

# Biomedical Technologies

- 1 **Oncology/  
Hematology/  
Angiogenesis**
- 2 **Neurology/  
Sleep Apnea**
- 3 **Metabolic/  
Immunology**
- 4 **Cardio-Pulmonary**
- 5 **Anti-Infectives**
- 6 **Drug Delivery**
- 7 **Animal &  
Cellular Models**
- 8 **Diagnostics**
- 9 **Medical Devices**
- 10 **Startups**

otm.uic.edu  
312.996.7018  
otm@uic.edu



# Oncology/Hematology/Angiogenesis

Indication	Target	Therapeutic Description	Stage of Development	Patents	Faculty
<b>Melanoma, Mantle Cell Lymphoma</b>	Epigenetics: HDAC6	Nexturastat series: highly potent selective HDAC6 Inhibitors	Most advanced oncology validated HDAC6 inhibitor confirmed in melanoma animal models	Patents Pending	Alan Kozikowski
<b>Melanoma, MCL</b>	HDAC6	Isoxazole core hydroxamic acids as selective histone deacetylase 6 inhibitors	Hydroxamic acid HDAC6 inhibitors with a novel core	Provisional Application	Alan Kozikowski & Alejandro Villagra
<b>Melanoma, MCL</b>	HDAC6	Non-hydroxamic acid HDAC6 inhibitors with a novel core & zinc finger binding domain	Demonstrated on murine T cell regulatory function	PCT Patent Pending	Alan Kozikowski & GP Vallerini
<b>Triple Negative Breast Cancer</b>	HDACs & kinases	Inhibition of specific kinases leads to increased efficacy of HDAC3 inhibitors in triple negative breast cancer models	Novel HDAC inhibitor compounds tested in cell models of triple negative breast cancer	Provisional Application	Pavel Petukhov & Jonna Frasor
<b>Prostate Cancer</b>	Prostate Specific Membrane Antigen (PSMA)	A therapeutic agent targeted specifically to PSMA which is highly specific to prostate derived tissues	Clinically validated HDAC inhibitors modified into novel molecules targeting domains to specifically localize to PSMA-expressing cells	Provisional Application	Alan Kozikowski & Ryo Nakajima
<b>Prostate Cancer</b>	PSA and TEM8	Vaccine combining a PSA (Prostate specific antigen) peptide & a TEM-8 (Tumor endothelial marker 8) peptide plus GM-CSF	PSA peptide/GM-CSF vaccine efficacy shown in a pilot human clinical trial; combination with TEM-8 peptide is currently being tested in vivo	US Patent 8,557,777	David Peace
<b>Oncology</b>	RAD51 DNA repair pathway	Small molecule inhibitors of RAD 51 DNA repair pathway	Compounds are validated in prostate cancer xenograft rodent models	US Patent Pending	Alan Kozikowski & Philip Connell
<b>Pancreatic &amp; Breast Cancer</b>	Oxidative stress	Mitochondrial targeted small molecule anti-oxidant	In vitro validation and early in vivo studies in a mouse breast cancer model	Provisional Application	Marcelo Bonini
<b>Liver &amp; Prostate Cancer, Leukemia</b>	FoxM1	P19ARF derived peptide inhibitor of FoxM1/P19ARF interaction	Validated in rodent models	US Patents 7,635,673, 7,799,896, 8,906,860	Pradip Raychaudhuri & Robert Costa
<b>Blood Disorders &amp; Malignancies</b>	Blood progenitor cells	Reprogramming and expansion of blood progenitor cells using valproic acid, or 5-aza-2'-deoxycytidine and trichostatin A	Currently testing in non-human primates in preparation for filing an IND	US Patent 7,927,785 US Patent Pending	Nadim Mahmud
<b>Tumor &amp; Ocular Angiogenesis</b>	VEGF regulation	Peptide based inhibitor of VEGF activation	In vitro validation and early in vivo studies in a mouse lung cancer model	Provisional Application	Kaori Yamada & Asrar Malik
<b>Tumor &amp; Ocular Angiogenesis</b>	VEGF activation	Fusion peptide inhibitor based on Histatins	In vitro data	PCT Patent Pending	Vinay Aakalu
<b>Breast Cancer</b>	Estrogen Receptor	Novel Constrained Peptides	Currently in vitro stage proof of concept.	Provisional Application	Terry Moore

