Cardiovascular disease

Technology	Market Opportunity	
Receptor antagonist treatment post myocardial infarction	Inhibiting a surface receptor on certain cells prevents pathologic cardiac remodeling and reduces the incidence of hemorrhage after myocardial infarction. This represents an acute care treatment that may also prevent complications due to administration of thrombolytics after myocardial infarction.	L
Therapeutic factors for stabilizing blood vessels, preventing hemorrhage, and promoting angiogenesis following ischemia	This therapeutic strategy combines several angiogenic factors, with FGF-9 as the principle factor, which serve to promote the formation and stabilization of microvessels	W

Cancer

Technology	Market Opportunity	
E3 ubiquitin ligase proto-oncogene for early detection and targeted cancer therapy	This novel E3 ubiquitin ligase is a proto-oncogene overexpressed and correlated with tumor stage in multiple cancers. Inhibition of this gene disrupts the cell cycle and the target protein of the E3 is a tumor suppressor. Overexpression of the E3 is highest in the early stages of tumor formation making this an excellent personalized medicine candidate.	L
Improving response to standard chemotherapeutic regimens	This compound acts as a chemosensitizer with doxorubicin and docetaxel making cancer cells more susceptible to their cytotoxic effects. The compound identified is off patent with known pharmacological properties.	M
RHAMM binding peptides for targeted cancer cell imaging and therapeutics	These peptides bind with high specificity and affinity to RHAMM, a cell surface receptor associated with motility that is overexpressed on specific cancerous cell types including breast and prostate cancer cells. The peptides have been conjugated to imaging agents to detect cancerous cells and the peptides themselves have been demonstrated to inhibit proliferation of cancer cells. Internalization of the peptides by the cancer cells presents therapeutic targeting opportunities.	L
Serum tumor marker for prostate cancer research	A serum tumor biomarker for monitoring the progression of prostate cancer in animal models. Preclinical data provided by this system could assist in early evaluations of the safety and efficacy of new treatments or drugs for human prostate cancer.	L
Silencing of IDO (indolamine 2,3-dioxygenase) for combination cancer therapy	This siRNA based treatment silences the genes for expression of indoleamine 2,3-doxygenase (IDO). IDO is an immune suppressive molecule that protects tumors from immune attack. Studies show increased efficacy of chemotherapy and radiation when combined with IDO downregulation. Only partially silencing is required and systemic delivery in combination with chemotherapeutic agents could be a useful treatment.	L

Tissue freezing and embedding device	A novel apparatus and method for preparing frozen tissue specimens for thin sectioning outside the cryostat, its uses include MOHS for surgical excision of skin cancer and other histopathological procedures requiring the efficient and timely processing of tissues with irregular or difficult to section surfaces (e.g. biopsies).	L

Diabetes

Technology	Market Opportunity	
Bone marrow derived mesenchymal cells that stimulate pancreatic regeneration in type ii diabetes	Surface markers and methods for isolating and administering mesenchymal cells that can rescue hyperglycemia and augment pancreatic repair.	W
Micro RNA as a therapeutic agent in diabetic retinopathy and other diabetic complications	Based on this identified group of micro-RNA molecules that are altered in diabetic retinas, there is an opportunity to develop a new class of therapeutic compounds combating diabetic retinopathy.	W
Novel auto-antigenic peptides and antibodies for use in diagnosis and treatment	These auto-antigenic peptides are well suited for the development of diagnostic assays and therapeutic products for diabetes.	W

Imaging

Technology	Market Opportunity	
Ghrelin analogues as molecular imaging probes	Human growth hormone secretagogue receptor (GHSR) is expressed in tumor tissues. Ghrelin is the natural ligand that binds to GHSR with high affinity and is internalized. The binding and internalization of the ghrelin-GHSR complex has been exploited through designing ghrelin-based imaging probes that target the GHSR on tumor tissues allowing for non-invasive imaging of tumor tissues and cells.	L
Improved cysteine rhenium colloid for sentinel lymph node scintigraphy	This colloid has proven effective as a radiotracer for sentinel lymph node scintigraphy in breast cancer and holds promise for further development in bone marrow, liver/spleen RES scanning and lung aerosol applications. In addition, it uses up to 90% less Tc-99m than competing products, reducing the consumption of a scarce resource.	L
Smooth, efficient, and dynamic 3D image rendering for web-based viewers	This solution leverages existing, often untapped, computer hardware components to generate efficient 3D rendering of web-based medical images in an internet browser platform without the inconvenience of installing or maintaining any extra software.	W

Infectious Disease

Technology	Market Opportunity	
Non-ribosomal peptides from *Staphlococcus aureus*	· New target that is critical to the virulence of *S. aureus.* · Precise control over the virulence network of *S. aureus* or anti-virulence strategies may lead to a new class of drugs for the treatment of *S. aureus.*	M
Real-time PCR method for detection of toxigenic *Lostridium Difficile*	A novel multiplex real-time PCR method developed for the detection of toxin genes present in toxigenic strains of *Clostridium difficile* associated with *Clostridium difficile* infection (CDI)	M
Respiratory syncytical virus inhibitor	· a peptide mimetic inhibitor that blocks RNA polymerase formation and inhibits RSV replication *in vitro* · clinically useful as lead compounds for the development of RSV therapeutics	M

