

INVO Northwestern | INVO
Innovation and New Ventures

Inventive Activity
FY 2019

230

INVENTIONS DISCLOSED

501

PATENT APPLICATIONS

156

AGREEMENTS EXECUTED

7.9

MILLION IN LICENSING
REVENUES, DOLLARS

172

PATENTS ISSUED

12

STARTUPS

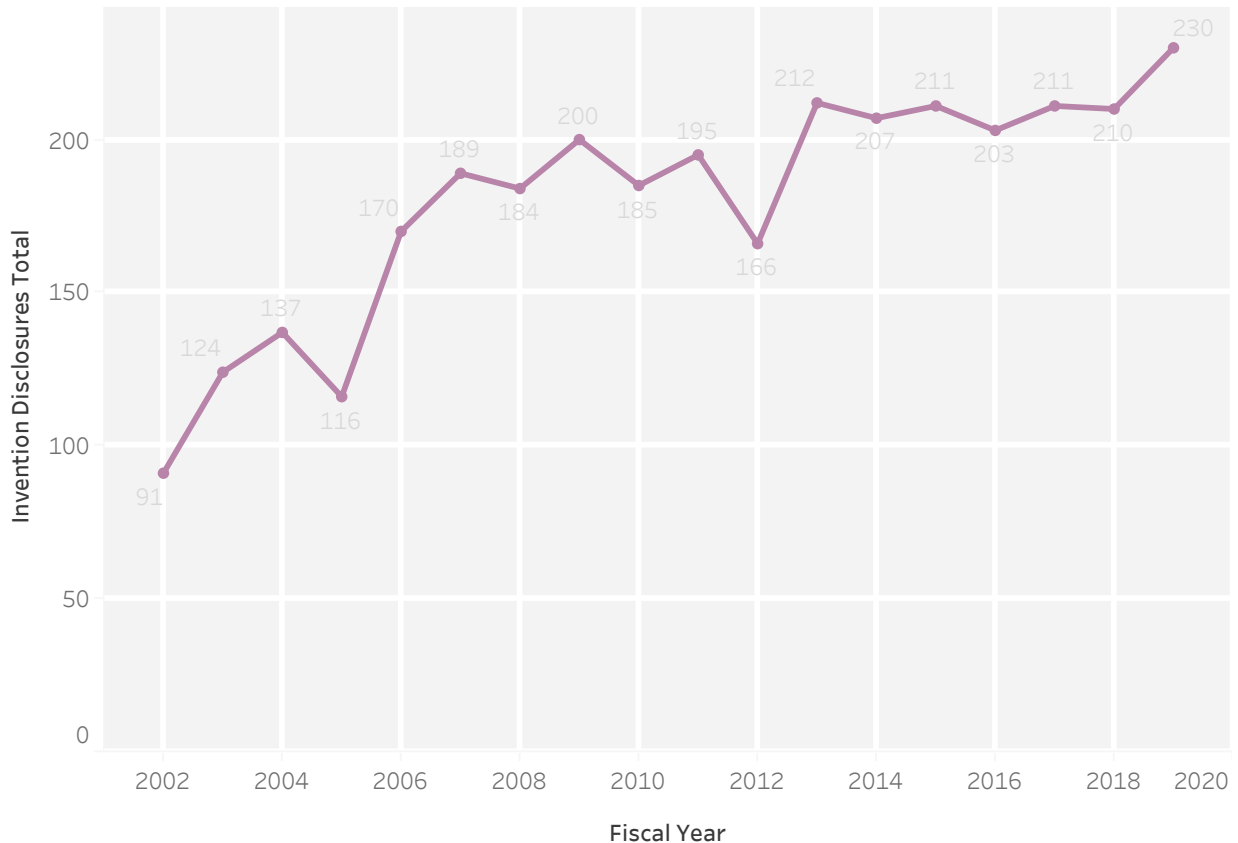
NORTHWESTERN INVENTIVE ACTIVITY

Figure 1 illustrates invention disclosure activity since 2002. In FY 2019, INVO processed 230 invention disclosures.

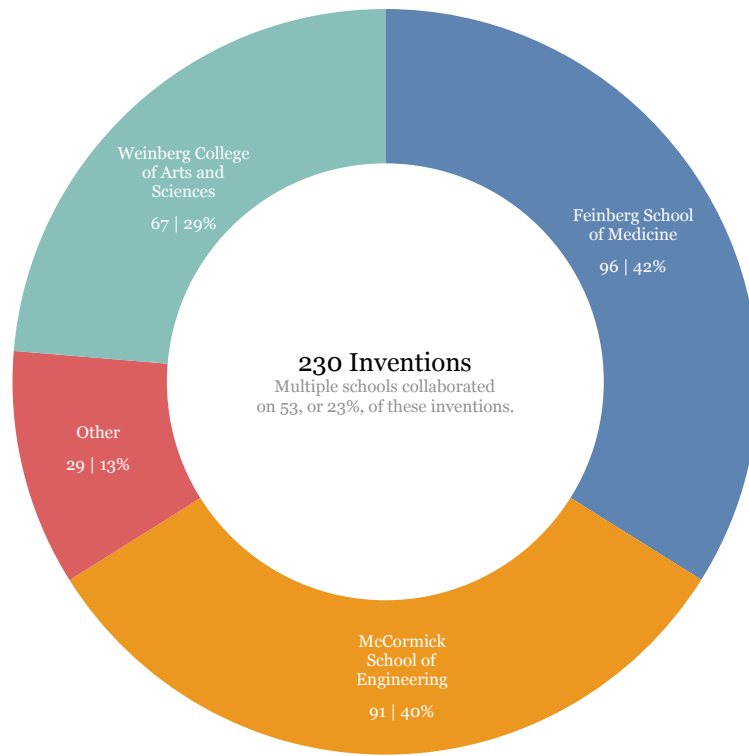
Inventorship spans both campuses. Figure 2 represents the distribution of inventive activity by school. The McCormick School of Engineering (McC) and the Feinberg School of Medicine (FSM) have the largest shares, followed by the Weinberg College of Arts and Sciences (WCAS).

Figure 3 shows the distribution of inventions by category. Therapeutics had the largest share of the inventive output. It is important to note that many inventions in the areas of chemistry, computer science, and materials are considered platform technologies with undefined markets. For example, a new software invention might find applications in the future in a variety of markets such as energy, consumer, and biomedical.

FIG. 1
INVENTION DISCLOSURES, 2002-2019



**FIG. 2
INVENTIONS BY SCHOOL**



**FIG. 3
INVENTIONS BY CATEGORY / INDUSTRY PIPELINE**

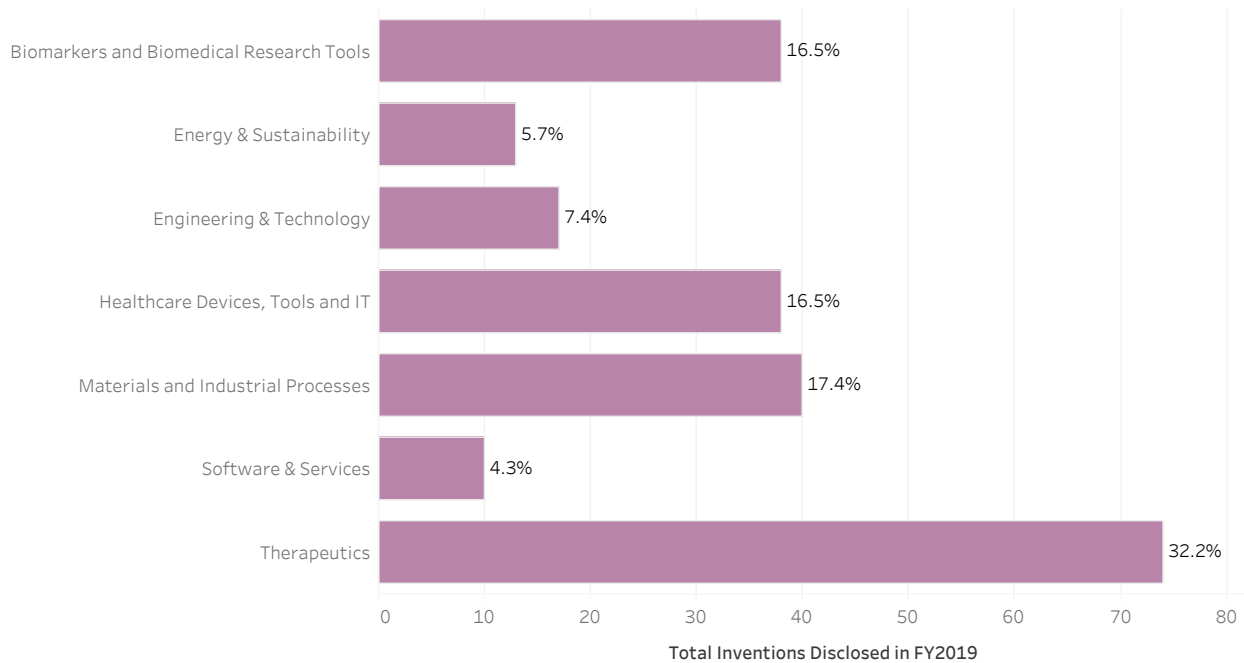
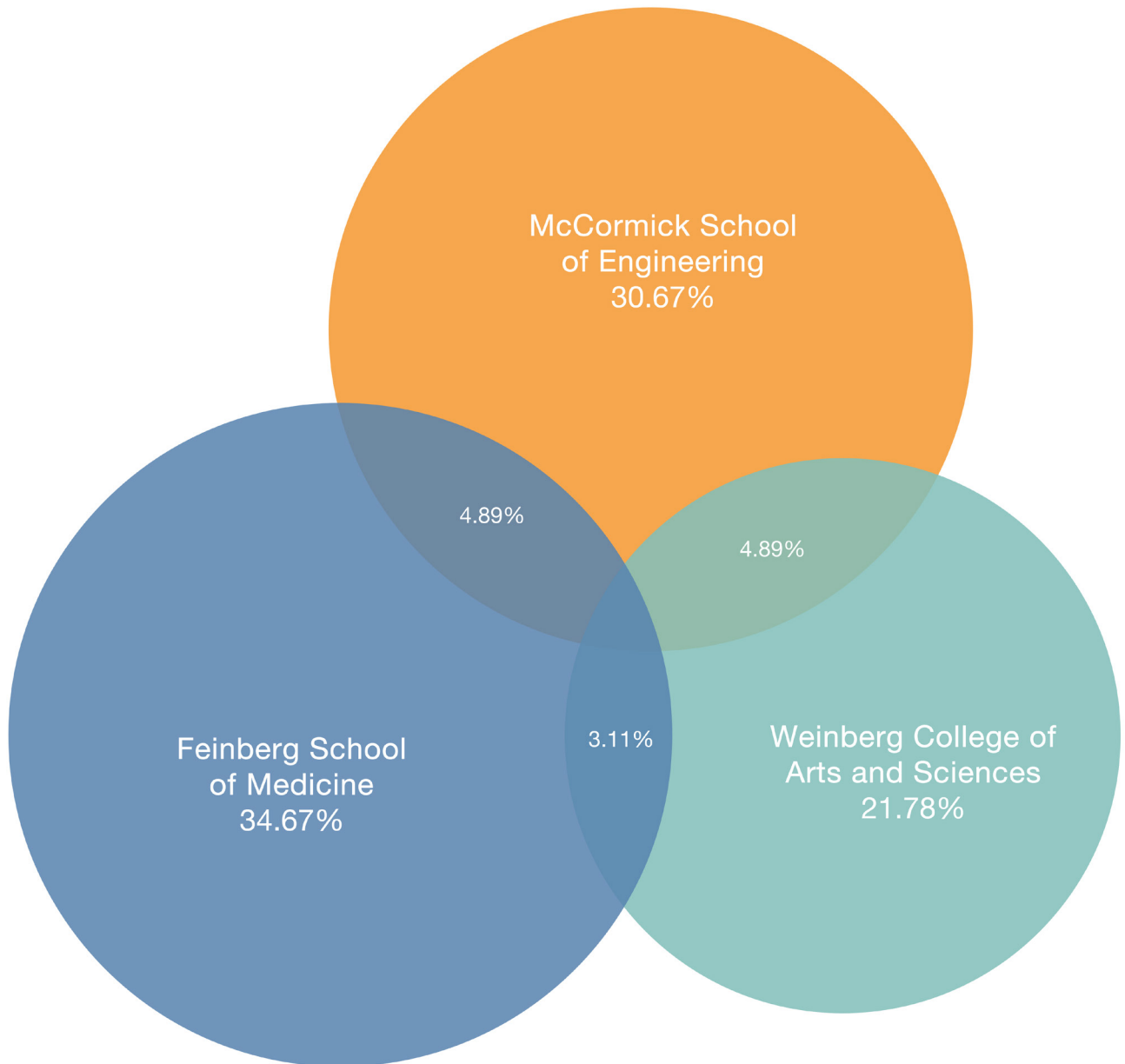


FIG. 4
COLLABORATION BETWEEN SCHOOLS

Boundary crossing ideas produced the most disruptive inventions, which are also most valued in the marketplace. Northwestern's interdisciplinary approach is displayed by the co-inventorship activity among different schools and departments.