# Neurology/Sleep Apnea

2

Indication	Target	Therapeutic Description	Stage of Development	Patents	Faculty
<b>Charcot Marie Tooth (CMT), Autism, Neuroprotection</b>	HDAC6	Nanomolar inhibitors of HDAC6 highly selective over other HDACs	Compounds were dosed into transgenic models of CMT and successfully blunted the disease in a transgenic animal model	Patents Pending	Alan Kozikowski
<b>Schizophrenia, Autism, Addiction</b>	Human 5HT2c Serotonin Receptor	Compounds with superior safety profile over Locaserin (FDA approved) and excellent efficacy against target receptor; target is highly validated	Compounds were characterized for preclinical assessment safety and PK profiling package, and are being evaluated for other CNS indications	US Patents 8,492,591, 8,754,132 Patents Pending	Alan Kozikowski
<b>Migraine &amp; Other Refractory Headaches</b>	Soluble Guanyl Cyclase (SGC)	Nitric oxide (NO) plays a potential role in the mechanism of difficult to treat headaches	In vitro biochemical validation	Provisional Application	Greg Thatcher & Irina Gaisina
<b>Alzheimer's Disease</b>	Calpain Protease	Utilized caspase inhibitors on a rodent model of AD	Early stage in vivo studies	Provisional Application	Greg Thatcher
<b>Alcoholism</b>	Histone acetylation	Treatment of alcohol withdrawal and reducing desire to consume alcohol	Data in rat models	US Patent Pending	Subhash Pandey
<b>Amyotrophic Lateral Sclerosis (ALS)</b>	Neuregulin Signaling	GlyB4 Fusion with Neuregulin Heparin-Targeting Domain to Block Neuregulin Signaling	Improves early chronic motor performance deficits, delays disease onset and prolongs survival in an ALS mouse model	US Patents 7,527,794, 7,994,123 EP Patent 1824879	Jeff Loeb
<b>Tolerance resulting from chronic opioid administration</b>	Calcium Calmodulin Kinase (CaMKII)	Utilized an FDA approved drug & other preclinical compound inhibitors of CaM II kinase	Compound successfully attenuated experimentally induced nerve hypersensitivity caused by opioid drugs in preclinical models; human clinical trial validated this approach	US Patent 7,256,200 US Patent Pending	Jim Wang
<b>Alzheimer's Disease, Multiple Sclerosis</b>	Noradrenaline	Combination of L-DOPS, carbidopa, and reboxetine	Prevents worsening of symptoms in AD and MS mouse models	US Patent 8,580,776	Doug Feinstein
<b>Parkinson's &amp; Other Synucleinopathies</b>	Protein Kinase C mu or Src-Family Tyrosine Kinase	Utilized a demonstrator compound inhibitors of protein kinase C mu and src family tyrosine kinase	Early stage in vitro studies	US Patent 8,618,063	Scott Brady
<b>Sleep Apnea</b>	Serotonin	Serotonin Receptor Antagonists +/- Selective Serotonin Reuptake Inhibitor • Ondansetron/Fluoxetine (repurposing)	Human clinical pilot showing efficacy; pre-clinical dose and dose-ratio optimized; pre-IND meeting with FDA	US Patents 6,331,536, 8,512,751 EP Patent 1833467	David Carley
<b>Sleep Apnea</b>	CCK-B	CCK-B Receptor Antagonists	Rat model for obstructive sleep apnea	US Patent 8,053,413	David Carley

