

Biomedical Technologies

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Indication	Target	Therapeutic Description	Stage of Development	Patents	Faculty
Melanoma, Lymphoma, MCL	Epigenetics: HDAC6	Nexturastat series: highly potent selective HDAC6 Inhibitors	Most advanced oncology validated HDAC6 inhibitor confirmed in melanoma animal model	Patents Pending	Alan Kozikowski
Melanoma, Lymphoma, MCL	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
Melanoma, Lymphoma, MCL	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
Triple Negative Breast Cancer	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
Prostate Cancer	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
Prostate Cancer	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 effective in a pilot human clinical trial; combination with TEM-8 peptide is now being tested in vivo	US Patent 8,557,777	David Peace
Oncology	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
Pancreatic & Breast Cancer	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
Liver & Prostate Cancer, Leukemia	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
Blood Disorders & Malignancies	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
Tumor & Ocular Angiogenesis	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
Tumor & Ocular Angiogenesis	VEGF activation	Fusion peptide inhibitor based on Histatins	In vitro data	PCT Patent Pending	Vinay Aakalu
Colon, Gastric & Pancreatic Cancer	Sensitizing TRAIL resistance	Combination of a death receptor activating antibody with 2-deoxy-D-glucose	In vitro data	US Patent Allowed	Ajay Maker
Breast Cancer	Estrogen Receptor	Novel Constrained Peptides	Currently in vitro stage proof of concept.	Provisional Application	Terry Moore

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Charcot Marie Tooth (CMT), Autism, Neuroprotection	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
Schizophrenia, Autism, Addiction	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
Migraine & Other Refractory Headaches	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
Alzheimer's Disease	Calpain Protease	Utilized caspase inhibitors on a rodent model of AD	Early stage in vivo studies	Provisional Application	Greg Thatcher
Alcoholism	Histone acetylation	Treatment of alcohol withdrawal and reducing desire to consume alcohol	Data in rat models	US Patent Pending	Subhash Pandey
Amyotrophic Lateral Sclerosis (ALS)	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
Tolerance Caused by Chronic Opioid Administration	Calcium Calmodulin Kinase (CaMKII)	Utilized an FDA approved drug & other preclinical compound inhibitors of CaM II kinase	Compound attenuates 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
Alzheimer's Disease, Multiple Sclerosis	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
Parkinson's & Other Synucleinopathies	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
Sleep Apnea	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
Sleep Apnea	Cholecystokinin B Receptor (CCK-B)	CCK-B Receptor Antagonists	Rat model for obstructive sleep apnea	US Patent 8,053,413	David Carley

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Obesity	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
Obesity	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
Rheumatoid Arthritis, Inflammatory Bowel Disease, Ulcerative Colitis	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
Asthma, Eosinophilic Esophagitis	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
Type 1 Diabetes	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
Diabetes, Autoimmune Diseases	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
Intestinal Fibrosis	Promotes Intestinal healing	Protein biologic treatment	Treatment limits and reverses established intestinal fibrosis in a mouse model	Provisional Application	Lester Lau
Wound Healing	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
Wound Healing	Pro-regenerative cytokines & growth factors	Interferon gamma activated mesenchymal stem cells	Validated in primate & rodent models	US Patent 9,011,840	Amelia Bartholomew
Tissue Repair (Cardiac, Wound Healing)	Micro-sized regenerods that mimic biological material	Regenerods attract the body's own stem cells and act as a substitute cellular habitat promoting endogenous stem cell growth and serving as a repair platform	Early validation in a mouse model of myocardial infarction and in vitro studies demonstrating potential for wound healing	US Patent 8,591,933 UK Patent 2623132	Brenda Russel, Tejal Desai & Paul Goldspink

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Atherosclerosis	Novel athero-sclerosis auto-antigen	Auto-antigen antibody	In vitro and early in vivo studies	Provisional Application	Guoxing Zhen
Sudden Cardiac Arrest	Phosphatase inhibitors	Peptide	Efficacy in mouse and pig models	PCT Patent Pending	Terry Vanden Hoek
Thrombosis, Blood Disorders, Cancer	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
Thrombosis	Integrin-Src interaction	Inhibitory peptides	Early in vitro studies	US Patent 8,563,690	Xiaoping Du
Thrombosis, Sepsis	Von Willebrand factor	Inhibitory peptide	In vitro and early in vivo studies	US Patent Pending	Richard Minshall
Thrombosis, Blood Disorders, Cancer	Integrin-G alpha 13 interaction	Inhibitory peptides	Bleeding testing in rabbits; in vitro testing	US Patent 8,575,103	Guy Le Breton
Cardiac Hypertrophy	P21 activated kinase-1 (Pak1)	FTY720 (repurpose)	Inhibits angiotensin II induced hypertrophy and fibrosis in mice	US Patent 8,513,308	Yunbo Ke
Ischemic Cardiovascular Diseases	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
Ischemic Cardiovascular Diseases	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
Ischemic Cardiovascular Diseases	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
Pulmonary diseases	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
Ventilator-Induced Lung Injury	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
Radiation-Induced Lung Injury	Sphingosine 1-phosphate	Sphingosine 1-phosphate analogs	In vitro and in vivo studies in mouse models	US Patent Pending	Joe Garcia