Figures 5, 6, and 7 illustrate inventive activity within each school.

FIG. 5
McCORMICK SCHOOL OF ENGINEERING INVENTIONS BY DEPARTMENT

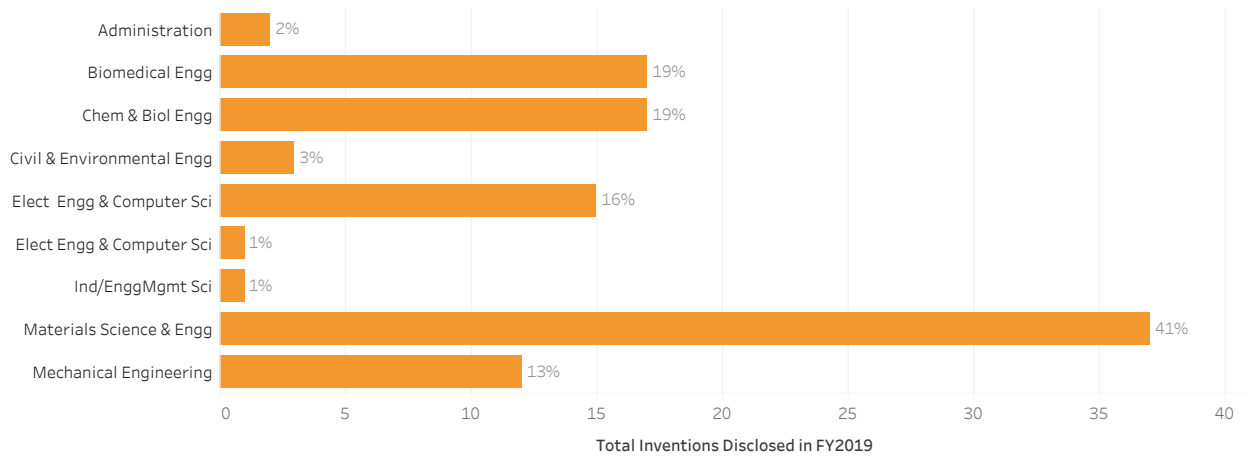


FIG. 6
WEINBERG COLLEGE OF ARTS AND SCIENCES INVENTIONS BY DEPARTMENT

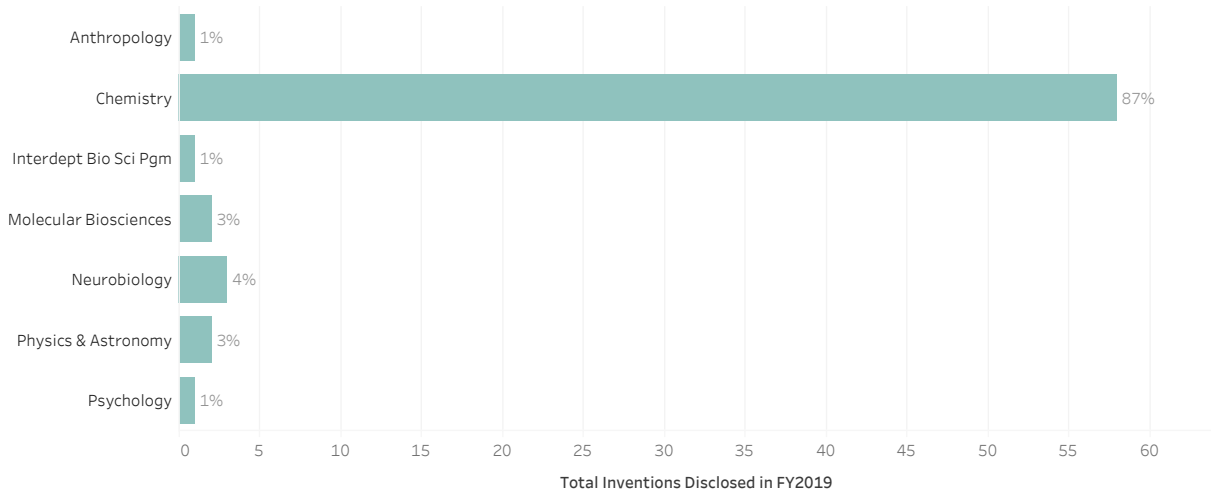


FIG. 7
FEINBERG SCHOOL OF MEDICINE INVENTIONS BY DEPARTMENT

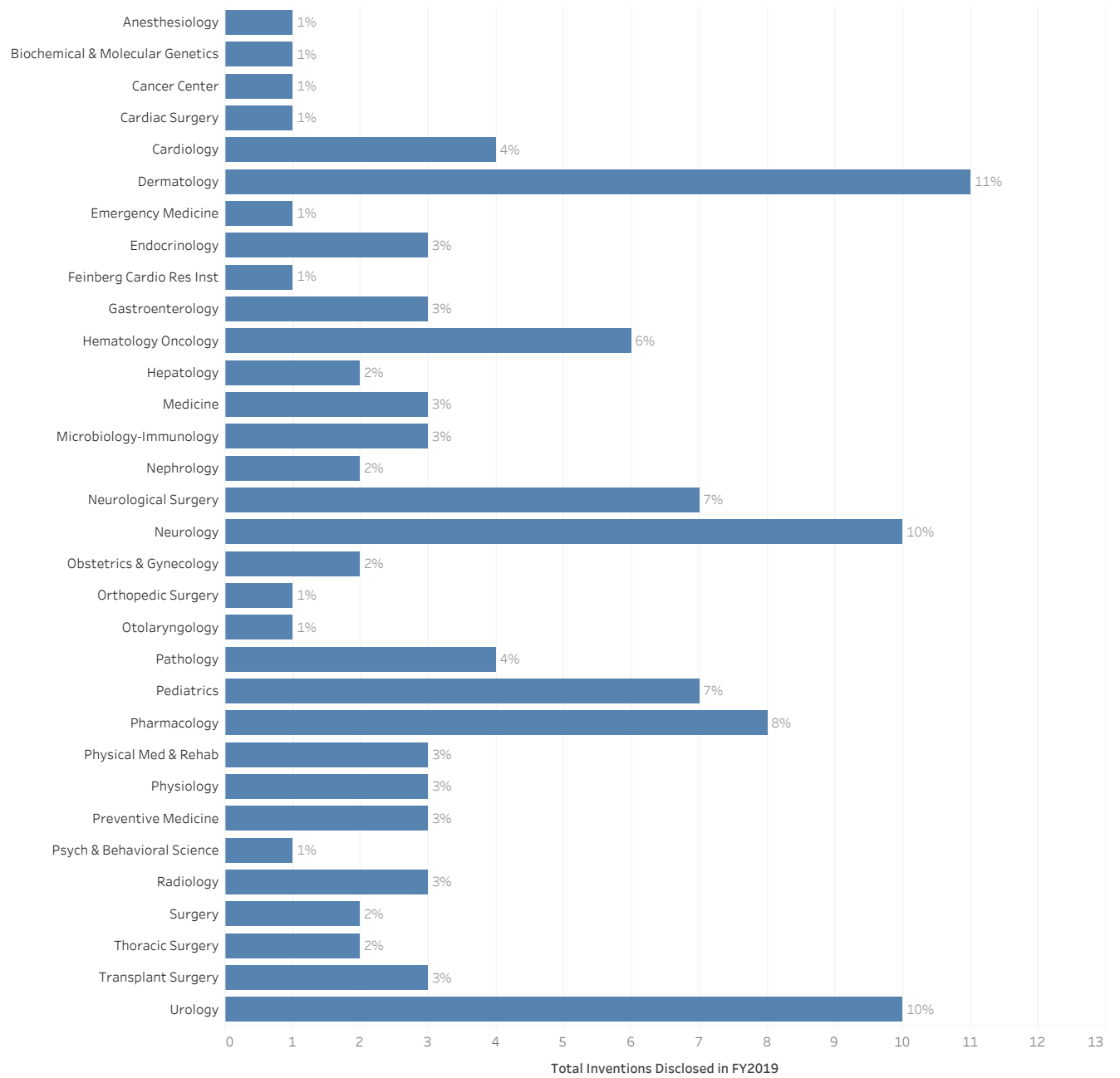
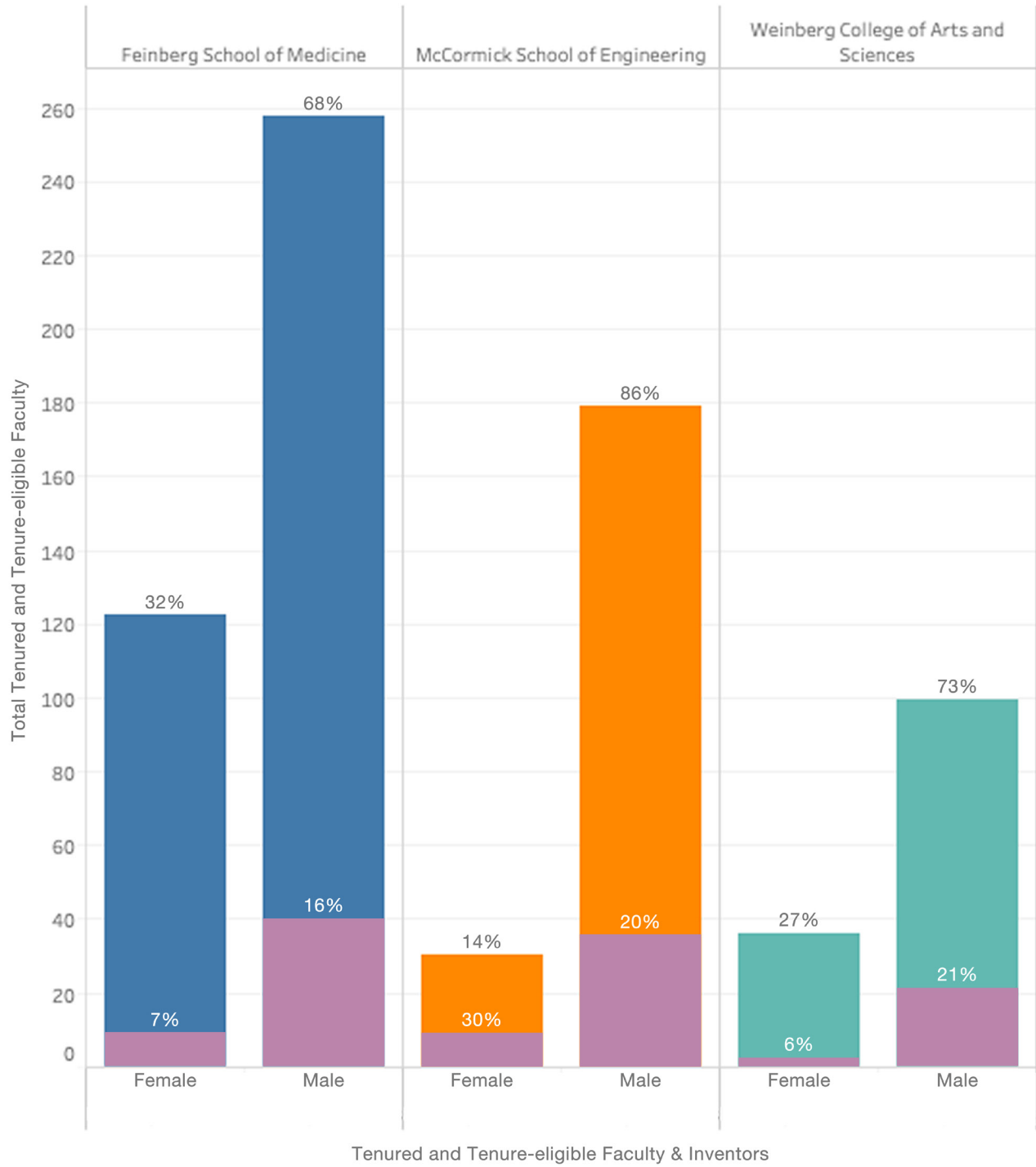


FIG. 8
INVENTORS AMONG TENURED AND TENURE-ELIGIBLE FACULTY



- FSM tenured and tenure-eligible faculty
- McC tenured and tenure-eligible faculty
- WCAS tenured and tenure-eligible faculty
- Tenured and tenure-eligible faculty who have disclosed inventions

Figure 8 represents the gender distribution of tenured and tenure-eligible faculty and the percentage who disclosed inventions during FY2019.