Indication	Target	Therapeutic Description	Stage of Development	Patents	Faculty
<b>Rheumatoid Arthritis, Inflammatory Bowel Disease, Ulcerative colitis</b>	Epigenetics: HDAC6	HDAC6 Selective Inhibitors: nanomolar and sub nanomolar inhibitors of HDAC6	Potent HDAC6 inhibitors successfully prevented cardiac organ transplant rejection in rodent model; also prevented experimentally induced ulcerative colitis in rodents	Patents Pending	Alan Kozikowski
<b>Obesity</b>	Human 5HT2c Serotonin Receptor	Compounds with superior safety profile over Lorcaserin (a FDA approved weight loss drug by Arena) and excellent efficacy against target receptor	Compounds were thoroughly characterized for preclinical assessment safety and PK profiling package, and are being evaluated for other CNS indications	US Patents 8,492,591, 8,754,132 Patents Pending	Alan Kozikowski
<b>Obesity</b>	Circulating protein	Antibody targeted inhibition of circulating protein that causes obesity	Genetic manipulation validating mechanism of action, and early in vitro studies showing antibody inhibition	PCT Patent Pending	Chong Wee Liew
<b>Asthma, Eosinophilic Esophagitis</b>	CCR3, eosinophils	Peptide therapeutic to compete against Eotaxin and other chemokines as a treatment for asthma	In vivo experiments in eosinophil mouse model	PCT Patent Pending	Steven Ackerman & Vadim Gaponenko
<b>Wounding Healing</b>	PPAR-gamma agonist	Small molecule that exerts powerful anti-inflammatory activity to push macrophage polarization towards healing phenotypes instead of proinflammatory phenotypes that hinder wound healing and scarring	Preliminary in vivo validation in rodent models of wound healing	Provisional Application	Marcelo Bonini
<b>Type 1 Diabetes</b>	Antigen specific regulatory T-cells	Bispecific antibody targeted to GLUT2 and CTLA4	Validated in NOD diabetes mouse model	US Patents 8,822,649, 9,221,911 US Patent Pending	Bellur Prabhakar
<b>Wound Healing</b>	Pro-regenerative cytokines & growth factors	Interferon gamma activated mesenchymal stem cells	Validated in primate & rodent models	US Patent 9,011,840	Amelia Bartholomew
<b>Diabetes, Autoimmune diseases</b>	Regulatory T-cells	Protein therapy using Soluble 4-1BB (CD137), a membrane receptor protein of the TNFR superfamily	In vivo validation showing protein administration increases T-regulatory cells in mice	US Patent 7,592,313	Guoxing Zheng

Indication	Target	Therapeutic Description	Stage of Development	Patents	Faculty
<b>Atherosclerosis</b>	Novel athero-sclerosis auto-antigen	Auto-antigen antibody	In vitro and early in vivo studies	Provisional Application	Guoxing Zhen
<b>Sudden Cardiac Arrest</b>	Phosphatase inhibitors	Peptide	Efficacy in mouse and pig models	PCT Patent Pending	Terry Vanden Hoek
<b>Ventilator-induced lung injury</b>	Pbef/Nampt inhibition	Humanized Pbef antibodies	Proof of principle validated in rodent model; antibody development and testing ongoing	US Patent 9,409,983	Joe Garcia
<b>Thrombosis, Blood Disorders, Cancer</b>	Platelet Adhesion Receptor Inhibitors	Inhibitory peptides of the interaction between 14-3-3 Protein and Glycoprotein Ib-IX Complex	In vitro and early in vivo studies	US Patent 8,173,595	Xiaoping Du
<b>Thrombosis</b>	Integrin-Src interaction	Inhibitory peptides	Early in vitro studies	US Patent 8,563,690	Xiaoping Du
<b>Thrombosis, Sepsis</b>	Von Willebrand factor	Inhibitory peptide	In vitro and early in vivo studies	US Patent Pending	Richard Minshall
<b>Thrombosis, Blood Disorders, Cancer</b>	Integrin-G alpha 13 interaction	Inhibitory peptides	Bleeding testing in rabbits; in vitro testing	US Patent 8,575,103	Guy Le Breton
<b>Cardiac Hypertrophy</b>	P21 activated kinase-1 (Pak1)	FTY720 (repurpose)	Inhibits angiotensin II induced hypertrophy and fibrosis in mice	US Patent 8,513,308	Yunbo Ke
<b>Ischemic cardiovascular diseases</b>	Autologous endothelial cells	Method to produce autologous human endothelial cells from human postnatal dermal fibroblasts	In vitro and early in vivo studies in rodent models	US Patent Pending	Changwon Park
<b>Ischemic cardiovascular diseases</b>	Autologous endothelial cells	Method to produce autologous human endothelial cells from human postnatal dermal fibroblasts	In vitro and early in vivo studies in rodent models	US Patent Pending	Kishore Wary, Jalees Rehman & Asrar Malik
<b>Ischemic cardiovascular diseases</b>	Autologous endothelial and erythroblast cells	Method to produce erythro-angioblast progenitor cells from fibroblasts	In vitro and early in vivo studies in rodent models	US Patent Pending	Jalees Rehman & Asrar Malik
<b>Pulmonary diseases</b>	Pathogenic mutations	In vivo CRISPR/Cas9-mediated genome editing that targets the cardiopulmonary vasculature	In vitro and early in vivo studies in rodent models	Provisional Application	Jalees Rehman & Asrar Malik
<b>Radiation-induced lung injury</b>	Sphingosine 1-phosphate	Sphingosine 1-phosphate analogs	In vitro and in vivo studies in mouse models	US Patent Pending	Joe Garcia