Indication	Target	Therapeutic Description	Stage of Development	Patents	Faculty
TB & Cystic Fibrosis Pathogens	Multiple	Small molecule therapeutics	Animal data available for best lead molecule against XDR and MDR TB, and Herg safety	PCT & Provisional Application Pending	Alan Kozikowski, William Bishai & Laurent Kremer
TB	Multiple	Macrolides and small molecule antibiotics	In vitro validation	Patents Pending	Scott Franzblau
Lymphatic Filariasis	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
Herpes	Multiple	Live Attenuated HSV Vaccine	Fine tuning of attenuation profile underway	US Patent 8,765,444	Bin He
Herpes	Viral binding and cell entry	Inhibitory peptide	In vivo validation in a mouse model of HSV infection	US Patent 9,464,113	Deepak Shukla
Hepatitis C	NPC1L1	Ezetimibe (Zetia – repurposed)	In vivo validation in a mouse model of HCV infection	US Patents 8,673,288, 9,034,863	Susan Uprichard
CMV	Microtubule-binding protein EB3	Cell membrane permeable peptides against EB3 with specific activity to CMV	In vitro validation	Provisional Application	Yulia Komarova
MRSA	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
MERS Virus, SARS	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
HIV	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

Indication	Target	Therapeutic Description	Stage of Development	Patents	Faculty
Vaccine Delivery	Non-specific	Listeria monocytogenes-based vaccine vector	10,000 to 100,000-fold less virulent than wild type Listeria and, despite its high level of attenuation, stimulates robust host immune responses that mediates protective immunity	US Patent Pending	Nancy Freitag
Drug Delivery	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
Drug Delivery	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
Drug Delivery	Non-specific	Drug delivery system to increase bio availability of hydrophobic components	Mice and dog testing	US Patent Pending	Ying Liu
Drug Delivery	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
Drug Delivery	Endothelial cells	Myeloperoxidase-derived peptide	Validation of specific delivery of peptide-linked compounds into sub-endothelial spaces in mouse models	US Patent 7,429,563	Chinnaswamy Tirupathi & Asrar Malik
Drug Delivery	Endothelial cells	EphB1/Elk activating antibody	Early stage testing of antibody in vitro	Provisional Application	Chinnaswamy Tirupathi & Asrar Malik
Drug Delivery and Efficacy Enhancement	Nucleoside analogs	Modified human deoxycytidine kinase with specific modifications to enhance activity towards nucleoside analogs	Early testing demonstrates increased efficacy of AraC (cytarabine) in targeted cancer cells and in the efficacy to toxicity ratio	US Patent 7,858,745	Arnon Lavie

Disease	Technology Description	Application & Benefits	Opportunity	Faculty
Metastatic Breast Cancer Cell Models	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
Breast Cancer	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
Oncology	Cell Lines for determining PARP agents function	Research tool to evaluate the activity of PARP inhibitors.	Material License	Lesley Hanakahi
Atherosclerosis	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
Type 2 Diabetes	IG20/MADD deletion in β -cells (KMA1ko mouse) resulted in hyperglycemia and glucose intolerance associated with delayed and reduced glucose-induced insulin secretion; although their β -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 β -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
Alzheimer's Disease	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
Pulmonary Hypertension	Cross of two mice strains with conditional transgenes: floxed Von Hippel-Lindau protein (VHL) (B6.129S4(C)-Vhl ^{tm1Jae/J}) mice were bred with animals expressing a fibroblast specific promoter driving Cre (Fsp-Cre) resulting in offspring Fsp-VHL ^{+/-} and Fsp-VHL ^{-/-} 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
Pulmonary Hypertension	Double knockout mice with genetic deletions of both EglN1 (encoding PHD2) and Hif1a (EH1Tie2) or EglN1 and Hif2a (EH2Tie2) 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 compared to controls	Provisional Application	Mary Jo LaDu
Alzheimer's Disease	Blood based biomarkers for diagnosing AD	Pilot study in patients compared to controls	Provisional Application	Orly Lazarov
Epilepsy	Metabolite expression profile using MRI Spectroscopy	Identified in human epileptic brain tissue	Provisional Application	Jeff Loeb
Diastolic Heart Failure	Blood test using Myosin Binding Protein C (MyBP-C) or glutathionylated derivatives	Pilot study in patients with diastolic heart failure compared to systolic heart failure or controls	Patents Pending	Sam Dudley
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
Stroke Risk	Blood flow through ocular microvasculature	Device and concept tested in rabbits; human validation currently underway	US Patent 8,801,183	Mahnaz Shahidi
Cellular Lipids	In situ quantitative imaging for detection of lipids in cholesterol to cancer	Demonstration of several specific in situ molecular sensors	US Patent 8,686,115	Wonhwa Cho
Endometriosis	Non-invasive diagnostic using fibrinogen β -subunit in vaginal lavage or other bodily fluids	Baboon data and small human trial	US Patent 7,794,958	Asgi Fazleabas
Autoimmune Diabetes	Multiple biomarkers	Demonstrated in a small set of human patients	US Patent Pending	Sundararajan Jayaraman
Idiopathic Pulmonary Fibrosis	Peripheral blood biomarkers	Validated in a small set of human samples	US Patent Pending	Joe Garcia
Complicated sarcoidosis	Multi-gene signature	Validated in a small set of human samples	US Patent Pending	Joe Garcia
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 therapy	Validated in human breast cancer	US Patent Pending	Yves Lussier
Colorectal Cancer	Blood test for early detection using miRNAs	Identified 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
Acute Radiation Syndrome	Reactive oxygen species	Validated in a mouse model	US Patent 9,643,985	Alex Lyubimov
Radiation Exposure	Stool Bacteria	Validation of bacterial signatures in primates exposed to radiation	Provisional Application	Amelia Bartholomew