Weinberg College of Arts and Sciences percentages represent faculty from the departments of Anthropology, Chemistry, Molecular Biosciences, Neurobiology and Physics & Astronomy.

As an example, the first bar in Figure 8 shows that 7% of the total female tenured and tenure-eligible faculty at FSM have disclosed inventions during FY2019.

In FY 2019, McC female inventors increased by 50% over the previous year. This increase contributed to McC female inventorship growing to 30% of the McC female tenured and tenure-eligible faculty.

**BY PROMOTING DIVERSITY IN OUR ECOSYSTEM,
MORE NORTHWESTERN INNOVATIONS CAN ENTER
THE MARKET.**

PATENTS

Patent filing grew in FY19 and surpassed 500. Figure 9 shows patents filed in FY19 per school. Patent filing is consistent with the invention disclosure activity reported in Figure 2. Figure 10 illustrates the breakout of patents filed in FY19. Figure 11 illustrates that issued patents span multiple disciplines and markets.

Patent Types

Provisional patents: Approximately 60% to 70% of all invention disclosures are filed as provisional patents; approximately 50%–60% are converted into non-provisional patents within a year.

Filing a provisional patent application before filing a Utility application presents several advantages:

- Relatively inexpensive and allows the inventor to spend one year gathering more data, resulting in

a stronger patent application

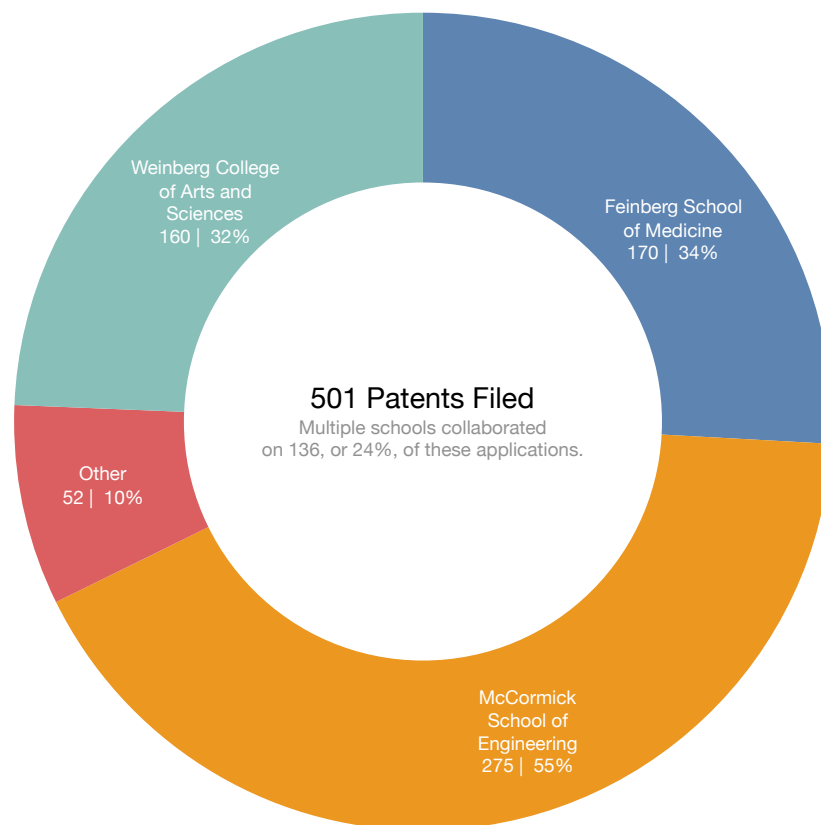
- Allows INVO to conduct a more in-depth commercial assessment of the invention and identification of potential licensees
- Delays the formal filing date, which results in a later patent expiration date

Non-Provisional (Utility) patent applications:

The filing of a Utility patent starts the official examination process with the USPTO to determine if the invention is patentable. The USPTO review of a patent application can take several years.

PCT applications: A PCT is an international treaty with more than 145 Contracting States. The PCT makes it possible to seek patent protection for an invention simultaneously in a large number of countries by filing a single “international” patent. A PCT application must be followed up within 18

FIG. 9
FILED PATENT APPLICATIONS BY SCHOOL



months by entering into national or regional phases to more patents. Foreign prosecutions are very expensive. INVO files in specific countries (National Phase) only when there is a licensee for the patent.

Continuing patent applications (CIP): These are patent applications that follow and claim priority to an earlier filed patent application.

EPO Validation: Granted European patents that are in the process of validation in individual states.

Divisional patent applications: Patent applications with claims that were divided out of the original filed application and which must be re-submitted as a separate application.

FIG. 10
FILED PATENT APPLICATIONS BY TYPE

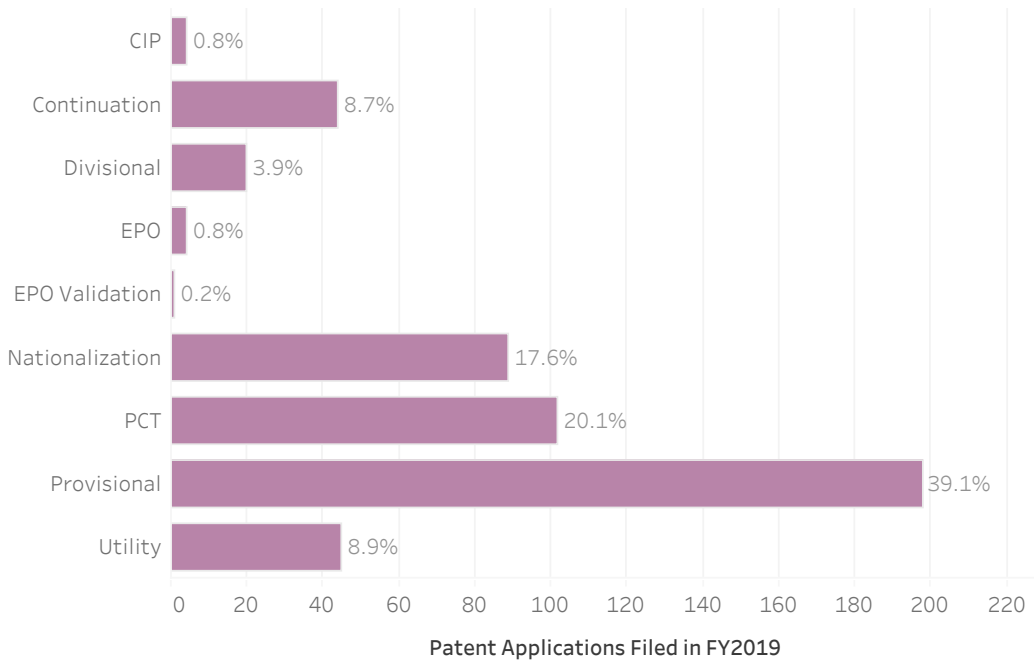
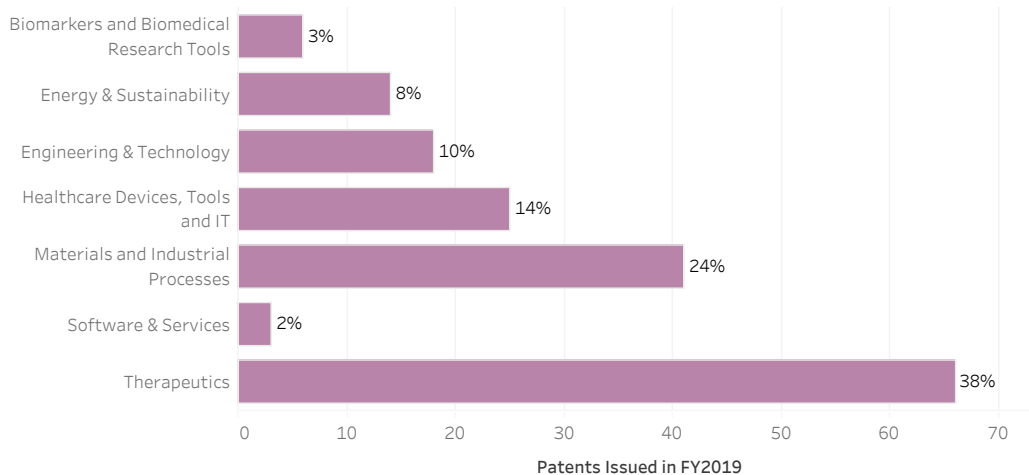


FIG. 11
ISSUED PATENT APPLICATIONS BY CATEGORY / INDUSTRY PIPELINE



COMMERCIALIZATION RESOURCES AT NORTHWESTERN

Translating innovative technologies from the lab to the market takes time and resources. It's an arduous and complex but necessary journey. The majority of advanced technologies out of the university, including computer software, electronics, medical devices and nanotechnology, requires research, market validation, testing, and much more to reach the public's hands.

INVO and Northwestern University at large support the commercialization of technologies throughout the earlier ideation and proof of concept stages as well as the initial phases of new company formation. Resources spanning translation, diligence, and access to funding and physical space are outlined here.

