

Biomedical Technologies



otm.uic.edu
312.996.7018
otm@uic.edu



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Oncology/Hematology/Angiogenesis

Indication	Target	Therapeutic Description	Stage of Development	Patents	Faculty
Tumor & Ocular Angiogenesis	VEGF activation	Fusion peptide inhibitor based on Histatins	Preclinical: in vivo	US Patent 10,800,822 Nationalized in EP, CN and JP	Vinay Aakalu
Breast Cancer, Estrogen Positive	Estrogen Receptor	Brain penetrating Selective Estrogen Receptor Degraders	Preclinical: In vitro	Nationalized in US, EP, CN, JP, SK and CN	Greg Thatcher, Rui Xiong and Debra Tonetti
Oncology	BET Bromodomain Inhibitors	BET proteins are involved in transcriptional and cell cycle regulation.	Preclinical: in vitro Awaiting in vivo data	Nationalized in US, EP, CN and CA	Greg Thatcher and Rui Xiong
Oncology	Intitial data in metastatic breast cancer, as well as colon, liver, lung, prostate, and skin cancer	Engineered HSV oncolytic virus for cancer immunotherapy	Preclinical: in vivo Preliminary data confirmed in mouse models	Nationalized in US, EP, AU, CN, SK, JP and IN	Bin He
Anti-Cancer Drug Platform With Potential as a Mono or Combo Therapy	AD5/35.IR-E1A/MADD is a new capsid-modified Ad5 vector developed to specifically target tumor cells following intravenous or intratumoral application with a reduced immune response.	MADD up-regulation in cancer, its role in regulating apoptosis, and the combination of MADD knockdown with chemotherapy drugs	Preclinical: in vitro Tested in certain cancer cell lines (leukemia, pancreatic, breast, liver, lung and ovarian cancer cell lines). The combination can overcome resistance and reduce the dose of chemotherapy agents Potential systemic delivery	US Patents 11,273,172 and 7,910,723	Bellur Prabhakar, Shikla Saini & Aditi Mathur
Tumor & Ocular Angiogenesis	Selective VEGF regulation through KAI	Peptide based inhibitor of VEGF activation	Preclinical: in vivo In vitro validation and early in vivo studies in a mouse lung cancer model	US Patent 11,299,524 AU Patent Allowed Nationalized in EP, NZ, JP and CN Divisional in SP	Kaori Yamada & Asrar Malik

Oncology/Hematology/Angiogenesis

Indication	Target	Therapeutic Description	Stage of Development	Patents	Faculty
Prostate Cancer	PSA and TEM8	Vaccine combining a PSA (Prostate specific) peptide and a TEM-8 (Tumor endothelial marker 8) peptide plus GM-CSF	Phase I: PSA peptide vaccine Preclinical: in vivo PSA peptide vaccine/TEM-8 peptide - <i>in vivo</i> mouse data	US Patent 8,557,777	David Peace
Metastatic Breast Cancer (BC) Cell Models	Estrogen Receptor & specific kinases	When BC Mets become resistant to tamoxifen, ER-targeting agents become a valuable therapeutic option.	Pre-IND Cellular and xenograft/PDX models of tamoxifen resistance have been used to validate novel SERDs and SEMs for preclinical /IND development.	Material license available	Debra Tonetti
Ovarian Cancer	Unknown	Verticillins have shown promising anticancer qualities	Preclinical: in vitro	Nationalized in US and EP	Joanna Burdette
Oncology, specifically Melanoma, MCL	HDAC6	Potent and Selective Inhibitors of Histone Deacetylase 6 (HDAC6)	Preclinical: in vivo	US Patent 10,456,394	Alan Kozikowski, SS Shen & Joel Bergman
Triple Negative Breast Cancer (TNBC)	HDACs & kinases	Inhibition of specific kinases leads to increased efficacy of HDAC3 inhibitors in TNBC models	Preclinical: in vitro Novel HDAC inhibitor compounds are tested in cell models of triple negative breast cancer	Research Tools, No Patents	Pavel Pasha Petukhov & Jonna Frasor
Oncology	PARP agents	Cell Lines for determining PARP agents function	Research Tool to evaluate the activity of PARP inhibitors.	Material License	Leslyn Hanakahi
Oncology, specifically Melanoma, MCL	Epigenetics: HDAC	Highly potent selective HDAC6 Inhibitors	Preclinical: in vivo Nexturastat series is the most advanced oncology validated HDAC inhibitor confirmed in melanoma animal models	US Patent 9,409,858 JP Patent Issued Nationalized in CA	Alan Kozikowski
Oncology	RAD51 DNA repair pathway	Inhibitors of RAD 51 DNA repair pathway as a target for cancer therapy	Preclinical: in vivo Compounds are validated in prostate cancer xenograft rodent models	Nationalized in US	Alan Kozikowski & Philip Connell
Oncology	MLK kinase	Dual MLK3/MAP4k4 inhibitors for treating cancers	Preclinical: in vitro Early-stage compounds	In preparation	Greg Thatcher Ajay Rana

Oncology/Hematology/Angiogenesis

Indication	Target	Therapeutic Description	Stage of Development	Patents	Faculty
Oncology	Notch 4	Human Notch4 "Mini" Decoy	Preclinical: in vitro Small scale biologics produced	In preparation	Jan Kitajewski Timothy Sargis
Oncology	Syk Kinase	Novel Syk inhibitors potently suppress the growth of leukemia cells and overcome resistance	Preclinical: In vitro	Provisional Filed	Won Hwa Cho
Oncology	AKT E17K mutant	Akt E17K mutant-specific inhibitor	Preclinical: In vitro	In preparation	Won Hwa Cho