# Anti-Infectives

Indication	Target	Therapeutic Description	Stage of Development	Patents	Faculty
<b>TB and Cystic Fibrosis Pathogens</b>	Multiple	Small molecule therapeutics	Animal data available for best lead molecule against XDR and MDR TB. Herg safety.	PCT and Provisional Application	Alan Kozikowski, William Bishai & Laurent Kremer
<b>TB</b>	Multiple	Macrolides and small molecule antibiotics	In vitro validation	Patents Pending	Scott Franzblau
<b>Lymphatic filariasis</b>	Three conserved filarial surface proteins	Vaccine (Purified Protein and/or DNA)	Proof of Principle studies in a primate model of infection ongoing	Patents Pending	K. Ramaswamy
<b>Herpes</b>	Multiple	Live Attenuated HSV Vaccine	Fine tuning of attenuation profile underway	US Patent 8,765,444	Bin He
<b>Herpes</b>	Viral binding and cell entry	Inhibitory peptide	In vivo validation in a mouse model of HSV infection	US Patent 9,464,113	Deepak Shukla
<b>Hepatitis C</b>	NPC1L1	Ezetimibe (Zetia – repurposed)	In vivo validation in a mouse model of HCV infection	US Patents 8,673,288, 9,034,863	Susan Uprichard
<b>CMV</b>	Microtubule-binding protein EB3	Cell membrane permeable peptides against EB3 with specific activity to CMV	In vitro validation	Provisional Application	Yulia Komarova
<b>MRSA</b>	vraSR Operon	Small molecule inhibitors of MRSA related OPERON.	In vitro cellular demonstration of technology.	PCT Patent Pending	Mike Johnson, Robert Daum & Susan Boyle-Vavra
<b>MERS Virus, SARS</b>	Papain-like Viral Protease	Inhibitors of Viral replication against the Middle East Respiratory Syndrome virus	Early stage program with viable hit to lead compounds	Material License	Mike Johnson
<b>HIV</b>	Reverse Transcriptase	Novel compounds from natural sources that inhibit HIV viral replication	Validated in viral assays	US Patent Pending EP and Chinese Patents Issued	Lijun Rong, Doel Soejarto & HongJie Zhang

# Drug Delivery

Indication	Target	Therapeutic Description	Stage of Development	Patents	Faculty
<b>Drug Delivery</b>	Non-specific	Nano-hybrid delivery system for anticancer, anti-viral and anti-angiogenic agents	No animal data to date	US Patent 9,168,225	Seungpyo Hong
<b>Drug Delivery</b>	Breast cancer; Transdermal drug delivery	Transdermal delivery system has been shown to enhance permeation of encapsulated endoxifen, and can be easily adapted to other compounds	Mouse and human model data	US Patent Pending	Seungpyo Hong
<b>Drug Delivery</b>	Non-specific	Drug delivery system to increase bio availability of hydrophobic components	Mice and dog testing	US Patent Pending	Ying Liu
<b>Drug Delivery</b>	Non-specific	Toroidal-spiral design allows for two different drugs to be released at two different rates	No animal data to date	US Patent 8,852,645 US Patent Pending	Ludwig Nitsche & Ying Liu
<b>Drug Delivery</b>	Endothelial cells	Myeloperoxidase-derived peptide	Validation of specific delivery of peptidelinked compounds into sub-endothelial spaces in mouse models	US Patent 7,429,563	Chinnaswamy Tiruppathi & Asrar Malik
<b>Drug Delivery</b>	Endothelial cells	EphB1/Elk activating antibody	Early stage testing of antibody in vitro	Provisional Application	Chinnaswamy Tiruppathi & Asrar Malik