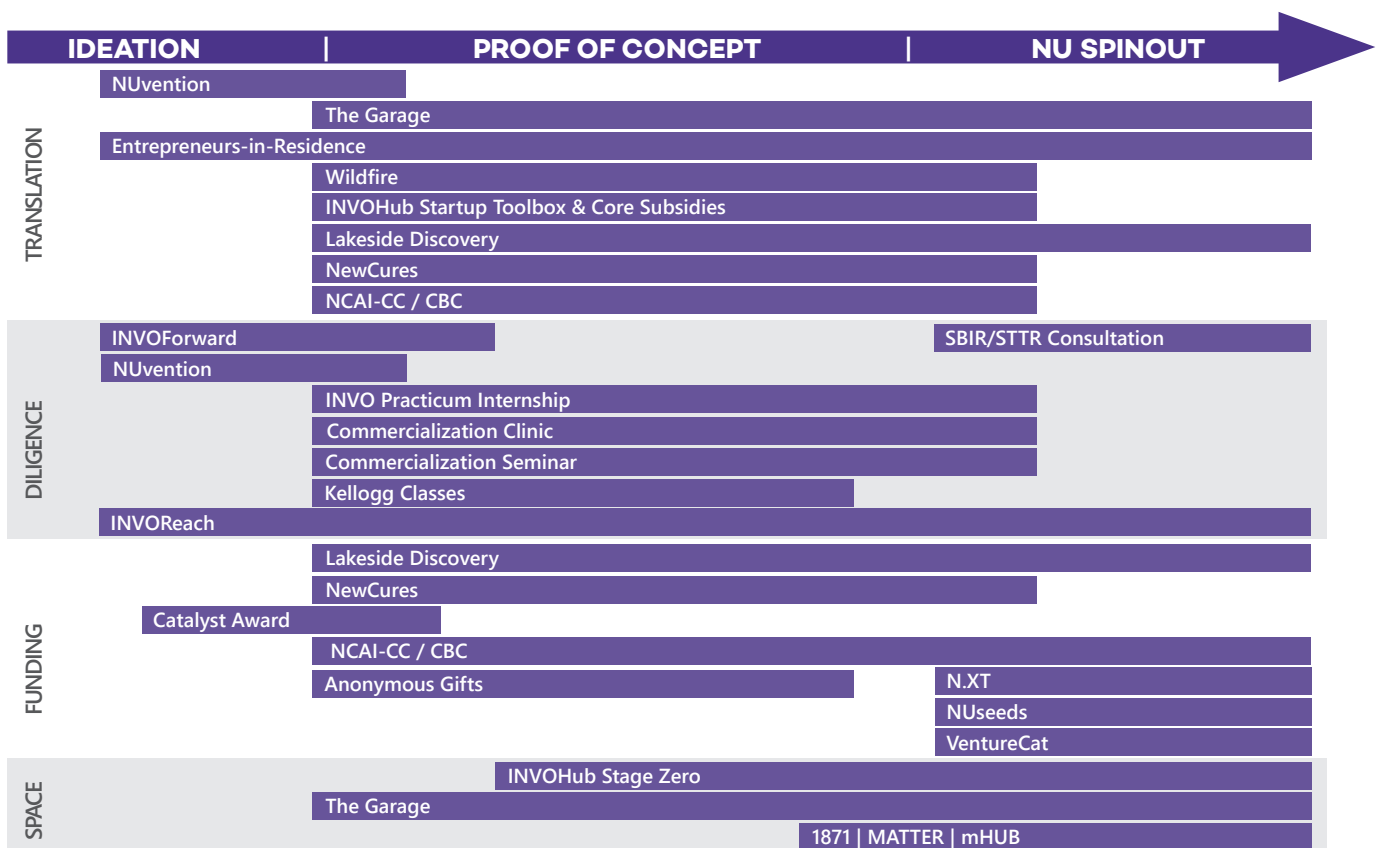


FIG. 12
FY 2019 STARTUPS BY SCHOOL

**WE THRIVE AT THE
CROSSROADS OF
ACADEMIC RIGOR AND
ENTREPRENEURSHIP**

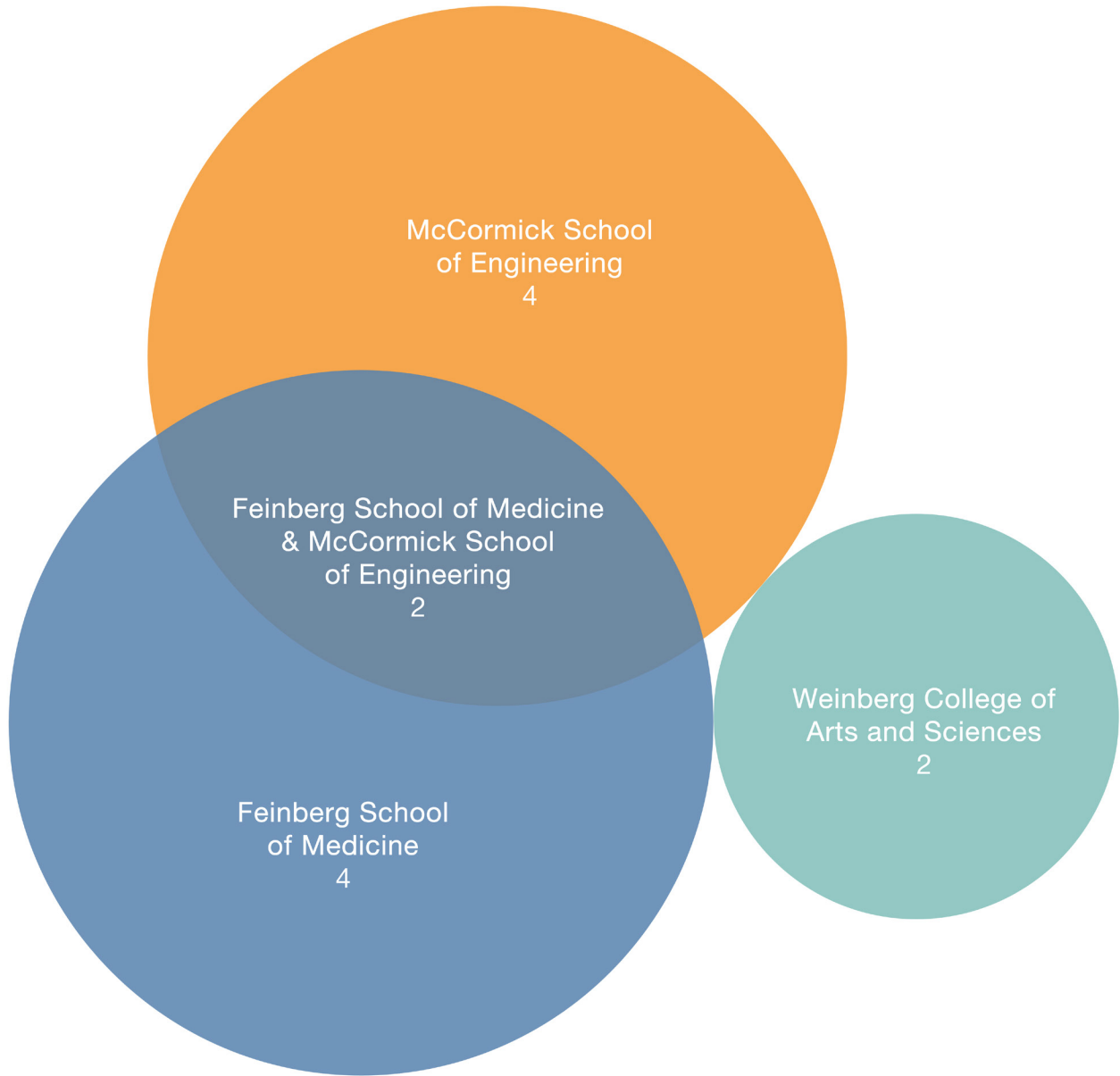
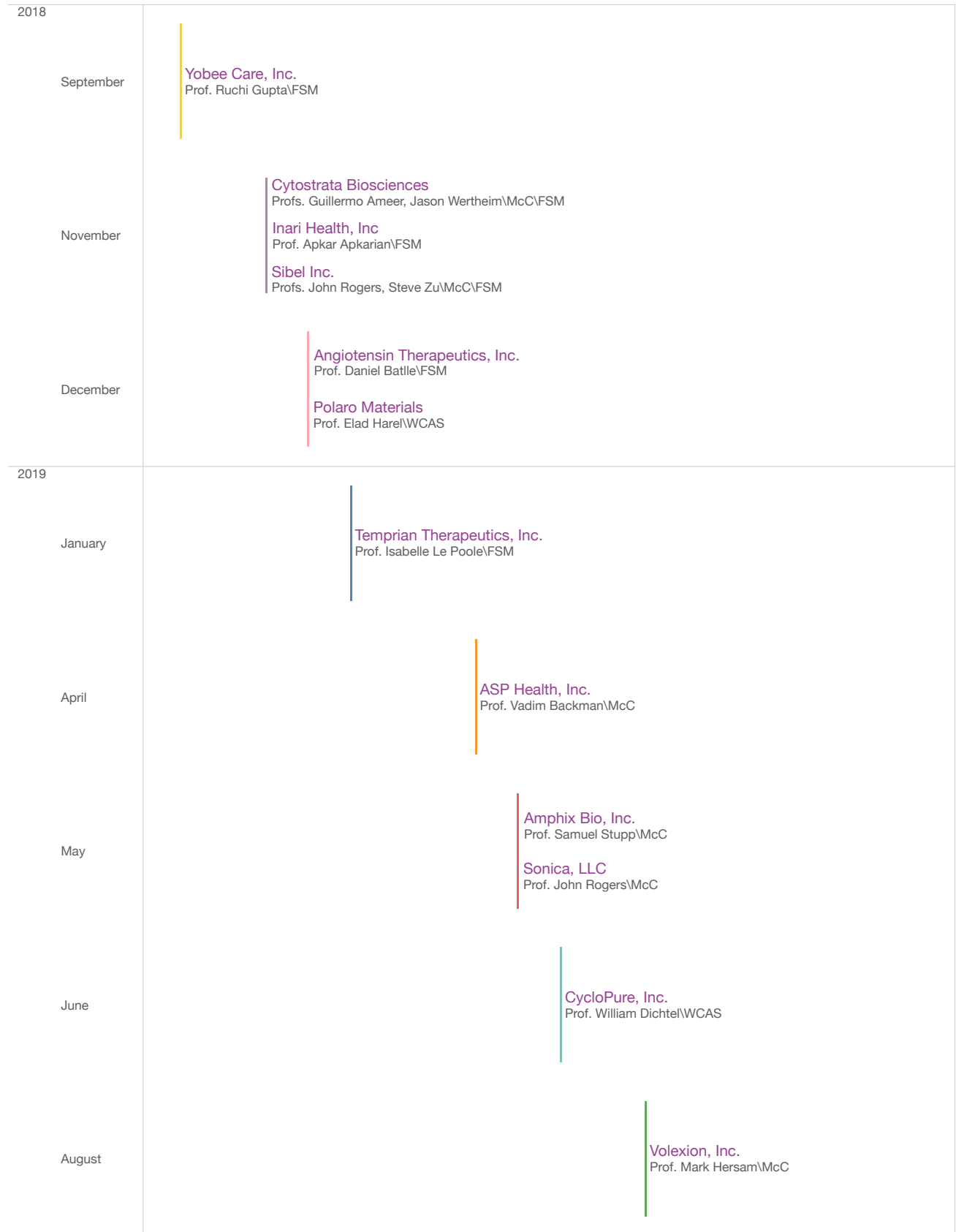