Indication	Target	Therapeutic Description	Stage of Development	Patents	Faculty
Amyotrophic Lateral Sclerosis (ALS)	Neuregulin Signaling	GlyB4 Fusion with Neuregulin Heparin-Targeting Domain to Block Neuregulin Signaling	Preclinical: in vivo Improves early chronic motor performance deficits, delays disease onset and prolongs survival in an ALS mouse model	US Patent 7,527,794 US Patent 7,994,123 EP Patent 1,824,879	Jeff Loeb
Alzheimer's Disease	Neuregulin Signaling	Treatment with GlyB4, a potent, targeted antagonist that blocks the endogenous neuregulin signaling	Preclinical: in vivo Data in mouse models	PCT Patent Pending	Jeff Loeb
Sleep Apnea	Serotonin	Serotonin Receptor Antagonists +/- Selective Serotonin Reuptake Inhibitor •Ondansetron/Fluoxetine (repurposing)	Phase I: 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 Issued	Roman Rariy and Michael Hefferman
Depression and other neurological diseases	LPC transporter at the blood brain barrier, MFSD2a	Deliver EPA to brain by transporting LPC-EPA through blood brain barrier transporter, MFSD2a	Preclinical: in vivo Increased level of both DHA and EPA in brain upon LPC-EPA administration in rodents.	US Patent 10,555,957	Papasani Subbaiah
Depression, Anxiety, & Fear	Allopregnanolone Stimulators	Derivatives of the neurosteroid allopregnanolone for non-responders of SSRIs	Preclinical: in vivo Early-stage in vivo mouse studies	US Patent Pending Nationalization US, EP, CA, and AU	Graziano Pinna
PTSD, anxiety disorders, premenstrual dysphoria, & impulsivity	PPAR-alpha receptor	PEA induces an improvement of behavioral deficits by affecting the expression of target genes involved in cell proliferation, cell differentiation and in immune and inflammation responses	Preclinical: in vivo in vivo mouse models	US Patent Pending	Graziano Pinna & Locci Andrea
Charcot Marie Tooth (CMT), Autism, Neuroprotection	HDAC6	Nanomolar inhibitors of HDAC6 highly selective over other HDACs	Preclinical: in vivo Compounds were dosed into transgenic models of CMT and successfully blunted the disease in a transgenic animal model	US Patents 10,456,394 and 9,409,858 JP Patent Issued Nationalized in CA and EP	Alan Kozikowski

Indication	Target	Therapeutic Description	Stage of Development	Patents	Faculty
Pain Management	Mu Opioid Receptor	Partial Mu Opioid Receptor Agonists Derived from Akuamma Alkaloids	Preclinical: Receptor binding validation	Provisional Filed	Andrew Riley
Pain Management	kappa Opioid Receptor	Kappa Opioid Receptor Agonist Derived from Akuammicine	Preclinical: Receptor binding validation	Provisional Filed	Andrew Riley
Addiction	Nicotinic Receptor	Subtype Selective Nicotinic Acetylcholine Receptor Inhibitors	Preclinical: Receptor binding validation	Provisional Filed	Andrew Riley
Alzheimer's Disease	ABCA1	Non-Lipogenic ABCA1 Inducers for Type 2 Diabetes and Alzheimer's Disease	Preclinical: in vivo	PCT Patent Pending	Greg Thatcher Brian Layden Mary Jo Ladu
Niemann-Pick	Autophagy	Autophagy modulation with small molecules as a therapeutic strategy for neurodegenerative diseases	Preclinical: in vitro	In preparation	Leslie Aldrich
Parkinson's, Other Synucleinopathies	Protein Kinase C mu or Src-Family Tyrosine Kinase	Utilized a demonstrator compound as inhibitors of protein kinase C mu and src family tyrosine kinase	Preclinical: in vitro	US Patent 8,618,063	Scott Brady
Alzheimer's Disease	Calpain Protease	Utilized caspase inhibitors on a rodent model of AD	Preclinical: in vivo Early stage in vivo studies	Nationalization	Greg Thatcher
Tolerance resulting from chronic opioid administration	Calcium Calmodulin Kinase (CaMKII)	Utilized an FDA approved drug & other preclinical compound inhibitors of CaM II kinase	Phase I: Compound successfully attenuated experimentally induced nerve hypersensitivity caused by opioid drugs in preclinical models; human clinical trial validated this approach	US Patents 7,776,819 7,256,200	Zaijie (Jim) Wang
Metabolic and neurological disorders	NAMPT activators	Enhancement of NAD through boosting of NAMPT activity or dietary supplementation alleviates AD symptoms in mice	Preclinical: HIT and Assay Optimization	PCT Patent Pending Provisional Filed	Rui Xiong, Gregory Thatcher, Kiira Ratia & Manel Ben Aissa

Indication	Target	Therapeutic Description	Stage of Development	Patents	Faculty
Wound Healing	Pro-regenerative cytokines & growth factors	Interferon gamma activated mesenchymal stem cells	Preclinical: in vivo Dose range finding. Validated in primate & rodent models	US Patent 9,011,840	Amelia Bartholomew
Niemann-Pick	TMEM 97 or NPC 1	Small peptide (5 AA)	Preclinical: in vivo assays	PCT Patent Pending	Vinay Aakalu
Asthma, Eosinophilic Esophagitis	CCR3, eosinophils	Peptide therapeutic to compete against Eotaxin and other chemokines as a treatment for asthma	Preclinical: In vivo Experiments in eosinophil mouse model	US Patent 10,363,286 and 11,167,012 EP Patent Issued Nationalized in CA	Steven Ackerman & Vadim Gaponenko
Type 1 Diabetes	Targets both Notch3 and OX40 receptors on Tregs	Expansion of natural regulatory T cells by Jagged-1 and OX40L stimulation to suppress autoimmunity (through combination therapy or chimeric fusion protein)	Preclinical: in vivo Validated in NOD diabetes mouse model Seeking funding to expand studies and pursue human clinical trials	US Patents 10,696,946 Continuation Patent Pending Nationalized in US, EP and IN	Bellur Prabhakar
Wound Healing	CCR10	Wound healing peptide with a novel target that greatly reduces healing time	Preclinical: in vivo Diabetic mouse (<i>db/db</i>) model	Nationalized in US, EP, CA, MX, JP and SK	Richard Minshall
Bone regeneration	Extracellular matrix	In vivo bioengineered exosome to create function/target specific and content release controlled exosome cargo	Preclinical: in vivo Preliminary proof of concept in rat calvarial defect model	Nationalized in US, EP, AU, and CA	Sriram Ravindran
COPD, multiple sclerosis and diabetes	Inhibitors of Keap1/Nrf2 Protein-Protein Interaction	Mechanism is validated by empirical validation in rodent	Preclinical: in vivo	US, EP, AU, CN, JP, CN Pending	Terry Moore