# Animal & Cellular Models

Disease	Technology Description	Application & Benefits	Opportunity	Faculty
<b>Metastatic Breast Cancer Cell Models</b>	Cellular and xenograft/PDX models of tamoxifen resistance breast cancer	Cellular and xenograft/PDX models of tamoxifen resistance have been used to study estrogen receptor and specific kinases and to validate novel SERDs and SEMs for preclinical/IND development	Material License	Debra Tonetti
<b>Breast Cancer</b>	A breast cell carcinoma cell line, designated UIISO-BCA-1, that was established from pleural effusions of postmenopausal women	A well characterized primary, differentiated breast cancer cell line that provides an important research tool for detailed multidisciplinary studies in which long-term experimentation in a controlled environment is required	Material License	Tapas Das Gupta
<b>Oncology</b>	Cell Lines for determining PARP agents function	Research tool to evaluate the activity of PARP inhibitors.	Material License	Lesley Hanakahi
<b>Atherosclerosis</b>	Mice lacking a functional ApoE gene are unable to produce a key glycoprotein, apoE (apolipoprotein E), which is essential for lipid transport and metabolism; the mice are healthy when born, but have up to five times higher total cholesterol levels and a markedly altered plasma lipid profile (high LDL, low HDL) compared to normal mice (low LDL, high HDL) and rapidly develop atherosclerotic lesions	Utilizing a Foxp3 modification in these mice enables direct and specific fluorescent visualization of regulatory T cells in atherosclerotic relevant tissues, and also enables isolation of regulatory T cells using fluorescence	Material License	Guoxing Zheng
<b>Type 2 Diabetes</b>	IG20/MADD deletion in $\beta$ -cells (KMA1ko mouse) resulted in hyperglycemia and glucose intolerance associated with delayed and reduced glucose-induced insulin secretion; although their $\beta$ -cells showed normal insulin processing, glucose uptake was decreased and the islet cells contained denser insulin granules and more insulin	Useful to study insulin resistance and $\beta$ -cell dysfunction, including insulin secretion defect as a meta-analysis of 21 human Genome Wide Association Studies implicated rs7944584 single nucleotide polymorphism of IG20/MADD gene in fasting hyperglycemia due to defective insulin secretion	Material License	Bellur Prabhakar
<b>Alzheimer's Disease</b>	Human ApoE targeted replacement mice crossed with 5xFAD mice; 4 transgenic lines: apoE-KO/5xFAD, apoE2/5xFAD, apoE3/5xFAD, and apoE4/5xFAD	Useful to study AD pathology and drug discovery as this models amyloid-beta 42 peptide (AB42) accumulation via overexpression of human AB42 by neurons and the human isoforms of apolipoprotein E	Research Collaborations	Mary Jo LaDu
<b>Pulmonary Hypertension</b>	Cross of two mice strains with conditional transgenes: floxed Von Hippel-Lindau protein (VHL) (B6.129S4(C)-Vhl <sup>tm1Jae/J</sup> ) mice were bred with animals expressing a fibroblast specific promoter driving Cre (Fsp-Cre) resulting in offspring Fsp-VHL <sup>+/-</sup> and Fsp-VHL <sup>-/-</sup> which are completely viable and fertile	Recapitulates stereotypical PAH pathologies with mice exhibiting stereotypical PAH symptoms including increased hematocrit, RBC, HGB and enlarged right ventricle volume	Material License	Guofei Zhou
<b>Pulmonary Hypertension</b>	Double knockout mice with genetic deletions of both EglN1 (encoding PHD2) and Hif1a (EH1Tie2) or EglN1 and Hif2a (EH2Tie2) in in endothelial cells and hematopoietic cells	First genetically-modified mouse model with severe pulmonary vascular remodeling including pulmonary arterial occlusion and plexiform-like lesions as seen in patients with severe PAH including idiopathic PAH; all mice die of right heart failure within 8 month of age	Material License	Youyang Zhao