Inflammation and Rheumatoid Arthritis

Technology	Market Opportunity	
Therapeutic strategy for colitis	This target offers a effective therapeutic strategy for intestinal inflammatory disorders by inhibiting 5-HT signaling by blocking specific 5-HT receptor function with a selective antagonist or targeted disruption.	M
Tolerogenic autoantigen peptides for rheumatoid arthritis therapy	These novel autoantigenic peptides are ready for development into highly specific and sensitive diagnostic assays and effective therapeutic products for rheumatoid arthritis. The peptides have been optimized to bind with high affinity to their associated MHC Class II receptor and have potential to induce tolerance in rheumatoid arthritis patients.	L
Vaccination rheumatoid arthritis therapy	This new approach to the treatment of rheumatoid arthritis, termed "tolerogenic vaccination," uses siRNA-modified dendritic cells to modulate the immune response. Tolerogenic vaccination could prove to be a powerful new approach to the treatment of rheumatoid arthritis and other autoimmune-related disorders.	L

Transplantation

Technology	Market Opportunity	
Epithelial cell IL-2 receptor antagonism for organ transplant survival	These methods treat inflammatory injury mediated by the activity of interleukin 2 (IL-2) on non-T cells, such as epithelial cells, expressing IL-2 receptors (IL-2R). Blocking of IL-2R in epithelial cells has clinical utility in transplantation and the treatment of inflammatory bowel disease (IBD).	L
Organ storage and reperfusion solution	This siRNA-containing organ storage and reperfusion solution is optimized for use in transplantation. It contains siRNA directed towards the silencing of one or more genes or pathways that contribute to the immunogenicity, survival and/or viability of transplanted tissues, cells or organs.	L

Research Tools

Technology	Market Opportunity	
Mouse model for metabolic syndrome	A good research tool to test the effects of various drugs and nutraceuticals on prevention and/or progression of Metabolic Syndrome, diabetes, and other cardio-vascular diseases	G
Physical activity recall assessment for spinal cord injury (PARA-SCI)	The PARA-SCI is a validated, self-report physical activity measure for people with spinal cord injury (SCI).	M
Screen for anti-virulence compounds targeting mART bacterial toxins	Mono-ADP-ribosyltransferase (mART) pathogens include cholera toxin from *Vibrio cholerae*, and diphtheria toxin (DT) from *Corynebacterium diphtheriae*. These virulence factors contribute to many disease states in plants, animals and humans. A screen has identified anti-virulence compounds which may be exploited as new therapeutics for treating disease states caused by mART bacterial toxins	G

Other

Sector	Technology	Market Opportunity	
Anticoagulant	Novel anticoagulant complexes	This family of covalent serpin-glycosaminoglycan complexes has maximal anticoagulant activities but have reduced adverse clinical side-effects typically associated with glycosaminoglycans.	M
Anti-oxidants	Treatments for oxidative stress	These short, easy to manufacture phosphopeptides have a strong ability to reduce reactive oxygen species and could be the basis of a pharmaceutical treatment	G
Autoimmune Disease	Immunomodulation using RNA interference	These methods involve manipulating the immune system use small interfering RNA (siRNA). Potential applications include treatments for a broad range of disease indications such as autoimmune diseases and cancer.	L
Cholesterol	Therapeutic target to lower blood VLDL and LDL levels	Researchers demonstrated for the first time that human resistin has a direct pathophysiological impact on human hepatic VLDL production and serum LDL cholesterol levels.	M

Drug Delivery	Modified glycosaminoglycan formulations for transdermal protein delivery	This glycosaminoglycan formulation penetrates the epidermis and has the capacity to deliver large molecules including proteins into the dermis and underlying cells. In addition to its skin rejuvenation properties, this formulation represents a novel drug delivery vehicle for dermal applications.	L
CNS	Therapeutic factors for the relief of anxiety related disorders	Peptide for the relief of anxiety related disorders such as depression without the unwanted side effects of current anxiety treatments.	W
CNS	Target, compounds, and discovery system for limiting scarring and promoting CNS regeneration following neurotrauma	A platform encompassing target and lead candidates behaviourally validated in rodent models of various neurotraumas.	W
Immunity and Inflammation	apoEp1.B peptides – Apolipoprotein E based compositions and methods for modulating immunity	Peptides that induce dendritic cell differentiation as well as inhibit inflammation and autoimmune-based responses. Evidence supports inhibition of atherosclerotic plaque formation, limitation of diabetes development and anti-tumour properties.	W
Inflammation/Sepsis	Annexin and its use to treat inflammatory disorders	This biologic has anti-inflammatory, anti-coagulant and anti-apoptotic properties and has been demonstrated to decrease mRNA and protein levels of TNF-α and IL-1β in the myocardium during sepsis leading to increased cardiac function and survival. It also interacts directly with Toll-like receptor 4.	L
Mental and neurological disorders	Novel allosteric compound	Dopamine-related disorders can be treated with this compound. It interacts with the dopamine D2 receptor in an allosteric manner, maintaining the active state of the receptor and thereby increasing dopamine interactions.	M
Skeletal	Treating periprosthetic fractures of the femur	A method and apparatus to gain rigid fixation to the femoral prosthesis at specific fixed anchoring points to allow bony healing and improve overall alignment of the prosthesis	M