Immunology/Gene Therapy

Indication	Target	Therapeutic Description	Stage of Development	Patents	Faculty
Autoimmune diseases including Type 1 Diabetes, Lupus, RA	Targets both Notch3 and OX40 receptors on Tregs	Expansion of natural regulatory T cells by Jagged-1 and OX40L stimulation to suppress autoimmunity (through combination therapy or chimeric fusion protein)	Preclinical: in vivo Validated in NOD diabetes mouse model Seeking funding to expand studies and pursue human clinical trials	US Patents 10,696,946 Continuation Patent Pending Nationalized in US, EP and IN	Bellur Prabhakar
Hematopoietic stem cell transplantation	Multi-Chimeric Cells (MCC)	Multi-Chimeric Cell (MCC) Therapy for Transplantation and Treatment of Immune Deficiencies and Genetic Disorders	Pre-IND	Nationalized in US, EP, AU, CN, JP and CA	Maria Siemionow
Rheumatoid Arthritis, Inflammatory Bowel Disease, Ulcerative colitis	Epigenetics: HDAC6	HDAC6 Selective Inhibitors: nanomolar and sub nanomolar inhibitors of HDAC6	Preclinical: Potent HDAC6 inhibitors successfully prevented cardiac organ transplant rejection in rodent model; also prevented experimentally induced ulcerative colitis in rodents	US Patents 10,456,394 and 9,409,858 JP Patent Issued Nationalized in CA and EP	Alan Kozikowski
CRISPR/Cas9	DNA-editing platform	Engineered CRISPR/Cas9 plasmid for barcoding and to trace biological events and cell lineage Artificial chromosomes: episomal plasmids that replicate with mammalian cell cycle and transmit CRISPR/Cas9 based instructions	Preclinical: in vitro	Nationalized in US, EP, AU, CN and CA Provisional Filed	Bradley Merrill Ryan Clarke & Hannah Pennington
Allergy	CSFR1	Highly selective Colony Stimulating Factor 1 Receptor (CSF1R) Inhibitors	Preclinical: in vivo	In Preparation	Mike Johnson Gye Young Park

Immunology/Gene Therapy

Indication	Target	Therapeutic Description	Stage of Development	Patents	Faculty
Hematopoietic stem cell transplantation	GABA receptor	Repurposed drug/ GABBR1 agonist to improve HSC transplantation efficiency	Preclinical: in vivo Murine tested	US Patent Pending	Owen James Tamplin
Inflammation	Macrophages/Rspondin3 and LGR5	Activating the Rspondin3-Wnt signaling pathway to treat a disease or condition characterized by excessive or unregulated inflammation	Preclinical: in vivo Murine models	PCT Patent Pending	Asrar Malik

Cardio-Pulmonary

Indication	Target	Therapeutic Description	Stage of Development	Patents	Faculty
Sudden Cardiac Arrest	Phosphatase inhibitors	Peptide that mimics cooling for neuroprotection	Preclinical: Efficacy in mouse and pig models	US Patent 10,688,153 and 11,260,105 JP Patent 6,958,913 Nationalized in EP, CA and AU	Terry Vanden Hoek, Jing Li, and Xiangdong Zhu
Asthma, Eosinophilic Esophagitis	CCR3, eosinophils	Peptide therapeutic to compete against Eotaxin and other chemokines as a treatment for asthma	Preclinical: in vivo Eosinophil mouse model	US Patent 10,363,286 and 11,167,012 EP Patent Issued Nationalized in CA	Steven Ackerman & Vadim Gaponenko
Asthma	CSF1R inhibitor repositioned as Inhalable, small molecule treatment for asthma	Targeting early phase of asthma pathogenesis to treat disease rather than simply treating symptoms	Preclinical: in vivo Efficacy in mouse models	Nationalized in US, EP, AU, JP and CA	Gye Young Park & Hyung-Geun Moom
Thrombosis, sepsis	Von Willebrand factor	6-mer Inhibitory peptide	Preclinical: in vivo	US Patent 9,796,757	Richard Minshall
Acute Respiratory Distress Syndrome / Vascular leakage	End Binding Protein (EB3) inhibitors	6AA Inhibitory peptide	Preclinical: in vivo Efficacy studies in COVID19 and non-COVID19 induced ARDS completed in mouse models with additional ongoing toxicology studies in dogs	Provisional Patent Filed	Yulia Komarova

Cardio-Pulmonary

Indication	Target	Therapeutic Description	Stage of Development	Patents	Faculty
Fibrosis /Osteogenesis	Cell therapy	Alginate coated mesenchymal stromal cell transplantation	Preclinical: In vivo Studies in rodent models of pulmonary fibrosis and bone regeneration	PCT Patent Pending	Jae-Won Shin
Thrombosis, blood disorders, cancer	Platelet Adhesion Receptor Inhibitors	Inhibitory peptides of the interaction between 14-3-3 Protein and Glycoprotein Ib-IX Complex	Preclinical: in vivo	US Patents 8,173,595 and 10,738,080 EP and CN Patents Issued	Xiaoping Du
Pulmonary Arterial Hypertension	Visfatin/Pbef/ Namp1 inhibition	Small molecule Inhibitors	Preclinical: in vitro	US Patent Pending	Tom Driver
Pulmonary Arterial Hypertension	Nrf2-KEAP	Small molecules impacting Nrf2-KEAP interaction	Preclinical: in vitro	US Patent Allowed Nationalized in EP, CA, AU, JP and CN	Terry Moore
Myocardial Infarction and Lung Injury	Variable: Currently tested in TGFβ and SYK signaling	Drug loaded mannosylated albumin nanoparticles targeting distinct inflammatory and tissue-resident interstitial cells.	Preclinical: in vivo Efficacy in mouse models	Provisional Filed	Asrar Malik
Myocardial Infarction	Protein tyrosine kinase Syk inhibitors	Piceatannol albumin nanoparticles (PANPs) selectively targeting profibrotic neutrophils	Preclinical: in vivo Efficacy in mouse models	Provisional Filed	Asrar Malik