Disease/Condition	Target/Marker	Stage of Development	Patents	Faculty
Alzheimer's Disease	Blood based biomarkers for diagnosing AD	Pilot study in patients with AD compared to controls	Provisional Application	Mary Jo LaDu
Alzheimer's Disease	Blood based biomarkers for diagnosing AD	Pilot study in patients with AD compared to controls	Provisional Application	Orly Lazarov
Stroke Risk in Atrial Fibrillation	Derivatives of reactive oxygen metabolites (DROMs)	Elevated levels in patients with high risk for stroke	US Patent 8,715,646	Sam Dudley
Colorectal Cancer	Blood test for early detection using miRNAs	Identification of lead combination of miRNAs	Provisional Application	Xavier Llor
Metastatic cancer	Biomimetic device for capturing Circulating Tumor Cells and cancer stem cells	Validated using both human primary cancer cells and cell lines	Patents Pending	Howard Ozaer
Stroke risk	Blood flow through microvasculature in the eyes	Device and concept tested in rabbits; human validation currently underway	Patents Pending	Mahnaz Shahidi
Endometriosis	Non-invasive diagnostic using vaginal lavage or other bodily fluids	Baboon data and small human trial	US Patent 7,794,958	Asgi Fazleabas
Radiation-induced gastrointestinal injury	Reactive oxygen species	Validated in a mouse model	US Patent 9,643,985	Marcelo Bonini & Alex Lyubimov
Idiopathic Pulmonary Fibrosis	Peripheral blood biomarkers	Validated in a small set of human samples	US Patent Pending	Joe Garcia
Cellular Lipids	In Situ Quantitative imaging with specific molecular sensors for detection from Cholesterol to Cancer	Demonstration of several in situ molecular sensors	US Patent 8,686,115	Wonhwa Cho
Autoimmune diabetes	Multiple biomarkers	Mice studies have been conducted	US Patent Pending	Sundararajan Jayaraman
Radiation exposure	Stool Bacteria	Validation of bacterial signatures in primates exposed to radiation	Provisional Application	Amelia Bartholomew
Prostate Cancer	Blood based MicroRNA marker signature	Validation in human samples	Patents Pending	Larisa Nonn
Breast Cancer	Estrogen receptor binding agent	In vitro development in progress	Provisional Application	Steve DiMagno & Thatcher/Tonetti
Cancer	Transcriptome analytics to predict disease progression and determine personalized therapeutics	Validated in human breast cancer	US Patent Pending	Yves Lussier
Epilepsy	Metabolite expression profile using MRI Spectroscopy	Identified in human epileptic brain tissue	Provisional Application	Jeff Loeb

# Medical Devices

Device	Function	Stage of Development	Patents	Faculty
<b>Kerato-prosthesis</b>	This polymer could potentially be used for an artificial cornea (i.e., keratoprosthesis)	Animal studies ongoing	Patents Pending	Michael Cho
<b>Jaw-Thrust and Immobilization Device</b>	A device to open and maintain an airway in an unconscious patient without any continuous attention	Tested using a human patient simulator in an obstructed airway state	US Patent 9,125,745	Girish Desphande
<b>Endotracheal tube</b>	A two port endotracheal tube designed to decrease the incidence of unplanned extubations with (1) a straight port used during intubation for suction tubing and introduction of other instruments (e.g., bronchoscope, in-line suction, or endotracheal tube exchanger devices) and (2) a distal (curved port) used for connecting endotracheal tube to a ventilator and sensors used for end-tidal CO2 measurement	Fully-functional prototype being tested in mannequin models	US Patent 8,991,396	Girish Desphande
<b>Extendable Intravenous Catheter</b>	A catheter designed for pediatric patients	Prototype being developed	US Patent 9,517,324	Girish Desphande
<b>Electromagnetic field shock therapy</b>	Delays and reverses cellular senescence and mortality by preconditioning of the HSF1/HSR pathway	Protocol validated in animal models; device prototype in development	US Patent 9,014,801	Felipe Perez
<b>Physical Activity Monitor</b>	Wireless remote monitoring of multiple aspects of patient physiology	Prototype used in research laboratory	Provisional Application	Shane Phillips
<b>Transcorneal Telescope</b>	Visual aid for vision impairment due to eye diseases	Prototype being developed	US Patent 8,506,626	Jose de la Cruz
<b>CTO Wire</b>	Wire designed to allow angioplasty to occluded vessels	Prototype being developed	Provisional Application	Mladen Vidovich
<b>Improved radial catheter sheath</b>	Radial sheath designed to reduced radial artery occlusion	Prototype has been developed	Provisional Application	Mladen Vidovich
<b>Device for insertion of spinal cord stimulation paddle electrodes</b>	This device decreases pressure on the midline spinal structures, primarily the spinal cord, and instead main pressure points will be at the lateral aspects of the spinal canal, away from the spinal cord itself	Theoretical concept exists	US Patent 9,351,752	Konstantin Slavin
<b>Large Memory Storage And Retrieval (LAMSTAR) neural network (NN)</b>	A method that predicts the occurrence of individual episodes of obstructive apnea during sleep, and which can be integrated into current CPAP systems to reduce occurrences of apnea episodes	Human trials have been conducted.	US Patent 8,775,340	Jonathon Waxman, David Carley & Daniel Graupe
<b>Spinal surgical implant</b>	A surgical implant for use in patients needing surgical correction of deformity of the spine	Prototypes developed	PCT Patent Pending	Sergey Neckrysh
<b>Heart Rate Monitor</b>	Non-contact videoplethysmograph (VPG) measure of human arterial pulse using a digital camera	Prototype developed	Patents pending	Stephen Porges