FIG. 13
FY 2019 STARTUPS TIMELINE



APPENDIX

BIOMARKERS AND BIOMEDICAL RESEARCH TOOLS PIPELINE

■ Available for Licensing

■ Non-Exclusively Licensed/Optioned

■ Exclusively Licensed in Full/Optioned

Phase	Title			
1-BIOMARKERS	A Genetic Marker for ALS	■		
	A pre-school biomarker for literacy	■		
	Association of Serotonin2c Receptor Polymorphisms with Antipsychotic Drug Response..	■		
	Biological Marker For Auditory Processing (Bio-MAP)	■		
	Biological Markers for Diagnosis of Diseases Associated with Major Depression	■		
	Biomarker for Colitis	■		
	Biomarker for Early Stage Cancers	■		
	Biomarker for Female Egg Quality	■		
	Biomarkers for Prostate Disease	■		
	Biomarkers for PTSD and Depression	■		
	Blood and Biopsy mRNA Expression Signatures to Distinguish Major Causes of Rejection..	■		
	Blood biomarker analysis for early detection, treatment response and disease progressi..	■		
	Cardiac Stress Test with MRI	■		
	Depression and Treatment Response Predictor	■		
	Detection of antibody reactivity towards deamidated proinsulin for risk prediction and di..	■		
	Genetic markers in GRB10-DDC region (or 7p12.2) predict Treatment Resistant Schizop..	■		
	Lipid Denaturation as a Marker and Therapeutic Target of Ovarian Cancer Stem Cell	■		
	Marker for Chronic Pelvic Pain I	■		
	Marker for Chronic Pelvic Pain Syndrome	■		
	Marker for Neuromuscular Disorders	■		
	Method for Screening P. Aeruginosa Strains	■		
	Molecular Signature in the Peripheral Blood for Sub-Clinical Acute Kidney Transplant Re..	■		
	Neural Biomarkers in Nasal Exhaled Breath	■		
	Neurodegenerative Disease Biomarkers	■		
	Perinucleolar Compartment as a Cancer Marker	■		
	Platform-And Sample-Specific Molecular Signatures of Kidney Transplant Rejection	■		
	PNC Cancer Diagnostic (non-breast cancer)	■		
	PTSD Blood Test	■		
	RBFOX1/A2BP1 and related proteins as drug targets for treatment of psychiatric disord..	■		
	Small Molecule Antiviral Therapy	■		
	Tracking Reporter Gene	■		
	Use of Maspin as an Anti-ROS Scavenger Against Cell Proliferation, Inflammation, and ..	■		
	UTI Management	■		
	2-NUCLEIC ACID	A Universal Phosphoramidite For The Preparaton Of Tosylated	■	
		Clock gene cDNA	■	
		hsp70.1pr-luc Plasmid	■	
		Nuclear Lamins Expression Vector	■	
		pAN1: ElectroTfm of Clostridium	■	
		pHT plasmids	■	
		Timeless gene cDNA	■	
		3-ANTIBODY	alpha 3 laminin, mouse	■
			alpha 4 laminin, mouse	■
			Anti-ALP1 Antibody	■
Anti-macrophage monoclonal antibodies (CD31, CD87, CD15)	■			
Antibody for Tubulointerstitial Nephritis	■			
BRAP Antibody	■			
CD 13 antibody mouse	■			
gamma 3 laminin, mouse	■			
Hard-Tip Active Spring Lithography	■			
Hemidesmosome (BP180) mouse	■			
Hemidesmosomes (BP230) mouse	■			
HSF1 and HSF2 antibodies, rat	■			
HSP-70 antibodies mouse	■			
hu Tau C-term, mouse	■			
Importin beta1, mouse	■			
Influenza M2 protein, mouse	■			
Lamin A and C antibodies, rb	■			
Metabolic Antibody Discovery and Development	■			
Molecular Control over Exosomes for Isolation, Quantificatio	■			
mtHSP-70, BiP/grp 78 mouse	■			
PGSL-1, mouse	■			
rat laminin -332 alpha3 subunit, mouse	■			
Scarpulla Lab Antibodies - 6 Antibodies	■			
Tau Isoforms, mouse	■			
Tau N Terminus, mouse	■			
Tau Tyr18 nitrosylated, mouse	■			
TNT1: Tau PAD region, mouse	■			
TOC-1 mouse antibody	■			
Vascular endothelial cell Ag, m	■			
4-CELL LINE	E. coli from human prostate	■		
	HSV-2 333/Gal and HSV-1 KOS/tk12	■		
	MM.1 Myeloma cell lines	■		
	Retinal Muller Cell line	■		
	S.cerevisiae H4S47C	■		

Phase	Title		
5-ANIMAL MODEL	An 5 - ANIMAL MODEL For Uterine Fibroid Embolization	■	
	Biobarcode Based on Oligonucleotide-Modified Particles	■	
	BMP4 Tg mice: FOP	■	
	Clock Tg mice: diabetes	■	
	Dyrk1a conditional knockout mouse	■	
	Ei-Kras Transgenic, PDEF Knockout Mice	■	
	hSOD1G93A-UeGFP Tg mice: ALS	■	
	hTAAR Tg mice	■	
	Knockout Mouse Model Of Cognitive Deficits	■	
	MLCK 210 KO mice	■	
	Mt Clock Tg mice	■	
	Mutant Mouse Line C57BL/6J-Fahswingshift	■	
	Mutant Mouse Line C57BL/6J-Slc2a4twigg	■	
	Nanoparticle Based Biobarcode for the Ultrasensitive Detect	■	
	PEDF-null Mouse	■	
	Per2 Luciferase Tg mice	■	
	SOD Tg mice	■	
	Transgenic Mouse for Amyloid Pathogenesis	■	
	Triple transgenic mice for triggering inducible hepatocyte apoptosis and uses thereof as ..	■	
	U19 Knockout Mice	■	
	Uchl1-eGFP Tg mice:ALS	■	
	6-MISCELLANEOUS	3D Transfected Cell Arrays	■
		3D Transfected Cell Arrays II	■
		A Highly Productive One-Pot System for the Incorporation of Non-Standard Amino Acid..	■
		A method to create a library of electrophilic compounds for screening using virtual docki..	■
		Acinetobacter Baumannii Transposon Library	■
		An Elevated-Pressure, Freeze-Thaw Method For Lipsome Gas Encapsulation	■
		Antibody to Microtubule Associated Protein Tau; Clone Tau-7	■
		At Home Menopause Test	■
		Cell-free glycoprotein synthesis (CFGpS) in prokaryotic cell	■
		Cell-free protein synthesis driven metabolic engineering (CFPS-ME)	■
		Cell-Free Yeast Protein Synthesis	■
		Detergent-free membrane solubilization	■
Development of an Ex Vivo Female Reproductive Tract in a 3D Microphysiologic Setting		■	
Effective Mucosal Blood Vessel Size and Oxygenated Hemoglobin Concentration in the ..		■	
Elastic Backscattering Spectroscopic Microscopy		■	
Enucleation of Feeder Cells and Egg Cells		■	
Ex Vivo Female Reproductive System		■	
Faster and more efficient two step sequence specific nucleic acid capture		■	
Female Fertility Test		■	
Fluorescent Sensors for Zinc		■	
Glycosylated ligands for exosome targeting		■	
High Throughput Transcription Profiling		■	
Hydraulically Actuated Patch Clamp Electrode System		■	
Integrated microfluidic tissue culture system for use with female reproductive tissues		■	
Irreversible inhibitors of Nedd4-1 polyubiquitination		■	
Lamin B1: Marker for Replicative Senescence		■	
Making Tethered Ribosomes		■	
Mechanism-Based Small Molecule Cross-Linkers of HECT E3 Ubiquitin Ligase - Substr..		■	
Method for Making Ribosomes		■	
Method of in vitro ribosome synthesis and evolution		■	
Methods for Activating Natural Energy Metabolism for Improving Yeast Cell-Free Protein..		■	
Methods for Improved in vitro Protein Synthesis with Proteins Containing Non Standard ..		■	
Nanocytological and Molecular Analysis of Fecal Colonocytes for Colon Cancer Screeni..		■	
Nanopatterned Extracellular Matrices Enable Cell-Based Assays with a Mass Spectrom..		■	
Neuronal cell line with suppressed endogenous sodium current		■	
Non-toxic cell staining probe		■	
Novel Photocrosslinking Reagents to Map Protein Protein Interfaces in Vitro		■	
Planar Two Dimensional Biofilm Reactor for Flow-Field-Based	■		
Precinical Model of Multiple Sclerosis	■		
Proof of Concept of Engineering a Yeast Receptor to Detect New Peptide Ligands	■		
Proteasome adaptors - degradons	■		
Raman Spectroscopy for Anthrax Detection	■		
Reverse Transfection Technique	■		
Scaffolds for Artificial Ovary	■		
Scalable Cell Sorting via Motility	■		
Transcription Factor Analysis: Transfected Cell Array	■		
Two gRNA method for homologous recombination-based gene targeting	■		
UbiFlu-Novel Class of Fluorescent Probes to Screen for Inhibitors/Activators of HECT E..	■		
Yeast-Free Protein Synthesis & By-product Removal	■		

HEALTHCARE DEVICES, TOOLS & IT PIPELINE

■ Available for Licensing

■ Non-Exclusively Licensed/Optioned

■ Exclusively Licensed in Full/Optioned

Phase	Title		Phase	Title			
1-CONCEPT	3D printed Intraocular lens	■	2-LABORATORY PROTOTYPE	Mobile Opioid Dosing simulator	■		
	3D Printing of Endovascular Stents	■		MRE Passive Driver	■		
	A Novel Medical Device that Differentiates Stroke from Acute	■		Multimodal T1-T2 MRI Contrast Agents	■		
	Adjustable Banding Device for AVF	■		Nanofabricated Glucose Sensor [SWCNT Glucose Monitor]	■		
	Agility Trainer	■		Naso-Seal Device	■		
	Ambulatory blood pressure Device	■		NICU2HOME smartphone application	■		
	Analysis of Multiplexed Bead-Based Assays	■		Non-Contact Liquid Droplet Manipulation Method	■		
	Cartilage Coupled PeptidePolymers	■		Normalization of MRI for Imaging of Gene Expression Signatur	■		
	Catheter for Gene Therapy	■		Novel Chalco-Halides for Imaging	■		
	Central Dialysis Catheter with Balloon Technique to Prevent	■		Optical and Acoustic Imaging	■		
	Heart Valve Repair Rings, with Sizers and Holders, which All	■		Optical Coherence Photoacoustic Microscopy	■		
	Hemodialysis Needle with a Safety Tip	■		Parylene membranes for drug delivery	■		
	Imaging & Therapeutic Nanoconjugates	■		Peptide Conjugated MRI Contrast Agent	■		
	Impedance planimetry for Assessment of Cervical Ripening dur	■		Perovskites for gamma-ray detection	■		
	iPSC-EC Performance Enhancement Via SIRT1 Overexpression	■		pH Responsive Self-Healing Hydrogels	■		
	Left Atrial Appendage Occluder Device	■		Photoluminescent Panthenol Citrate Biomaterials with Antioxi	■		
	Method to measure Perfusion and Leakage Parameters in a Sing	■		Point of Care Diagnostic Tool	■		
	Nanostructures for Alzheimer's Diagnosis	■		Printing 4D Composite Scaffolds for Bone Generation	■		
	Real Time and High Resolution Spatial Mapping of Kidney Filt	■		Prosthetic Foot with an Adjustable Flat Region	■		
	Retrievable scaffolds for beta cell replacement therapies	■		Protein-Based Contrast Agents for MRI	■		
	Scar-Free Tissue Regeneration	■		Resorbable Wireless Bone Stimulator	■		
	Sealants for Fetal Membrane Repair	■		Soft Materials for Bioprinting	■		
	Self Assembled Bioadhesives	■		Soluble Membrane Protein Libraries in Nanodiscs	■		
	Simultaneous covalent and non-covalent polymerizations for h	■		Spatiotemporal Background Phase Correction for Phase Contras	■		
	Synthetic antigen compositions for detecting antiphosphatidy	■		Spectroscopic Super-resolution Microscopy	■		
	2-LABORATORY PROTOTYPE	A Biological Marker for Concussion		■	3-COMMERCIAL PROTOTYPE	Structured Illumination Microscopy	■
		A Heavy Metal Blood Collection Card for Screening Newborns and Children		■		Supramolecular Glycosaminoglycans	■
		A Universal Method for Fabricating Complex Metallic Structur		■		Targeted therapy for the prevention of restenosis in the car	■
		Abnormal Scar Identification with Spherical Nucleic Acids Te		■		Technique for disaggregating & estimating Electronic Health	■
		Adaptable Ankle Foot Prosthesis		■		The Hidden Markov Spike Generator for Cochlear Implants	■
Advanced retinal blood flow measurement		■	The LaserNanoPump (LNP)	■			
Aligned Nanofibers for Nerve Regeneration		■	Thermoresponsive Cell Adhesive Bioresorbable Dressing	■			
App for Movement Disorders		■	Triple Balloon Catheter	■			
Bedside Pulse Lavage Project Modifications		■	Virtual Electrophysiologic Testing For Cardiac Arrhythmia Ri	■			
Biodegradable Drug Delivery [Drug Releasing Tubes for Tissue Engineering]		■	Wearable for Ambulatory Blood Pressure Monitoring	■			
Biomimetic High Density Lipoprotein Nanoparticles as Catalyt		■	4-HUMAN TESTING	3D Suture		■	
Cardiac Tissue Ablation		■		A "Skin-like" Wearable Sensors for Sweat Loss Analysis		■	
Chalco-Halides for Medical Imaging [Materials for X-Ray & Gamma Ray Detection]		■		A Fluorometric Assay to Measure Cholesterol Binding Kinetics		■	
Collagen Binding Heparin for Anti-thrombosis and Re-endothel		■		Annuloplasty Ring Sizer		■	
Colorectal Cancer Screening Device		■		Anthrax Detection		■	
CsPbX3: Perovskites for gamma-ray detection applications		■		Auditory Test		■	
Device for Isolating an Analyte from a Sample		■		Automated fMRI for Clinic		■	
Digitally Adjustable Phrenic Nerve (DAPhNe) Stimulator		■		Bioscaffolds for Replacement Ovaries		■	
DNA Intercalators with Duplex-Selective Luminescence Enhacem		■		Brain Wave Processing to Enhance Sleep		■	
DOPA Nanoparticles for Diagnosis and Therapy		■		Cell Therapy for Diabetes		■	
Electronic Biochip System		■		Circumferentially Constructive Annuloplasty Ring		■	
Electrostatically triggered partially denatured albumin hydr		■		Diaphragm-based Hybrid Prosthetic Vacuum Pump for Transfemoral Amputees..		■	
Extracellular Matrix Protein-Coated Scaffolds Promote The Re		■		Evaluating Impact of Oxidative Stress on AF Electrograms		■	
Extracellular Matrix With Anticoagulant Properties for Tissue Engineering		■		Flexible Electronic Medical Device		■	
First In Vivo Surface-Enhanced Raman Glucose Sensor		■		Gas Sensor for Smart Chest Tube Drainage		■	
Gel Scaffolds of BMP-2-Binding Peptide Amphiphile Nanofibers		■		Hybrid Prosthetic Vacuum Pump for Transfemoral Amputees		■	
Heavy Metals in Dried Blood Spots		■		Implantable Biomedical Sensors		■	
High Precision Diagnosis of ADHD Based on Functional Neuroim		■		Liquid Cast Biodegradable Drug Delivering Arterial Stent		■	
High Throughput Partial Wave Spectroscopic Microscopy		■		Method for Detecting and Quantifying a Target Molecule in a		■	
Hybrid Prosthetic Leg		■		MRI-Perfusion and Diffusion Mismatch		■	
Hydrogels for improved tissue graft survival	■	Nanodiamond Conjugates		■			
Implanted Surgical Film for the Reduction of Post Surgical Complications	■	Neonatal Abdominal Surgery Trainer		■			
Intrinsic-contrast super-resolution optical microscope	■	Particles For Detecting Intracellular Targets		■			
ISOCT	■	Partition Layer for Raman Nanobiosensor		■			
IVC Filter Removal	■	Photodetector for Infrared Imaging		■			
Left Ventricular Apex Surgical Technology	■	Point of Care Diagnostics		■			
Lipid Nanoparticles for Measuring Chronic and Acute Response	■	Quantification of Cerebral Perfusion		■			
Low Power Cochlear Implant	■	Radio Frequency Soft Tissue Ablation System		■			
Lung-inspired microfluidic platelet bioreactor	■	Raman Biosensor for Multianalyte Detection		■			
Macromolecular MRI Contrast Agents	■	RF Ablation Probe		■			
Materials that Promote Bone Regeneration	■	Robust Semi-Automated Pulse Wave Velocity Estimation From 4D	■				
Method For Preparing High Aspect Ratio Peptide Amphiphile Fibers	■	Room Temperature Synthesis and 3D-Printing of Bioactive *Ela	■				
Method for the Mapping and Quantification of In-vivo Blood F	■	SNR Improvements for Multi-Slice MRI	■				
Method, system, and apparatus of metabolic optical coherence	■	Thin, Soft, Skin-Mounted Microfluidic Networks with Capillar	■				
Microfluidic platelet bioreactor	■	Virtual Electrophysiologic Test	■				
		Vocal Cord Medialization	■				