Anti-Infectives

Indication	Target	Therapeutic Description	Stage of Development	Patents	Faculty
Lymphatic filariasis	Tetravalent filarial surface proteins	Vaccine (Purified Protein and/or DNA)	Preclinical Studies - Proof of Concept studies in a primate model of infection ongoing	US Patent 10,072,054 EP, CN, IN, SG Patents Issued	Ramaswamy Kalyanasundaram
Hepatitis C	NPC1L1	Ezetimibe (Zetia – repurposed)	Preclinical: in vivo Validation in a mouse model of HCV infection	US Patents 8,673,288 and 9,034,863	Susan Uprichard
Dental Caries/Biofilm inhibition	Bacterial pathogens that produce a biofilm matrix	Cerium (IV) nanoparticles that behave as biofilm inhibitors against the bacteria but not lethal to the cells at lower concentration.	Preclinical: in vitro Early stage, in vitro validation and cell toxicity evaluation	US Patent 10,835,556	Russell Pesavento
Herpes	Viral binding and cell entry	Inhibitory peptide	Preclinical: in vivo Validation in a mouse model of HSV infection	US Patent 9,464,113	Deepak Shukla
Herpes	HSV-1 and HSV-2	DECON particles	Preclinical: in vivo	Nationalized in US, EP and CA	Deepak Shukla, Teja Yadavalli
Antibiotics discovery	Research tool device	Agar-flip plate for high-throughput discovery of antibiotics	Plates fabricated and in use in research	Provisional Filed	Sang Hyun Cho, Scott Franzblau, Brian Murphy, Jeongho Lee & Rui Ma
Tuberculosis	ClpC1/P1/P2 complex	Rufomycin analogs with anti-tuberculosis activity	Preclinical: In-vitro testing	US Patent Pending	Scott Franzblau

Anti-Infectives

Indication	Target	Therapeutic Description	Stage of Development	Patents	Faculty
TB	Multiple	Macrolides and small molecule antibiotics	Preclinical: In vitro validation	US Patent 9,090,667 CN, JP, KR, IN, EP Patents Issued	Scott Franzblau
TB and Cystic Fibrosis Pathogens	Multiple	Small molecule therapeutics	Preclinical: in vivo Animal data available for best lead molecule against XDR and MDR TB	US Patent Pending	Alan Kozikowski, William Bishai & Laurent Kremer
MRSA	vraSR Operon	Small molecule inhibitors of MRSA related OPERON.	Preclinical: in vitro Cellular demonstration of technology	US Patent 9,675,592	Mike E Johnson, Robert Daum & Susan Boyle-Vavra
Schistosomes	TGR	Novel inhibitors of thioredoxin glutathione reductase (TGR) for the treatment of schistosomiasis	Demonstrated lethality to parasite larvae and adults	In Preparation	Pavel Pasha Petukhov

Indication	Target	Therapeutic Description	Stage of Development	Patents	Faculty
Drug Delivery	Non-specific	Method to transport extracellular vesicles through tissues by water permeation	Preclinical: Ex vivo	US Patent Pending	Jae-Won Shin
Fibrosis /Osteogenesis	Cell therapy	Alginate coated mesenchymal stromal cell transplantation	Preclinical: in vivo studies in rodent models	PCT Patent Pending	Jae-Won Shin
Drug Delivery	Mesenchymal Stem Cells	Method to maximize production of extracellular vesicles from mesenchymal stem cells	Preclinical	Provisional Filed	Jae-Won Shin
Herpes	HSV-1 and HSV-2	DECON particles	Preclinical: in vivo	Nationalized in US, EP and CA	Deepak Shukla & Teja Yadavalli
Drug Delivery	Non-specific	Toroidal-spiral design allows for two different drugs to be released at two different rates	Preclinical: in vitro data	US Patents 8,852,645 9,974,839	Ludwig Nitsche & Ying Liu
Drug Delivery	Zwitterionic polyethylenimine (PEI), polyaziridine or polyoxazoline for protein conjugation	Polymer conjugation to increase half life and reduce renal clearance and immune response, without compromising the characteristics of the protein	Preclinical: in vitro	US Patent Pending	Gang Cheng
Drug Delivery	Non-specific	Continuous, scalable production of polymeric particles with novel heterogenous structures for cell and gene therapy	Preclinical: in vitro	PCT Patent Pending	Ying Liu
Drug Delivery	Opioid Receptors	Dermorphinin Analogues for the Target-Delivery of Novel Therapies for Pain and Opioid Addiction	Preclinical: In vivo Effective delivery in rodent models	US Patent 7,776,819	Jim ZaiJie Wang
Drug Delivery	Cell Therapy	Engineered local, optogenetic lysis and permeabilization reagent for controlled drug delivery	Preclinical	Provisional Filed	Chia Hao Mo
Drug Delivery	Extracellular matrix	In vivo bioengineered exosome to create function/target specific and content release controlled exosome cargo	Preclinical: in vivo Preliminary proof of concept in rat calvarial defect model	Nationalized in US, EP, AU and CA	Sriram Ravindran

Indication	Target	Therapeutic Description	Stage of Development	Patents	Faculty
Drug Delivery	Non-specific	Nano-hybrid delivery system for anticancer, anti-viral and anti-angiogenic agents	Preclinical: in vitro No animal data to date	US Patent 9,168,225	Seungpyo Hong
Drug Delivery	Dermal delivery	Hydrogel to treat wound healing	Preclinical: in vivo Proof of concept in animals shows efficacy of repurposed FDA-approved drug to facilitate wound healing in diabetic animal model. Human clinical trial in preparation	Provisional Patent in preparation	Al Mancini, Tim Koh & Paul Pluta
Drug Delivery	Endothelial cells	Myeloperoxidase-derived peptide	Preclinical: in vivo Validation of specific delivery of peptidelinked compounds into sub-endothelial spaces in mouse models	US Patent 7,429,563	Chinnaswamy Tiruppathi & Asrar Malik
Drug Delivery	Neutrophils and Macrophages	Albumin and Manoosylated-Albumin Nanoparticles for targeted drug delivery to inflammatory cells	Preclinical: in vivo Tested in MI and ARDS	Large portfolio at various stages. Includes Issued Patents	Asrar Malik