Device	Function	Stage of Development	Patents	Faculty
Artificial Cornea	Polymer scaffold used as an artificial cornea (i.e., keratoprosthesis)	Animal studies ongoing	Patents Pending	Michael Cho
Jaw-Thrust & Immobilization Device	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
Endotracheal Tube	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
Extendable Intravenous Catheter	A catheter designed for pediatric patients	Prototype being developed	US Patent 9,517,324	Girish Desphande
Electromagnetic Field Shock Therapy	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
Physical Activity Monitor	Wireless remote monitoring of multiple aspects of patient physiology	Prototype used in research laboratory	Provisional Application	Shane Phillips
Transcorneal Telescope	Visual aid for vision impairment due to eye diseases	Prototype being developed	US Patent 8,506,626	Jose de la Cruz
Chronic Total Occlusion (CTO) Wire	Wire designed to allow angioplasty to occluded vessels	Prototype being developed	Provisional Application	Mladen Vidovich
Improved Radial Catheter Sheath	Radial sheath designed to reduced radial artery occlusion	Prototype has been developed	Provisional Application	Mladen Vidovich
Insertion Device for Spinal Cord Stimulation Paddle Electrodes	Reduces pressure on midline spinal structures (the spinal cord) and instead the main pressure points will be at the lateral aspects of the spinal canal away from the spinal cord	Theoretical concept exists	US Patent 9,351,752	Konstantin Slavin
LAMSTAR (Large Memory Storage And Retrieval) Neural Network	Predicts the occurrence of individual episodes of obstructive apnea during sleep, which can be integrated into current CPAP systems to reduce occurrences of apnea episodes	Human trials have been conducted.	US Patent 8,775,340	Daniel Graupe, David Carley & Jonathan Waxman
Spinal Surgical Implant	A surgical implant for use in patients needing surgical correction of deformity of the spine	Prototypes developed	PCT Patent Pending	Sergey Neckrysh
Heart Rate Monitor	Non-contact videoplethysmograph (VPG) measure of human arterial pulse using a digital camera	Prototype developed	Patents pending	Stephen Porges

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

Company	Technology	Website	Type	Faculty
Cell Biologics	Therapeutics for treating sepsis and other pulmonary indications; primary cultured cells and cell culture products	http://www.cellbiologics.com	Therapeutic & Reagents	Asrar Malik
3PrimeDX	Blood based test for determining risk of sudden cardiac death and diastolic heart failure	http://3primedx.com	Diagnostic	Samuel Dudley
Arphion	Test for early detection of oral squamous cell carcinoma	http://www.arphiondiagnostics.com	Diagnostic	Joel Schwartz & Guy Adami
Capio Biosciences	Circulating tumor cell capture device for diagnostic applications. Successfully raised several million in start up funding.	http://www.capiobiosciences.com/	Diagnostic	Seungpyo Hong
PAX Neuroscience	Blood based test for evaluating antidepressant efficacy and diagnosing depression	http://www.paxneuroscience.com	Diagnostic	Mark Rasenick
VasSol	MRI-based quantification of blood flow in vessels	http://www.vassolinc.com	Diagnostic	Fady Charbel
Tianhe Stem Cell Biotechnologies	Stem Cell Educator Therapy is a treatment of autoimmune related diseases using stem cells drawn from human umbilical-cord blood	http://www.tianhecell.com	Device & Therapeutic	Yong Zhao
BioVipra	Biomimetics for tissue regeneration and improved osteo-integration of implants		Device	Sriram Ravindran
NexHand	Sensor-based "smart surgical glove" technology designed to enable physicians to assess the severity of stress urinary incontinence		Device	Craig Neiderberger
OrthoAccel Technologies	Hands-free device designed for faster orthodontic treatment	http://acceledent.com	Device	Jeremy Mao
Remote Vital Monitoring	Coma Alert a device that provides ongoing, continuous monitoring of brainstem integrity	http://remotevitalmonitoring.com	Device	Jim Stone
RetMap	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	http://retmapinc.com	Device	John Hetling
Immersive Touch	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	http://www.immersivetouch.com	Software	Pat Banerjee
Simplified Data Tracking	Software for data management of research laboratories including mice colonies	http://simplifieddatatracking.com	Software	Oscar Colomonic