HEALTHCARE DEVICES, TOOLS & IT PIPELINE (CONT)

■ Available for Licensing

■ Non-Exclusively Licensed/Optioned

■ Exclusively Licensed in Full/Optioned

Phase	Title	
4-HUMAN TESTING	Bi-Modal Ankle-Foot Systems for Standing and Walking	■
	CA Diagnostic with Microscopy	■
	Endoscopic CA Diagnostic	■
	Equilibrium-Point Prosthetic And Orthotic Ankle-Foot Devices	■
	Hearing Aid Interface	■
	HIV Diagnostics	■
	Improved methods of neurological assessment with thermoregul	■
	Improvements to Passive Ankle-foot Prosthesis Capable of Aut	■
	Medical Adhesives	■
	Method and User Interface for Hearing Aid Control	■
	Polymers for Vascular Disease	■
	Pre-Free Colon CA Screening	■
	Rehabilitation Robotics	■
	5-APPROVAL & MARKETING	Childress Ankle
Esophageal Panometry		■
IntelliCare: Mobile apps for depression and anxiety		■
Panometry		■
Point of Care Protein Diagnostics		■
Robotic Arm for Orthopedic Surgery		■
Sticky Flare		■
Surgical Cement Mixer Apparatus		■

THERAPEUTICS PIPELINE

■ Available for Licensing

■ Non-Exclusively Licensed/Optioned

■ Exclusively Licensed in Full/Optioned

Phase	Title	Phase	Title		
1-NEW TARGETS	Adoptive Cell Therapy using SNAs	2-HIT TO LEAD	Noise based coding in cochlear implants		
	Antibiotic-Coated Nanoparticles		Novel RNA Therapeutic Candidate for Fibrotic Diseases		
	Compositions and Methods for the diagnosis of major depressive disorder		Nylon-3-copolymers as Functional Mimics of Lung Surfactant P		
	Conjugation of Peptides to SNAs Using Traceless Linkers		p38MAPK Modulators of CNS Pathology and Cognition		
	CXCR4 Modulators		p50 Compound		
	Engineering Nucleotide Sequence or Composition to Promote En		p53 Reactivators: Cancer		
	Facile synthesis of micellar spherical nucleic acids using t		Peptide-Oligonucleotide Chimeras (POCs) as Programmable Biom		
	Female Fertility Treatment		Peptides for PEDF		
	FGF23 Normalizing Methods		Peptides: Cancer		
	Gene Therapy: Anti-Depression		Plaque Digestion: Cardiovascular		
	HDL-like Nanoparticles: Infection		Protein Folding		
	HDL-NP-NO (CV)		S.epidermidis Lipotechoic Acid (SELTA) for immune modulation		
	Hydrogel Wound Dressing With Cu Ions		Self-Management of Abnormal Scars via Transdermal Delivery o		
	Immunotherapy: Macular Degeneration		Small molecule disruption of the Super Elongation Complex an		
	Kinase Inhibitors: Cancer		Small Molecules against ALS		
	Lipophilic nanoparticles for drug delivery		Soft Materials for Bioprinting		
	MAPK Compounds: CNS Disorders		Sonic hedgehog regulation of human rhabdosphincter muscle: P		
	MLCK Inhibitors		Statin for Hearing Loss Prevention & Therapy		
	Nanopatterning for Controlling Cell Cytoskeleton		Stem Cell Signaling Molecules for Cancer Therapies		
	Nanostructures for Medulloblastoma and other CNS cancers		Substituted pyrazoles as MYC targeting agents		
	Nitric Oxide Releasing High Density Lipoprotein-like Nanoparticles		Substituted Pyrrolo[2,3-d]pyrimidines for the Treatment of C		
	Poly (Lactic-co-Glycolic Acid) (PLGA) Spherical Nucleic Acid		Targeted therapy to stop hemorrhage		
	Pro-Drugs: Streptococcus		TGFb Inhibitor Transgene		
	PTPRD as drug target for treatment of schizophrenia and othe		The application of myosin 9 family members and Slit-Robo-Myo		
	Pulmonary intravascular non-classical monocytes mediate lung		Therapeutic targeting of MLL1 proteolytic cleavage by taspas		
	Scar-Free Tissue Regeneration		Treating Prader-Willi Syndrome and Seizure Disorders		
	Screen for Covalent Drugs		Triggered Release Arsenic: Cancer		
	Self-manageable Abnormal Scar Treatment with Spherical Nucle		Urinary Tract Infection Vaccine		
	Sirt1 Gene Therapy For Improved Wound Healing		Use of 2-(4-acetoxypheyl)-2-Chloro-N-Methyl-Ethylammonium C		
	Sirtuin Inhibitors		Use of REDD1 inhibitors (regulated in development and DNA da		
	Spherical Nucleic Acids with Sheddable PEG Layers		Use of Self-Assembling Peptide Amphiphiles to Prevent Tumor		
	Structure-Function Relationships in the Development of Immun		3-LEAD OPTIMIZATION	2-Aminopyridine Based Selective Neuronal Nitric Oxide Synth	
	Thermoresponsive Adhesive Dressing			2-Aminoquinolines as Novel, Potent, and Selective Inhibitors	
	Tricyclic carbogenic molecules as anticancer agents			9-ING-41-Cancer	
	2-HIT TO LEAD			A bacterial toxin that is a Ras specific protease	A vehicle to introduce selected bacteria to the skin, scalp,
				A Concise Route to the Chiral Pyrrolidine Core for Inhibitor	Alzheimer Immunotherapy
				A new CNS-available formulation HDACi for management of chro	Amino-alkoxyester-linked peptides having anti-angiogenic and
				A Novel 5-HT5A Receptor Antagonist for Treatment of Psychiat	Aminopyridine Dimer Compounds, Compositions and Related Meth
				A novel treatment of sleep-wake disorders by consuming modif	An Improved Synthesis of Novel Pyrrolidine Inhibitors of Neu
				AMP Analogs-Cell Proliferative Disorders	Anti-angiogenic peptides and their esters for treating cance
				AMPA Receptor Antagonists: Neurologic Diseases	Anti-inflammatory Nanomolecules for Tissue Regeneration
				Antibacterials	Antibody and variants thereof for inhibiting Nodal-dependent
				Application of Honokiol in Anti-Ototoxicity and Hearing Prot	Arsenoplatins for Cancer Treatment
				Aptamer-Loaded, Biocompatible Nanoconstructs for Nuclear-Tar	Arylazanypyrazolone Inhibition of Mutant SOD1 Mediated Cyto
				Aromatic heterocycles Inhibitors of Mnk1 and 2	b lactamase Inhibitors: Antibiotics
Bladder Regeneration		Bacterial NOS Inhibitors as Antibiotics			
Bone Marrow Mesenchymal Stem Cells with CD34+ Hematopoietic		Cancer Treatment with phospholipid particles containing a cy			
CD154 Trimer Stabilization: Immunity		Carbohydrate Enhanced Nanoparticles for Immune Modulation			
Chromatin Therapy to Sensitize CA Cells		Combination Therapy for Cardiac Arrhythmias			
Composition and Method for Preventing or Treating a Tauopath		Combination Therapy for Treatment of Cancer			
Composition and Use of PLGA-PEG/PEI nanoparticles		Combinations of NMDAR Modulating Compounds			
Compositions and Methods for Treating Alzheimer's Disease		Development of GLUT4 Selective Inhibitors for Cancer Therapy			
Compositions and Methods to Reduce Inflammatory Responses		Exosomes: Cholesterol Modulation			
Compositions Comprising Epigenetic Modifying Agents and Meth		GABA Aminotransferase Inactivator for the Treatment of Addiction and Hepatocellular C..			
Compounds: Neurologic Disorders		Gaucher's Disease (Glucocerebrosidase)			
Dentin Matrix Protein 1 Ameliorates Chronic Kidney Disease b		Gene Silencing Enhancers			
Enantioselective conjugate additions of amines		Gene Therapy: Atrial Fibrillation			
Epstein-Barr Virus Inhibitors		Glucocerebrosidase Modulators			
FFAR2 Agonists: Type 2 Diabetes		GLUT Antagonists Cancer 2			
G.Protein Inhibitors: Cardiovascular		GLUT Antagonists: Cancer 1			
HIV Therapeutics		Hepatic Cell-Mediated Cardioprotection in Ischemic Injury			
Immunotherapy for Treating Age-Related Macular Degeneration		Herpes Virus Vaccine and Oncolytic Vectors			
Inhibition of Mast Cell Function as a Therapeutic for Chroni		High density lipoprotein functionalized magnetic nanostructu			
Inhibitors Of The Mevalonate Pathway Of Streptococcus Pneumo		Inactivators of Toxoplasma gondii Ornithine Aminotransferase			
Intramolecular Hydrogen Bonding: A Strategy to Bioavailable		Inhibiting Cancer Cell Motility			
Ion Channel Manipulation: Parkinson's		Inhibitors for Triple Negative Breast Cancer			
Iron Chelator as a Treatment for Cardiomyopathy, Heart Failu		Inhibitors: Leukemia			
Maspin: Bone Disorders		Kinase Inhibitors			
Megakaryocytic Leukemia Treatment		Liposomal Statin Formulation			
Megamolecule Synthetic Antibodies		Liposome Coated Nanostructures			
Method for the Preparation and Characterization of DNA-Iron		Liposomes for Bioactive Gas Delivery and Methodology			
Methods of Treating Brain Disorders or Identifying Biomarker		Magnetic-Lipid Nanocapsule (MLNC)- A novel nanoconstruct for			
Methods of Using (1S,3S)-3-amino-4-difluoromethylenyl-1 cycl		Malaria Prophylaxis			
Methods to Reduce Polyposis and Colorectal Cancer		Maspin Protein Mimics for Cancer Treatment			
Molecules to Treat Inflammation		Metarrestin-Akzhimers, Drug Tolerance			
Nanodiamond-Mediated Delivery of Water-Insoluble Therapeutic		Method for the synthesis of heteroyohimbine natural products			
Nanomolecules for the Treatment of Inflammatory Bowel Diseas		Method Of Using Mitotically Inactivated Embryonic Stem Cells			