Diagnostics

Disease/Condition	Target/Marker	Stage of Development	Patents	Faculty
Epilepsy	Metabolite expression profile using MRI Spectroscopy	Identified in human epileptic brain tissue	US Patent Pending	Jeff Loeb
Pancreatic Cancer	PCR-based assay using multiple data-driven targets to create an optimized model that can predict IPMN with high-malignant potential with up to 86% accuracy	Assay run on multinational human pancreatic cancer cyst fluid	Nationalized in US, EP, CN, CA, AU and JP	Ajay Maker
Point-of-Care Diagnostic	In vitro data of multiple bacteria types	Novel Surface Chemistry of Filter Paper in Point-of-Care Detection/ Working prototype	Nationalized in US and EP	Yajing Song & Peter Gyarmati
Breast Cancer	Estrogen receptor binding agent	In vitro development in progress	US Patent Pending	Stephen DiMagno Gregory Thatcher Debra Tonetti
Bioanalysis and Imaging/Time-resolved fluorescence	Metal chelators	Working prototype	US Patent 10,961,197	Lawrence Miller Ali Mohamadi
Metastatic cancer	Biomimetic device for capturing Circulating Tumor Cells and cancer stem cells	Validated using both human primary cancer cells and cell lines	Nationalized in US and EP	Howard Ozer
Cancer	Transcriptome analytics to predict disease progression and determine personalized therapeutics	Validated in human breast cancer	US Patent Pending	Yves Lussier
Dry Eye Disease, Sjogren's GVHD	Histatin Biomarkers	Validated in a mouse model	Nationalized in US, JP and EP	Vinay Aakalu & Sandeep Jain

Diagnostics

Disease/Condition	Target/Marker	Stage of Development	Patents	Faculty
Peptide Biomarkers	Dry eye Syndrome diagnostic and also therapeutic	biomarker, diagnostic, and potentially therapeutic, for ophthalmic or other system diseases especially those associated with inflammation, derangement in immunity, oncologic changes, infection, and wounding	Nationalized in US, JP and EP	Vinay Aakalu & Sandeep Jain
Idiopathic Pulmonary Fibrosis	Peripheral blood biomarkers	Validated in a small set of human samples	US Patent 10,036,069	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	Material License	Wonhwa Cho
Diagnostic imaging	Chelating agent for use in diagnostic imaging and radioimmunotherapy	Ongoing mouse in vivo study	Provisional Filed	Duncan Wardrop Lawrence Miller
Radiation-induced gastrointestinal injury	Reactive oxygen species	Validated in a mouse model	US Patent 9,643,985	Marcelo Bonini
Rheumatoid Arthritis	Several Biomarkers	Patient Data from 41 year community based, case-control cohort study	Not Yet Filed	Edward Barbour
COVID-19	SARS-CoV-2	BioAerium: Airborne monitor to detect SARS-CoV-2 wild-type and mutations in airborne samples using Nucleic Acid Amplification Techniques (NAT)	Provisional Filed	Igor Paprotny

Disease/Condition	Target	Target/Marker	Stage of Development	Patents	Faculty
AMD, sepsis, cancer and inflammatory disorders	End-binding 3 protein	IP 3R derivative peptide targeting the inhibition of EB3 to treat AMD as lead indication with additional data demonstrating therapeutic efficacy in sepsis, allergy/asthma and inflammation	Preclinical: Efficacy demonstrated in mouse and non-human primates models of AMD and mouse models of sepsis, allergy/asthma and inflammation	Allowed or issued patents in US and 30 countries worldwide	Yulia Komorova
Dry eye, retinopathy, angiogenesis	VEGF Activation	Fusion peptide inhibitor based on Histamine. Applications in wound healing, metal ion chelation, anti-inflammatory effects and angiogenesis	Preclinical: In vitro data, In vivo data in mouse	US Patent 10,800,822 Nationalized in EP, CN and JP	Vinay Aakalu
MEK inhibitors	MEK inhibitors for corneal scarring and neovascularization	Therapeutic targeting Aniridia associated with PAX6 deficiency	Preclinical: In vivo mouse data	US Patent Pending	Ali Djalilian
Peptide Therapeutic	Functional Pentapeptide for Treatment and Diagnosis of Human Disease	A new pentapeptide compound that enhances epithelial wound healing (multiple surfaces) and is positively associated with the histatin peptide-family to promote similar effects	Preclinical: In vivo mouse data	PCT Patent Pending	Vinay Aakalu
DNAase	Dry eye disease	Tear deficient dry eye disease	Phase I/II human clinical trial: completed	US Patents 9,867,871 and 10,328,129 EP, IL, ZA, CA, MX, RU, KR and JP Patents Issued AU Patent Allowed Nationalized in BR, IN, CN	Sandeep Jain
Repurposed FDA approved therapeutic	Dry eye disease	Novel Target in Eye	Investigator initiated IND	Nationalized in US, CA, MX, EP, BR, CN and RU	Sandeep Jain

Disease/Condition	Target	Target/Marker	Stage of Development	Patents	Faculty
Tumor & Ocular Angiogenesis	Selective VEGF regulation through KAI	Peptide based inhibitor of VEGF activation	Preclinical: In vitro validation and early in vivo studies in a mouse lung cancer model	US Patent 11,299,524 AU Patent Allowed Nationalized in EP, NZ, SG, JP, CN	Kaori Yamada & Asrar Malik
Corneal Scarring, Ocular Angiogenesis	PAX 6	MEK inhibitors can limit the corneal scarring, opacification and neovascularization in severe corneal injury and disease	Preclinical: in vivo murine model	US Patent Pending	Ali Djalilian
Peptide Biomarkers	Dry eye Syndrome diagnostic and also therapeutic	Biomarker, diagnostic, and potentially therapeutic, for ophthalmic or other system diseases especially those associated with inflammation, derangement in immunity, oncologic changes, infection, and wounding	Preclinical: some animal data	Nationalized in US, JP and EP	Vinay Aakalu & Sandeep Jain
Diabetic Retinopathy	NAMPT enzymatic activation to increase concentration of NAD in the eye.	Decrease in NAD ⁺ levels is attributed to an imbalance between NAD ⁺ synthesis and consumption given that the expression and activity of enzymes critical to NAD ⁺ synthesis decline with increasing age despite the fact that the obligatory requirement for NAD ⁺ remains high	Preclinical: Compounds have been biochemically confirmed to increase enzymatic Kcat for NAD ⁺ production	Provisional Filed	Kiira Ratia Greg Thatcher and A. Kazlauskas