Company	Technology	Website	Type	Faculty
<b>Actuate Therapeutics</b>	Highly Selective GSK3 inhibitors for Oncology and CNS indications	<a href="https://actuatetherapeutics.com">https://actuatetherapeutics.com</a>	Therapeutic	Alan Kozikowski
<b>Adaptae</b>	Tumor stem cells therapeutics, diagnostics and research tools	<a href="https://actuatetherapeutics.com">https://actuatetherapeutics.com</a>	Therapeutic	Jim Radosevich
<b>CDG Therapeutics</b>	Peptide based drugs for treating neuroblastoma and other cancers	<a href="http://www.cdgti.com">http://www.cdgti.com</a>	Therapeutic	Ananda Chakrabarty & Tapas Das Gupta
<b>Dystrogen Therapeutics</b>	Chimeric Cell Therapy for Treating Muscular Dystrophy including Duchenne Muscular Dystrophy (DMD)		Therapeutic	Maria Seimionow
<b>DuPage Medical</b>	Peptide based anti-thrombotics that don't cause bleeding		Therapeutic	Xiaoping Du
<b>Enzyme by Design</b>	Safer asparaginase proteins that have been designed to minimize glutaminase activity for treating cancer		Therapeutic	Arnon Lavie
<b>EpiDestiny</b>	Decitabine formulation for treating blood related cancers and indications including sickle cell anemia		Therapeutic	Yogen Sauntharajah & Joe DeSimone
<b>Jivana Biotechnology</b>	siRNA technology targeting breast, lung, and liver cancer	<a href="http://www.jivanabiotech.com">http://www.jivanabiotech.com</a>	Therapeutic	Bellur Prabhakar
<b>Laurel Therapeutics</b>	Peptide based therapy for treating diseases associated with ocular angiogenesis		Therapeutic	Yulia Komarova & Asrar Malik
<b>Progenicyte</b>	Adult stem cell and genetic analyses and therapies for hair loss restoration and tissue regeneration	<a href="http://progenicyte.com">http://progenicyte.com</a>	Therapeutic	Kiminobu Sugaya
<b>RespireRX</b>	Novel drug therapies for sleep apnea, drug-induced respiratory depression, and other brain-medicated breathing disorders	<a href="http://www.respirerx.com/">http://www.respirerx.com/</a>	Therapeutic	David Carley
<b>Revivo Therapeutics</b>	Novel methylthiazoles for CNS indications with the lead molecule well tolerated in a Phase 1 study in healthy volunteers	<a href="http://www.revivotherapeutics.com/">http://www.revivotherapeutics.com/</a>	Therapeutic	Greg Thatcher
<b>Sahane Biotech</b>	Recombinant protein therapy for in vivo expansion of regulatory t cells for treating type 1 diabetes & other autoimmune disorders		Therapeutic	Bellur Prabhakar
<b>Sphingo Therapeutics</b>	Selective inhibitors of sphingosine kinase 1 (SphK1) for treating pulmonary disorders, e.g., Bronchopulmonary dysplasia (BPD)		Therapeutic	Anantha Harajith & Viswanathan Natarajan
<b>TTC Oncology</b>	Clinical stage hormone receptor modulators for treating cancer		Therapeutic	Greg Thatcher
<b>Vista Oncology</b>	Micelle therapeutic drug delivery platform		Therapeutic	Hayat Onyuksel
<b>Yaso Biotech</b>	Therapeutic and prophylactic agent for sexually transmitted viral pathogens with contraceptive properties	<a href="http://www.yasotherapeutics.com/">http://www.yasotherapeutics.com/</a>	Therapeutic	Alex Kronic & Don Waller