THERAPEUTICS PIPELINE (CONT)

■ Available for Licensing

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Phase	Title	Phase	Title		
3-LEAD OPTIMIZATION	MW-150-Alzheimers (p38 kinase)	4-PRE-CLINICAL DEVELOPMENT	Tau Monoclonal Antibodies		
	Nanoparticulate Arsenic Platinum Drugs		Templated Spherical High Density Lipoprotein Nanoparticles		
	Neurodegenerative Disease Therapy		Topical Wound Treatment		
	Neuroprotective Therapeutics	5-CLINICAL TRIALS	Antisense Molecules for Wound Healing		
	Novel autophagy-inducing small molecule ML246 as a treatment		AST-005 -Psoriasis TNF		
	Peptide Amphiphiles for Neurite Outgrowth		AST-008- Tumors (Chkpoint inhibitor)		
	Potential treatment of corneal vascularization		Controlling Immune Response using the Polyvalent Nanoarchite		
	Preparation of Pyrimidine-2,4,6,-trione Derivatives and Thei		Detection, Discovery and Therapeutic Methods in Insulin Production		
	Programmable Polypeptide for siRNA and Nucleic Acid Delivery		Gene Regulation with NP-Nucleic Acid		
	Pyrimidine and fused pyrimidine compounds as β-glucocerebros		Gene Regulations with Polyvalent siRNA-Nanoparticle Conjugates		
	Pyrolopyrimidine compounds and their applications		GLYX-13: Depression and Pain		
	RNA-directed DNA Cleavage & Gene Editing		Gold Nanoparticles for Templated Nanomaterials		
	RNAi Inhibitor: Haem Peroxidase (bundled, take this box off pipeline)		Gold Nanoparticles For Therapeutics		
	Scaffold Delivery of Antigen-Specific Suppressor Cells for C		Inhalable and Intranasal Formulations of Neuroactive Peptide		
	Selective Neuronal Nitric Oxide Synthase Inhibitors with Azo		Lead Compounds For Neurodegeneration and Neuroinflammation		
	Self-Assembling Gel System For Treatment Of Myocardial Infar		Locked Nucleic Acid-Nanoparticle Conjugates		
	Small Molecules: Parkinson's Disease		Method to Control Dopaminergic Neuron Pacemaking		
	Substituted fused pyrrolo-diazepinones and uses thereof		Methods of Depression		
	Targeting of Nanoparticles with the Antibody ATN-291		Methods of Identifying Compounds for Treating Depression and Other Related Diseases		
	Targeting Stem Cell Signaling Molecules for New Cancer Inter		Methods of Treating Conditions using Azetidinone Compounds		
	Thiophene-2-carboximidamide Based Selective Neuronal Nitric		Methods of Treating or Ameliorating Migraine		
	TLR4 Inhibitors for Scleroderma Therapy		Modulating Uptake of Oligonucleotide-modified Nanoparticles		
	Use of ECDI-fixed Cell Tolerance as a Method for Preventing		Multifunctional Peptide And oligonucleotide Nanoparticles For Gene Regulation		
	Use Of Stem Cell Factor Alone Or In Combination With GCSF To		Multiple Sclerosis Therapy		
	Using toxic RNAi active sequences embedded in genes in the h		Nanoparticle Conjugates as Anti-Glioma Therapeutics		
	Using Triplet Repeat siRNAs to Selectively Kill Cancer Cells		Nanoparticles For Control Of Drugs		
	4-PRE-CLINICAL DEVELOPMENT		3crr98-Metastasis	6-APPROVAL	NMDA Receptor Agonists and Uses Thereof
			A General Method for Acheiving Nucleic Acid-Nanoparticle Con		NYX2925- Pain Traumatic Brain Injury
			Biocompatible Infinite Coordination Polymer Nanoparticle-Nucleic Acid Conjugates		NYX-783-CNS
			Biomimetic High Density Lipoprotein Nanoparticles to Control		NYX-xxx-CNS
			Bladder Regeneration		Oligonucleotide Gold Nanoparticles for mRNA Regulation and D
			Chronic pelvic pain vaccine		Oligonucleotide Specific Uptake of Nanoconjugates
			Compositions and Methods for Antigen-Specific Tolerance		Organ Transplantation
			Crosslinked Nucleic Acid Live Cell Diagnostics and Therapeut		Secondary Structure Stabilized NMDA Receptor Modulators
			Defining the Alloreactive T Cell Repertoire Using High-Throu		Small Molecules for Tourettes Syndrome
			Display of affinity domain-based targeting proteins		Templated Hollow Phospholipid
			DNA-directed assembly of protein crystals from protein/DNA core-shell nanoparticles		Templated Oligonucleotide Nanoparticles
			E. Coli Isolated from Human Prostate		Treatment of Depressive Disorders
Enhancing the stability and immunomodulatory activity of lip		Treatment of Neuropathic Pain			
Flavanones & Chromanones: Cancer		XCUR17-Psoriasis IL-17RA			
GABA Analogues: Hepatocellular Cancer		7-PLATFORM	Lyrica: Fibromyalgia		
Glycosides for Cancer			A Modular Extracellular Sensor Architecture for Cell-Based B		
Heparin-Binding Peptide Amphiphile for Cardiac Conditions			Enhanced Gene Expression for Gene Therapy Applications		
Heteroaromatic Selective Inhibitors Of Neuronal Nitric Oxide			Exosome Targeting		
Human Melanoma			Inducible Cysteine Protease Autoprocessing of Recombinant Pr		
Inflammation Modulator			Membrane Coatings pH Sensitive Anticancer Drug Delivery		
Inhaled formulation of small molecule inhibitor of Wnt/β-catenin			Nano-devices for local drug delivery, which are immobilized		
Inhibition of Bacterial Transcription by Polyvalent Oligionu			Stem Cell Therapy to Generate Cholinergic Neurons		
Liposomal Particles, Methods of Making Same and Uses Thereof					
Medical Food					
Metarrestin-Metastasis (autophagy)					
Mixed Monolayer Gold Nanoparticles for Cancer Therapeutics					
Nanoparticle Supported Lipid Bi-Layer Bio-Mimetic Structures					
Nitric Oxide Synthase Inhibitors					
NOS Portfolio Inhibitors					
NOS Targeting: Neurodegeneration					
Novel autophagy-inducing natural compound Rg2 as a treatment					
Nucleic Acid-lipoprotein Nanoparticles for Therapeutic Use					
Numonafide: Cancer Therapy					
Oligonucleotide Loading on Silver Nanoparticles					
Peptide Conjugated Particles					
peptide vaccine for lupus					
Peptide-coupled Carboxylate-Surface-Functionalized Biodegrad					
Peptide-coupled Nanoparticles to Treat Autoimmune Disease, Transplant Rejection & All..					
Peptides: Immune tolerance					
Potent and Selective Neuronal Nitric Oxide Synthase Inhibito					
Preventing Scar Formation					
Preventing UTI Symptoms					
Protein/oligonucleotide core-shell nanoparticle therapeutics					
Scaffolds for nNOS Inhibition					
Self-Assembling Nanovirus					
Sensitization to Steroids					
Small Molecules against Hepatocellular Carcinoma					
Small Molecules CNS					
Subacute Administration of NMDA Modulators Alone or in Combination					
Synthesis of Spherical Nucleic Acids via Self-Assembly of Nu					

ENERGY & SUSTAINABILITY PIPELINE

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Phase	Title	
1-RESEARCH	Catalytic Methane to Ethylene Conversion over Mixed Oxide-Su	■
	Deriving hydrogen from bioalcohols in water without producin	■
	Doped SnSe single crystals: ultralow thermal conductivity an	■
	Doped Tin Selenium Single Crystals	■
	PAH Scavenger System (ExBox)	■
	Photocatalyst	■
	Photocatalytic Composite	■
	Protective cathode coatings for lithium-ion batteries	■
2-RESEARCH VALIDATION	Tin-Based 'Perovskites' for Solar Cell Production	■
	Algorithm for Electric Charging Station Placement	■
	All-Carbon Counter Electrode	■
	Carbon Nanoparticle for Energy Storage	■
	Conjugated Polymers and their use in Optoelectronic Devices	■
	Crumpled Graphene Coated Si Nanoparticles	■
	Epoxidation of Unsaturated Hydrocarbons	■
	Functional monolithic polymeric organic framework for ag capture	■
	Graphitized Li-Ion Batteries	■
	Integrated Solid Oxide Fuel Cells	■
	Lead-Free Solar Cells	■
	Methane/Nat Gas-Powered SOFC	■
	Nanocomposites for Energy Storage	■
	New Column Technology for the Efficient Capture of Heavy Met	■
	New Ion Exchange Column Technology for Removal of Cr(VI) and	■
	Novel Batteries for Medical Devices	■
	Organic Photovoltaics w/Nickel Oxide	■
	Polymeric Organic Frameworks	■
	SMOFC Battery Cathode	■
	Solar Cell Coating	■
	Solid Oxide Fuel Cells	■
	Solid State Solar Cell	■
	Solution-Processed High Mobility Inorganic Thin-Film Transis	■
	Stretchable Batteries with Self-Similar Serpentine Interconn	■
	Synthesis of Layered Metal Sulfide Ion-Exchangers	■
	Synthesis of Porous Amorphous Metal Sulfide Ion Exchangers	■
	Water Detoxification Method	■
3-COMMERCIAL VALIDATION	Carbon Nanotubes for Photocatalysis	■
	Electrode Material Composed of Graphene-Composite Materials	■
	GLi ion exchange materials from brines and seawater	■
	Gold Isolation Method	■
	Heavy Metal Removal and Gas Separation (title on Fbox: cost-effective chalcogenide po..	■
	Material Composed of Graphite Network Formed from Reconstit	■
	Polymeric Blends Formed by Solid-State Shear Pulverization	■
	Reactively Sputtered TiO2 Nanocomposite Thin Films for Photo	■
	Removal of Heavy Metal and Radioactive Pollutants from Water	■
	Si Nanoparticles for Rechargeable Lithium Batteries	■