Ophthalmology Devices

Device	Function	Stage of Development	Patents	Faculty
Corneal Blindness	Medical Device	Prototype	Nationalized in US and EP	Mark Rosenblatt, Charles Yu
Ophthalmology	Intra-vitreous injections	Prototype; animal data	PCT Patent Pending	Yannek Leiderman
AI Classification of Diseases	Artificial intelligence classification methodology to differentiate between normal and diseased states of ocular conditions	AI model developed from clinical data	Nationalized in US and EP	Xincheng Yao
Non-contact non-mydratric fundus camera Ultra wide angle	By freeing the pupil for collecting imaging light only, trans-pars-planar illumination enables >200ofundus view in single-shot images	Prototype; human data	Nationalized in US, CN and EP	Xincheng Yao
Multimodal OCT for concurrent imaging of retinal neural activity and vascular hemodynamics	Fosters the study of neurovascular coupling mechanisms in the retina, providing a new method for retinal disease detection and diagnosis.	Prototype; human data	US Patent Pending	Xincheng Yao
Novel Keratoprostheses	Sutureless Keratoprosthesis with flexible component for treatment of corneal blindness	Prototypes; rabbit data	Nationalized in US, EP, IN and SG	Mark Rosenblatt, Charles Yu
Miniaturized indirect ophthalmoscopy	Miniaturized indirect ophthalmoscopy for wide-field fundus photography.	Prototype; human data	Nationalized in US, CN and EP	Xincheng Yao

Ophthalmology Devices

Device	Function	Stage of Development	Patents	Faculty
Optical coherence tomography angiography	OCT feature analysis guided artery-vein differentiation in OCTA	AI model developed from clinical data	Nationalized in US and EP	Xincheng Yao
Microsurgery OCT guidance	Optical Coherence Tomography Image-Guided Microsurgery of the Eye	Prototype	Nationalized in US, EP and AU	Yannek Leiderman
Transcorneal Telescope	Visual aid for vision impairment due to eye diseases	Prototype	US Patent 8,506,626	Jose de la Cruz
Contrast Sensitivity Chart	Diagnostic tool for assessing contrast sensitivity in a subject	Final product	US Patent Pending	Jason McAnany

Device	Function	Stage of Development	Patents	Faculty
Catheters	Catheter head design for use in the suprachoroidal space	The complete navigational system was tested in various models to demonstrate functionality, including tip articulation, obstacle maneuvering and avoidance, and targeted delivery of a payload.	PTC Patent Pending	Anthony Felder
Stroke Rehab	A Soft Exoskeletal Network of Elastic, Nonlinear Torque Field Generators for Neurorehabilitation	simple, customizable tool capable of providing assistive torques to patients with motor deficits	US Patent Pending	James Patton
Operating table Patient Stabilizer	Operating table for procedures in the Trendelenburg position to reduce stress on nerves and prevent musculoskeletal injury	Prototype	Nationalized in US, EP and AU	Michael Young
Rapid Pathogen ID	Instrument free detection of pathogens from small blood sample	Prototype	Nationalized in US and EP	Peter Gyarmati
Spine	Method and device for delivering solution to posterolateral fusion: Medicant delivery in a fenestrated rod of the posterolateral fusion fixation system	Device build and physically tested	US Patent Pending	Ankit Mehta & Philip Ostrov
Ankle Stroke Rehab Device	Affordable at-home digital rehabilitation device for post-stroke ankle recovery.	Prototype	Nationalized in US, EP, CA, KR and SG	Sangeetha Madhavan
Pressure-indicating material	Medical device-related pressure injury prevention pressure-indicating material	Prototype	PCT Patent Pending	Alexander Yarin & Youngkwan Song
Protective Mesh of Proximal Ventriculoperitoneal Shunt	Device that prevents debris from clogging the shunt tubing in Hydrocephalus patients	Early prototype exists	Provisional Filed	Ankit Mehta
Anterior CSF Leak Cage	Anterior cervical discectomy and fusion (ACDF) leak repair implant	Conceptual drawings for early prototype	Provisional Filed	Ankit Mehta

Medical Devices

Device	Function	Stage of Development	Patents	Faculty
DuraClose	Device that repairs tears/punctures in the dura mater	Early prototype exists	Provisional Filed	Ankit Mehta
Urine Flow Meter	Automated Urineometer for ICO	Prototype	US Patent Pending	Michael Young etc
Extendable Intravenous Catheter	A catheter designed for pediatric patients	Prototype being developed	US Patent 9,517,324	Girish Desphande
Catheter tubing	Biocompatible, non-biodegradable and antifouling polyurethane	In vitro/early in-vivo	Nationalized in US, EP and CN	Gang Cheng
Type I Diabetes	Novel islet transport	Mathematical Model	Algorithm	Jose Oberholzer
Jaw-Thrust and 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	Prototype	US Patent 8,991,396	Girish Desphande
Device for insertion of spinal cord stimulation paddle electrodes	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

Medical Imaging

Device	Function	Stage of Development	Patents	Faculty
Medical Imaging	MRI with sub-millisecond temporal resolution for cardiac valve imaging and scanner calibration (Eddy current)		US Patent Pending	Joe Zhou
Medical Imaging	Method for Correcting Geometric Distortion in Echo-Planar Magnetic Resonance Imaging		Provisional Filed	Joe Zhou
Medical Imaging	Rapid MRI with High Motion Tolerance		US Patent 9,645,211	Joe Zhou
Medical Imaging	Time-Efficient Phase Error Correction in EPI-PROPELLER		US Patent 9,612,307	Joe Zhou
Medical Imaging	Method for Reducing Image Distortion in Echo Planar MRI		US Patent 9,797,970	Joe Zhou
Medical Imaging	Tagging distance dependent Z-spectral (TADDZ) MRI for B0-corrected arterial spin labeling (ASL) imaging		US Patent Allowed	Kejia Cai
Medical Imaging	Methods for Reducing Fold-Over Artifacts in Magnetic Resonance Imaging		US Patent 8,847,594	Joe Zhou
Medical Imaging	3D reduced Field-of-View imaging		Provisional Filed	Joe Zhou