Women's and Fetal Health	Method and apparatus for detection of fetal asphyxia and acidemia during labour	This technology correlates the patterns of electroencephalogram (EEG) and fetal heart rate signals to accurately predict fetal compromise including asphyxia and acidosis prior to brain injury in order for clinicians to make better decisions regarding emergency intervention during labour.	L
Women's and Fetal Health	Biomarkers for the early detection of pre-eclampsia	This set of 12 proteins presents a definitive starting point for a biomarker based, early detection tool for pre-eclampsia. These differentially expressed proteins have been identified as being either up or down regulated in pre-eclampsia patients. Further, nine of these proteins were found in a patient sample with less than 28 week gestation which makes them appropriate for early detection of pre-eclampsia.	W
Women's and Reproductive Health	Assessing embryo reproductive potential or viability	Innovative, real-time test of oocyte quality that can be used as a non-invasive clinical tool in assisted conception treatment settings both in humans and animals.	W
Wound Healing	Therapeutic agent for improvement of wound healing	This protein has applications for the treatment of diabetic wounds, burns and possibly other dermatological indications.	W
Wound Healing/ Anti-infective	An effective antifungal/anti-microbial agent derivative of histatin with strong wound healing properties	A cyclic peptide with fast and potent anti-fungal/anti-bacterial properties, that demonstrates strong capacity to augment wound healing and promote skin maturation following topical injury.	W

Veterinary and Agriculture

Technology	**Market Opportunity**	
Adeno-Associated Virus vector improves protein expression for gene therapy.	This enhancer element can be added to an AAV vector to significantly increase (1000 fold) the in vivo expression of proteins (transgenes) delivered by the AAV vector. This element reduces the viral load required to achieve therapeutic protein expression in the target cells.	G
Adenovirus type-4 as a vaccine against hyperpericardium syndrome in poultry	This FAdV-4 strain is not pathogenic and induces an immune response in chickens and is therefore an excellent candidate as live virus (or live attenuated virus) vaccine against HPS.	G
Biodegradable device to deliver nutrients and therapeutics to crop roots	a biodegradable device that can immobilize small molecules and bio-macro-molecules and release them to the targeted plant at a sustained rate for multiple months	Wa

Diagnostic marker for hemangiosarcoma in dogs	Hemangiosarcoma is an incurable and common form of cancer in dogs older than six years. Approximately 1 in 30 dogs will develop HSA. It is almost impossible to detect it during early development using traditional diagnostic tools.	G
Embryo culture media improves bovine embryo cryopreservation	This in-vitro embryo culture and cryopreservation (IVCC) media significantly improves the viability, quality and survival of bovine embryos.	G
Enhancing the growth of fish	This method of treating fish embryos significantly increases the rate of growth and development. One single treatment has lasting effects on the rate of mitosis with no detectable adverse defects resulting in larger fish when compared to age matched controls.	G
Enviropig	These pigs have the ability to utilize efficiently phytate phosphorus (P) that is present in plant feed ingredients. ·Reduce environmental impact of hog farming	G
Genetic methods to reduce boar taint in entire male pigs	· Increased feed efficiency · Reduced need for castration · Improved pork taste	G
High immune responding cattle	Method to identify cattle which have a superior immune response resulting in enhanced health and lower health care costs. This patented technology will assist cattle breeding companies, animal geneticists and food producers.	G
Mint plant with anti-inflammatory properties	This plant is inexpensive, source of rosmarinic acid for use as a food antioxidant. In addition, in vivo horse trials are underway using a tea made from the mint for the treatment of inflammation.	G
Poultry vaccine for inclusion body hepatitis	Inclusion-body hepatitis (IBH), caused by fowl adenoviruses is an emerging disease in North America. When given to the breeding (parent) flock, this vaccine protects the offspring from IBH, avoiding widespread direct vaccination of the offspring.	G
Reagentless biosensor to detect Mycotoxins	This reagentless sensor can detect mycotoxins in mould contaminated crops. It is based on exploiting the strong electrophilic nature of mycotoxins to effect an electrochemical change on a conducting polymer.	G
Reduction of *campylobacter jejuni* virulence	Provides an opportunity to reduce *campylobacter jejuni* in animals especially in broiler chickens that are destined for human consumption.	W
Vaccine for necrotic enteritis in poultry	This vaccine is effective at protecting chickens against both moderate and severe challenge by *C. perfringens* infection.	G