Company	Technology	Website	Type	Faculty
<b>Cell Biologics</b>	Therapeutics for treating sepsis and other pulmonary indications; primary cultured cells and cell culture products	<a href="http://www.cellbiologics.com">http://www.cellbiologics.com</a>	Therapeutic & Reagents	Asrar Malik
<b>3PrimeDX</b>	Blood based test for determining risk of sudden cardiac death and diastolic heart failure	<a href="http://3primedx.com">http://3primedx.com</a>	Diagnostic	Samuel Dudley
<b>Arphion</b>	Test for early detection of oral squamous cell carcinoma	<a href="http://www.arphiondiagnostics.com">http://www.arphiondiagnostics.com</a>	Diagnostic	Joel Schwartz & Guy Adami
<b>Capio Biosciences</b>	Circulating tumor cell capture device for diagnostic applications. Successfully raised several million in start up funding.	<a href="http://www.capiobiosciences.com/">http://www.capiobiosciences.com/</a>	Diagnostic	Seungpyo Hong
<b>PAX Neuroscience</b>	Blood based test for evaluating antidepressant efficacy and diagnosing depression	<a href="http://www.paxneuroscience.com">http://www.paxneuroscience.com</a>	Diagnostic	Mark Rasenick
<b>VasSol</b>	MRI-based quantification of blood flow in vessels	<a href="http://www.vassolinc.com">http://www.vassolinc.com</a>	Diagnostic	Fady Charbel
<b>Tianhe Stem Cell Biotechnologies</b>	Stem Cell Educator Therapy is a treatment of autoimmune related diseases using stem cells drawn from human umbilical-cord blood	<a href="http://www.tianhecell.com">http://www.tianhecell.com</a>	Device & Therapeutic	Yong Zhao
<b>BioVipra</b>	Biomimetics for tissue regeneration and improved osteo-integration of implants		Device	Sriram Ravindran
<b>Cell Habitats</b>	Micro-sized regenrods that mimic biological material, attract the body's own stem cells, and act as a substitute cellular habitat that promotes endogenous stem cell growth and serves as a platform for the repair of bone, cartilage, muscle and nerve tissues	<a href="http://www.cellhabitats.com">http://www.cellhabitats.com</a>	Device	Brenda Russell
<b>NexHand</b>	Sensor-based "smart surgical glove" technology designed to enable physicians to assess the severity of stress urinary incontinence		Device	Craig Neiderberger
<b>OrthoAccel Technologies</b>	Hands-free device designed for faster orthodontic treatment	<a href="http://acceleident.com">http://acceleident.com</a>	Device	Jeremy Mao
<b>PicoLife</b>	Valveless micropump membrane magnetic actuation design for different fluid/drug applications		Device	Farid Amirouche
<b>Remote Vital Monitoring</b>	Coma Alert a device that provides ongoing, continuous monitoring of brainstem integrity	<a href="http://remotevitalmonitoring.com">http://remotevitalmonitoring.com</a>	Device	Jim Stone
<b>RetMap</b>	CLEAR Lens records ERG signals from multiple locations on the cornea simultaneously, which enables sensitive detection of local areas of dysfunction without the need to use complex visual stimuli	<a href="http://retmapinc.com">http://retmapinc.com</a>	Device	John Hetling
<b>Immersive Touch</b>	Simulation based surgical training and exploration which immerses surgeons in a digitally replicated operating environment with high-fidelity 3D virtual anatomies and haptic instrument replicates	<a href="http://www.immersivetouch.com">http://www.immersivetouch.com</a>	Software	Pat Banerjee
<b>Simplified Data Tracking</b>	Software for data management of research laboratories	<a href="http://simplifieddatatracking.com">http://simplifieddatatracking.com</a>	Software	Oscar Colomonic