Title	Target or Indication	Description	Stage of Development	Intellectual Property	Faculty
Fit-N Strong	Osteoarthritis	An evidence-based exercise program to treat osteoarthritis. This program is currently being taught in almost 100 sites in 24 states.	https://www.fitandstrong.org/	Copyright	Susan Hughes
DEEP	Diabetes	This is a diabetes education and self-management program endorsed by CMS	Commercially deployed https://mwlatino.uic.edu/deep-program/	Copyright	Amparo Castillo
My IDEA	Drug-Eluting Stent	My IDEA: Patient-Centered Tablet Application for Improving Medication Adherence after a Drug-Eluting Stent	Clinical trials with patients have been conducted. https://www.frontiersin.org/articles/10.3389/fpubh.2016.00272/full	Copyright	Andrew Boyd
CATCH-IT	Adolescent depression	Evidence based computerized cognitive behavioral therapy for depressed adolescents	Clinical trials with patients have been conducted. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6290998/	Copyright	Benjamin Van Voorhees
LUPUS- PRO	SLE Lupus	Patient Reported Outcomes Questionnaire	Used by pharmaceutical and clinical units to gauge disease severity http://www.lupuspro.com/information.html	Copyright	Alan Simon Pickard Meenakshi Jolly
Medicinal Cannabis Technical Manuals	Medical Marijuana/Cannabis	Laboratory protocols describing the processing of medical cannabinoid products	Turn-key validated protocols	Copyright	Jennifer Bash
LEAD Experience	Legislative Education & Advocacy Development	Interdisciplinary software (learning module) designed to teach health policy to medical students	2 week program that has already been rolled out in some states	Copyright	James Ronayne
Academic Detailing Surveys	Opioid Death Prevention Counselling	Academic Detailing: a comprehensive and novel method of educational outreach designed to arm providers with current evidenced-based information through individual face to face interactions between PharmD professionals and patients.	Available for Licensing from UIC	Copyright	Simon Pickard and Todd Lee

Title	Target or Indication	Description	Stage of Development	Intellectual Property	Faculty
Charcot Marie Tooth (CMT)	HDAC6	Nanomolar inhibitors of HDAC6 highly selective over other HDACs	Preclinical: in vivo Compounds were dosed into transgenic models of CMT and successfully blunted the disease in a transgenic animal model	US Patents 10,456,394 and 9,409,858 JP Patent Issued Nationalized in CA and EP	Alan Kozikowski
Niemann-Pick	Autophagy	Autophagy modulation with small molecules as a therapeutic strategy for neurodegenerative diseases	Preclinical: in vitro	In preparation	Leslie Aldrich
Niemann-Pick	TMEM 97 or NPC 1	Small peptide (5 AA)	Preclinical: in vivo assays	PCT Patent Pending	Vinay Aakalu
Eosinophilic Esophagitis	CCR3, eosinophils	Peptide therapeutic to compete against Eotaxin and other chemokines as a treatment for asthma	Preclinical: In vivo Experiments in eosinophil mouse model	US Patent 10,363,286 and 11,167,012 EP Patent Issued Nationalized in CA	Steven Ackerman & Vadim Gaponenko
Oncology	Initial data in metastatic breast cancer, as well as colon, liver, lung, prostate, and skin cancer	Engineered HSV oncolytic virus for cancer immunotherapy	Preclinical: in vivo Preliminary data confirmed in mouse models	Nationalized in US, EP, AU, CN, SK, JP and IN	Bin He
Anti-Cancer Drug Platform With Potential as a Mono or Combo Therapy	AD5/35.IR-E1A/MADD is a new capsid-modified Ad5 vector developed to specifically target tumor cells following intravenous or intratumoral application with a reduced immune response.	MADD up-regulation in cancer, its role in regulating apoptosis, and the combination of MADD knockdown with chemotherapy drugs Potential systemic delivery	Preclinical: in vitro Tested in certain cancer cell lines (leukemia, pancreatic, breast, liver, lung and ovarian cancer cell lines). The combination can overcome resistance and reduce the dose of chemotherapy agents	US Patents 11,273,172 and 7,910,723	Bellur Prabhakar, Shikla Saini & Aditi Mathur
Oncology & Proteus Syndrome	AKT E17K mutant	Akt E17K mutant-specific inhibitor	Preclinical: In vitro	In preparation	Won Hwa Cho
Amyotrophic Lateral Sclerosis (ALS)	Neuregulin Signaling	GlyB4 Fusion with Neuregulin Heparin-Targeting Domain to Block Neuregulin Signaling	Preclinical: in vivo Improves early chronic motor performance deficits, delays disease onset and prolongs survival in an ALS mouse model	US Patent 7,527,794 US Patent 7,994,123 EP Patent 1,824,879	Jeff Loeb

Title	Target or Indication	Description	Stage of Development	Intellectual Property	Faculty
Parkinson's, Other Synucleinopathies	Protein Kinase C mu or Src-Family Tyrosine Kinase	Utilized a demonstrator compound as inhibitors of protein kinase C mu and src family tyrosine kinase	Preclinical: in vitro	US Patent 8,618,063	Scott Brady
Hematopoietic stem cell transplantation	Multi-Chimeric Cells (MCC)	Multi-Chimeric Cell (MCC) Therapy for Transplantation and Treatment of Immune Deficiencies and Genetic Disorders	Pre-IND	Nationalized in US, EP, AU, CN, JP and CA	Maria Siemionow
Hematopoietic stem cell transplantation	GABA receptor	Repurposed drug/ GABBR1 agonist to improve HSC transplantation efficiency	Preclinical: in vivo Murine tested	US Patent Pending	Owen James Tamplin
Thrombosis, sepsis	Von Willebrand factor	6-mer Inhibitory peptide	Preclinical: in vivo	US Patent 9,796,757	Richard Minshall
Acute Respiratory Distress Syndrome / Vascular leakage	End Binding Protein (EB3) inhibitors	6AA Inhibitory peptide	Preclinical: in vivo Efficacy studies in COVID19 and non-COVID19 induced ARDS completed in mouse models with additional ongoing toxicology studies in dogs	Provisional Patent Filed	Yulia Komarova
Thrombosis, blood disorders, cancer	Platelet Adhesion Receptor Inhibitors	Inhibitory peptides of the interaction between 14-3-3 Protein and Glycoprotein Ib-IX Complex	Preclinical: in vivo	US Patents 8,173,595 and 10,738,080 EP and CN Patents Issued	Xiaoping Du
Pulmonary Arterial Hypertension	Visfatin/Pbef/ Namp1 inhibition	Small molecule Inhibitors	Preclinical: in vitro	US Patent Pending	Tom Driver
Pulmonary Arterial Hypertension	Nrf2-KEAP	Small molecules impacting Nrf2-KEAP interaction	Preclinical: in vitro	US Patent Allowed Nationalized in EP, CA, AU, JP and CN	Terry Moore
Lung Injury	Variable: Currently tested in TGFβ and SYK signaling	Drug loaded mannosylated albumin nanoparticles targeting distinct inflammatory and tissue-resident interstitial cells.	Preclinical: in vivo Efficacy in mouse models	Provisional Filed	Asrar Malik

