan: Bringing Technology to Market supports the future creation of product commercialization centres to assist innovators and companies with addressing specific pre-commercial challenges. See website for new developments.

CONTACT: www.advancededandtech.alberta.ca/apps/actionplan/actionplan.asp, 780.427.2192

Regional Innovation Support

These not-for-profits help companies transform technological ideas into business opportunities. Not just for university spinoffs, they welcome all technology-oriented companies and inventors.

CONTACTS:

- Grand Prairie Regional College, Centre for Research and

Innovation, www.gprc.ab.ca/community/cri

- Northern Alberta Business Incubator (NABI), nabi.ca
- NovaNAIT, nait.ca/38059.htm
- Red Deer College, Centre for Innovation in Manufacturing, www.rdc.ab.ca/community/yourcollege/facilities/manufacturing.html
- SAIT's Applied Research and Innovation Services, www.sait.ca/research/about
- TEC Edmonton, tecedmonton.com
- University of Lethbridge, uleth.ca/rch/tto/tto.cfm
- University Technologies Inc. (UTI), uti.ca
- Westlink Innovation Network, www.westlink.ca

TRLabs

TRLabs is Canada's largest information and communications technology (ICT) R&D consortium. Even the smallest technology companies can share in TRLabs' ICT-based IP-sharing industry and academic collaborations.

CONTACT: www.trlabs.ca, 780.441.3800

Nanotechnology and MEMS product development support



Photo credits: Micralyne Inc.
People who make MEMS chips wear "bunny suits" to protect the chips from human particles like skin flakes and hair.

NRC National Institute for Nanotechnology (NINT)

NINT (p. 70) can assist companies with nanotechnology or advanced material projects by providing access to research expertise and commercialization support.

CONTACT: <http://nint-innt.nrc-cnrc.gc.ca>, 780.641.1600, University of Alberta campus in Edmonton

Micromachining and Nanofabrication Facility (NanoFab)

One of the best facilities of its kind in North America, the NanoFab at the **University of Alberta** is a \$24 million facility to support the fabrication of nano and micro devices or perform R&D. It provides both academic and industrial clients access to its equipment.

CONTACT: www.nanofab.ualberta.ca, 780.492.0167, University of Alberta campus in Edmonton, Dr. Ken Westra, Director, kwestra@ualberta.ca

nanoWorks

This \$15 million initiative, funded by the Alberta government and managed by Alberta Ingenuity, brings industry and academic researchers together to increase

industrial R&D investments and develop market-driven nanotechnology products.

CONTACT: www.albertaingenuity.ca/programs/funding/industry/nanoworks, 780.423.5735

Advanced Micro/Nanosystems Integration Facility (AMIF)

Located at the **University of Calgary**, AMIF is a state-of-the-art facility that provides cost-effective access to micro and nanosystems integration, packaging, and post-processing services plus expert consultation and training. Open to both academic and industrial clients.

CONTACT: www.amif.ca, 403.210.8421, University of Calgary, Dr. Colin Dalton, Director, cdalton@ucalgary.ca

Alberta Centre for Advanced MNT Products (ACAMP)

ACAMP is a government-sponsored initiative that provides companies with access to services for product prototyping, product development, packaging and assembly, and marketing of micro/nano technologies (MNT) enabled devices such as microfluidics lab-on-a-chips and biosensors.

CONTACT: www.acamp.ca, 780.468.2443, Edmonton, Ken Brizel, CEO, kbrizel@acamp.ca

Microsystems Technology Research Initiative (MSTRI)

With over \$2 million available, MSTRI (pronounced mystery) offers funding support to nano and MEMS companies engaged in prototype development and commercialization.

CONTACT: www.engineering.ualberta.ca/mstri, 780.492.6102, Ray Lemieux, Director, rlemieux@ualberta.ca



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