Startups

Company	Technology	Website	Type	Faculty	Stage of Development
5by5	Novel Surgical Stations		Device	Pier Giulianotti	Seed stage startup
Actuate Therapeutics	Highly Selective GSK3 inhibitors for Oncology and CNS indications	https://actuatetherapeutics.com	Therapeutic	Alan Kozikowski	Received \$90M in investment; undergoing Phase II clinical trials, several indications
Advaite	Anti-inflammatory in ocular surface diseases	http://advaite.com/	Therapeutic	Sandeep Jain	Seed stage startup
Bright Minds Biosciences	Novel biased agonists of the human 5HT2c receptor targeting multiple CNS indications	https://brightmindsbio.com/	Therapeutic	Alan Kozikowski	Post IPO company raised \$20M, starting Phase I clinical trial in May 2022
Capio Biosciences	Circulating tumor cell capture device for diagnostic applications. Successfully raised \$2M in start up funding.	http://www.capiobiosciences.com/	Diagnostic	Seungpyo Hong	Post IPO company raised \$20M, starting a Phase I clinical trial in May 2022
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	Seed stage company with multiple STTR grants over \$1.8M
Drax Therapeutics	Biotechnology company developing small molecule inhibitors of NAMPT as disease modifying therapeutics for Pulmonary Arterial Hypertension.	https://research.impact.iu.edu/our-strengths/innovation-commercialization/ico-pipeline.html	Therapeutic	Tom Driver and Roberto Machado	STTR based, preclinical assets
DuPage Medical	Peptide targeting Gα13 that has dual anti-thrombotic and anti-inflammatory effects that eliminate the risk of bleeding associated with current anti-thrombotic therapies		Therapeutic	Xiaoping Du	Seed stage company with multiple non-dilutive grants including VITA and SBIR grants totaling over \$6M
Dystrogen Therapeutics	Chimeric Cell Therapy for Treating Muscular Dystrophy including Duchenne Muscular Dystrophy (DMD)	http://dystrogen.com/	Therapeutic	Maria Seimionow	1 st in-human trial
Enzyme by Design	Safer asparaginase proteins that have been designed to minimize glutaminase activity for treating cancer	https://www.enzymebydesign.com	Therapeutic	Arnon Lavie	Seed stage corporation with multiple STTR grants over \$4M

Company	Technology	Website	Type	Faculty	Stage of Development
EpiDestiny	Decitabine formulation for treating blood related cancers and indications including sickle cell anemia	https://www.epidestiny.com	Therapeutic	Yogen Saunthararajah & Joe DeSimone	Partnered with Novo Nordisk for Sickle cell disease programme (Phase I completed), Phase II clinical trials initiated for myeloid malignancies, peripheral T-cell leukemia/lymphoma, and small cell lung cancer (seeking partnership).
FertilityABC	Software (app) for primary care physicians, their patients, and Resident physicians to provide guidance on methods besides in vitro fertilization to increase opportunity/likelihood for pregnancy		Software Application	John Holden	App beta testing ongoing
Keywise Inc.	A smartphone application that enables monitoring of non-verbal speech using keyboard dynamics, meta-data, and related mobile sensor information to infer the users' neuropsychological state	https://keywise.tech/	Health IT Software	Alex Leow Olusola Ajilore Faraz Hussain	App beta testing ongoing
Nano Biotherapeutics Inc.	Diagnosing or Treating Neutrophil-Mediated Inflammatory Disease	http://www.nanobiotherapeutics.com	Therapeutic	Asrar Malik	Seed stage company with multiple STTR grants over \$1.7M
NS Intelligence IP	Non-contact videoplethysmograph (VPG) measure of human arterial pulse using a digital camera		Diagnostic	Stephen Porges	
PAX Neuroscience	Blood based test for evaluating antidepressant efficacy and diagnosing depression	http://www.paxneuroscience.com	Diagnostic	Mark Rasenick	Preseed company, working in depression diagnostics
RespireRX	Novel drug therapies for sleep apnea, drug-induced respiratory depression, and other brain-medicated breathing disorders	http://www.respirerx.com	Therapeutic	David Carley	RespireRx Pharmaceuticals has raised a total of \$12.2M in funding over 5 rounds.

Startups

Company	Technology	Website	Type	Faculty	Stage of Development
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	Seed stage company with \$3M in funding, seeking further venture funds
Selagine	Antibody based biologics for eye diseases	https://www.selagine.com/	Therapeutic	Sandeep Jain	Seed stage startup
SENEX Bio	Biotechnology company pivoting on development of novel kinase inhibitors for oncology, Senex is developing highly selective small-molecule inhibitors of this protein for the treatment of presently incurable types of prostate cancer, breast cancer and leukemia	https://senexbio.com/	Therapeutic	Igor Roninson and Karthik Gopalakrishnan	Company is repivoting on a new platform and raising seed stage investment
Syntax	Biotech developing a proprietary CRISPR/Cas9 based, genetic programming platform technology that converts cells into biological computers using DNA based instructions that read like lines of codecompany leveraging next generation CRISPR in therapeutics and food science.		Therapeutic & Food Science	Brad Merrill and Ryan Clarke	Supported by Portal Innovations, raising seed \$5M
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	Phase 2 clinical trial initiated for Type 1 Diabetes, Alopecia Areata, and Covid 19
TTC Oncology	Clinical stage hormone receptor modulators for treating cancer	https://www.ttconcology.com	Therapeutic	Greg Thatcher	Completed Phase I trials with \$5M captilization, seeking additional funds
ViSoTherapeutics	Histatin Peptides		Therapeutic	Vinay Aakalu	Seed stage startup
Yaso Biotech	Therapeutic and prophylactic agent for sexually transmitted viral pathogens with contraceptive properties	http://www.yasotherapeutics.com	Therapeutic	Alex Kronic & Don Waller	STTR phase company with \$5M raised, seeking venture capital