ENGINEERING & TECHNOLOGY PIPELINE

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Phase	Title	
1-RESEARCH	All-Carbon Spin Logic	■
	Bipolar Magnetic Junction	■
	Computing Logic Family	■
	Design and Simulation of a Snapshot Multi Focal Interferomet	■
	Dielectrostrictive sensors for shear stress measurement, pro	■
	Emitter-Coupled Spin Transistor Logic	■
	Gate Tunable Nanoscale Memristors	■
	High-Speed Magnetic Memory Device	■
	Integrated On-Chip Thermocouple Array	■
	ISOLATION OF PHOSPHORENE AND RELATED AMBIENT-REACTIVE NANOMA	■
	Magnetic Diode Based Programmable Logic	■
	Molecular Quantum Interference and Electronic Devices	■
	Monolithically Widely Tunable Quantum Cascade Lasers Based o	■
	Neighbor Discovery in Wireless Networks via Compressed Sensi	■
	New Class of Molecular Iodosalts for Use in Next Generation Solar Cells	■
	Noncentrosymmetric Metal Electrodes for Ferroic Devices	■
	Novel Logic Family w/Nanowire Transistors	■
	Novel Protective Polymers for Circuitry	■
	Organic Ferroelectronics	■
	Spin-Diode Logic Family	■
Transverse Thermoelectrics	■	
Two Qubit Gate	■	
Ultralow Power Carbon Nanotube Logic Circuits	■	
2-RESEARCH VALIDATION	Antiamipolar Heterojunctions from Semiconductors	■
	Atomic Force Electroluminescence Microscopy	■
	AutoLum: Precise Automatic Camera and Display Calibration AI	■
	Bridge Enhanced Nanoscale Impedance Microscopy	■
	Broad Frequency Electric Field Sensor	■
	Contactless Probe for Detecting Buried Conducting Layers	■
	Deducing Charge Density Gradients in Doped Semiconductors	■
	Design Techniques for Area and Energy Efficient Time Domain	■
	Direct Conversion of Infrared Images with High Conversion Ga	■
	Gate tunable p-n heterojunction diode	■
	High Speed/Low Dose Multi-Objective Autonomous Scanning Materials Imaging	■
	Improved Nonlinear Optic Glassy Fiber and Thin Film	■
	Magnetic Field Sensors	■
	Novel Separator for Electricity Storage Devices	■
	Portable cell-free molecular sensing platform	■
	Silver Cathode for Lithium Batteries	■
	Synthesis of borophenes	■
	TEM Nanostructure Characterization Device	■
	Tracking Circuit for Hardware Security and Reconfiguration	■
	Two Dimensional Assembly of Graphite Oxide Single Layers, an	■
WiFM	■	
Wireless Devices for Virtual Reality Applications	■	
Zirconium-Oxide Tunnel Barriers	■	
3-COMMERCIAL VALIDATION	3D Printing of Nanocomposites	■
	Barium Titanate Waveguides	■
	Hot Pressing Method for Transistors	■
	Hybrid Thin-Film Transistors	■
	Low Voltage Organic Electro-optics	■
	Metal Oxide Thin Films	■
	Organic Semiconductors	■
	Organic Transparent Electrodes	■
	Planar Photonic Jet Lens for Small Spot-Size and Large Field View	■
	Printable Dielectrics for Electronic Devices	■
	Single-Molecule Protein Arrays Enabled by Scanning Probe Blo	■
	Stretchable Si Integrated Circuits	■
	Thiophene-based materials for optoelectronics	■
	Transparent Conducting Graphene-Silica Thin Films	■
Wireless Skin Hydration Sensor with Methods and Uses	■	
4-MARKET	Electrostatics Multitouch Haptic Display	■

MATERIALS & INDUSTRIAL PROCESSES PIPELINE

■ Available for Licensing

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Phase	Title		Phase	Title		
1-RESEARCH	An Organo-Lewis Acid as Cocatalyst for Cationic Homogeneous	■	2-RESEARCH VALIDATION	Single Photon Detectors & Imagers	■	
	CxPbX3: perovskites for gamma-ray detection applications	■		Stress Manipulated Coating for Figure Reshape of Optics Mirrors	■	
	Ductile Magnesium Alloys	■		Substrate-Independent Anticoagulant and Antibacterial Coatings	■	
	Gradient Spray Coating Polymer Pen Arrays	■		Synthesis of Uniform Gold Nanoparticles through Reductive Gr	■	
	High Temperature Steel for Steam Turbine Applications	■		Thickness Sorting of 2D Nanomaterials	■	
	In Situ Photocatalytic and Thermocatalytic Activities	■		Tri-Pyramid Robot	■	
	Novel X-Ray and γ-Ray Detector Material	■		Water Processable Graphene Oxide	■	
	Oil Soluble Organo-Silver Additives as High-Temperature Addi	■		Whisker Sensor	■	
	Photonic Crystal Built with Nanoparticles and Spacer Groups	■		Zinc Sensor for MRI	■	
	Polysulfide compounds for environmental remediation	■		3-COMMERCIAL VALIDATION	A Novel Poly (Diol-Co-Citrate) Hydroxyapatite Composite For Clinical Fixation De...	■
	Production of Substituted Imidazole Molecules	■			Additive Manufacturing At Phase Boundaries	■
	Silica Poymer Pen Lithography	■			Adhesive Polymer Coating	■
	Synthesis of 2-Aryl Indoles	■			Aluminum Superalloys for Use in High Temperature Application	■
	Synthesis of Privileged 7-Membered Ring Molecules	■			CD-MOFs for Storage of Active Ingredients	■
2-RESEARCH VALIDATION	2D Nanomaterial Sorting	■	Ceramic Composite		■	
	A Universal Method for Production and 3D-Printing of High-Pa	■	CNT Reinforced Cement		■	
	Adhesive Hydrogels for Surgery	■	Conductive Tin and Zinc-Doped Thin Films		■	
	An Automated Toolpath Generation Method for Double Sided Inc	■	Controlling Charge Injection in OLEDs		■	
	Anti-microbial hydrogel coatings	■	Crosslinkable Polymer Dielectrics		■	
	Arrays for X-Ray Optics Lamination	■	Electron-Blocking Layer For Improved Organic Photovoltaics		■	
	Atomic Force Photovoltaic Microscopy	■	Enumerative Generator of Hypothetical Metal-Organic Framework		■	
	Biocompatible Hydrogels	■	Fabrication of Metal Composite Thin Films		■	
	Compression and Aggregation-resistant Particles of Crumpled	■	Gas-absorbing Metal Organic Frameworks		■	
	DOPA-Melanin Films	■	Global Thermal Control of Additive Manufacturing	■		
	Efficient Thin-Film Synthesis	■	Graphene Oxide Paper	■		
	Electro-Optic Modulator	■	Graphite Nanoplatelet Dispersion	■		
	Encapsulation of Single Walled Carbon Nanotubes Via Self-Ass	■	Improved Power Conversion For Organic Photovoltaics	■		
	Enhanced Strength Cement Composites	■	Intense Pulsed Light Annealing of Graphene Inks	■		
	Extra Strength Magnesium Alloys	■	Interfacial Shear-Flow Additive Manufacturing	■		
	Extra-Strength Hydrogel Adhesives	■	Kinetic Separation of Olefin/Paraffin with MOF	■		
	Flash Reduction of Graphitic Oxide to Graphene	■	Majority Graphene 3D-Printed Composites	■		
	Fluorescent Imaging of Graphene-based Materials	■	METHOD AND APPARATUS FOR DOUBLE-SIDED INCREMENTAL FLANGING	■		
	Gas-Phase Deposition in MOF	■	Method of Epitaxial Growth of MgO	■		
	Graphene Concentration Method	■	Method to Improve Paint Production with Titanium Oxide	■		
	Graphene-Titania Nanocomposite Photocatalysts	■	Micro-surface Texturing System	■		
	High Accuracy Double-Sided Incremental Forming	■	Micro-Textured Surfaces	■		
	High Energy Density Nanocomposites	■	Monolithic, Multi-Component Solid Oxide Fuel Cells from Mult	■		
	Hole Array Films	■	Multifunctional Bio-Inspired Coating Method For Modification	■		
	Hydrogel Wound Dressing With Controlled Ion Release Properties	■	Nanocomposite Film and Paper Production	■		
	Imaging for Steroid	■	Nanoporous Materials	■		
	Isolation of single-walled nanotubes	■	Nanotube Reinforced Cement	■		
	Laser-Assisted Oxide Nanopatterning	■	Novel Materials for Polymer Light Emitting Diodes	■		
	Laser-Induced Plasma Micromachining (LIPMM)	■	Novel Ni-Based Alloys	■		
	Low-Cost Semiconducting Single-Walled Nanotubes	■	Novel Organic Self-Assembled Nanodielectrics	■		
	Magnetic Shape-Memory Foam	■	Novel Solid Organic Host Silicon Matrix Polymer	■		
	Maskless Nano-Patterning	■	Nucleic Acid-Metal Organic Framework (MOF) Nanoparticle Conj	■		
	Mesoscale Metallic Pyramids With Nanoscale Tips	■	Organic Photovoltaic Cells	■		
	Method for Fabricating Soft and Hard Lunar, Martian, and Add	■	Organic Semiconductor Materials	■		
	Micro Drug Delivery Device	■	Proximity Sensor Based on Cantilever	■		
	Multi-layer 2D perovskites for solar cell applications	■	Purification Of Carbon Nanotubes By Electronic Structure Via	■		
	Multifunctional Nanocomposites	■	Semi-conducting Nanotubes	■		
	Nano Fountain Pen	■	Sequestration and Detection of Carbon Dioxide with a Metal O	■		
	Nanodiamond Particle Complexes	■	Sequestration and Detection of Harmful Chemicals in a Nanopo	■		
	Nanoparticle Sorting Method; Improved Nanoparticle Processing for Energy Use	■	Silole-Containing Polymers	■		
	Nanoscale Doping for Transparent Conducting Oxides	■	Superlattice Dielectrics	■		
	Nanoscale Self-Assembling Organic Dielectrics	■	Transparent Nanowire Transistors	■		
	Nanoscale Subsurface Imaging	■	Unconventional Electro-optic Chromophores	■		
	Nitrogen-Free Plant Polyphenol Derived Coatings	■	4-MARKET	Advanced Materials	■	
	Novel MOF based on Azolium Salts	■		Graphene Ink for Gravure Printing	■	
	Novel Synthetic Route to Diazaperopyrenium Dication and the	■		Graphene Ink for Screen Printing	■	
p-type Transparent Conductors	■	High Conductivity Graphene Inks		■		
PbTe Composite Material for Thermoelectric Devices	■	Solid-State Shear Pulverization of Neat Polyesters Yielding		■		
Plant Polyphenol Coatings & Methods	■					
Polycrystal Memory Foam for Energy Applications	■					
Programmable Soft Lithography: Solvent-Assisted Nanoscale E	■					
PtAuCu nanocatalyst for electrochemical hydrogen evolution	■					
Route to Diazaperopyrenium Dication	■					
Self-Assembled Monolayer Mediated Silica Coating Of Silver N	■					
Self-assembly of Oligo Amphiphiles	■					

SOFTWARE & SERVICES PIPELINE

■ Available for Licensing

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Phase	Title	
1-RESEARCH	Method and Apparatus for Physical and Medium Access Control	■
	Olfactory based virtual reality with sub-second timescale co	■
2-RESEARCH VALIDATION	A Method for Acquiring Intentionally Limited Data and the Ma	■
	Efficient Incremental Algorithm for Minimum Area Retiming	■
	Fourier-domain Mobility Spectrum Analysis (FMSA)	■
	Ichef	■
	Low cost sensing and communication system for rotorcraft	■
	Mint (Materials Interface)	■
	Net Theater: Dynamically Constructing Theatrical Experience	■
	Novel Logic Encryption Designs for IC Protection	■
	Private Data Networks: Federated Databases for Mutually Dist	■
	Radio Resource Management in Large Wireless Networks	■
	Street-Level IP Geolocation Technology	■
	System and method for multi user two-way ranging	■
	Top Down Proteomics Software Libraries	■
	User-Driven Indoor Visibility Localization with Wayfinding	■
	VirtualCar: Computational simulation of self-propelling auto	■
3-COMMERCIAL VALIDATION	6DoS (Six-degrees-of-separation)	■
	A method for speeding the learning of equalization parameter	■
	AutoCog: Measuring Description-to-permission Fidelity in And	■
	Central Line Insertion Training Curriculum	■
	Equalization Preference Learning Algorithm	■
	Finding Trending Topics on Social Media	■
	MAT2C: A MATLAB-to-C Translator	■
	Motorized Software: Controlled Calibrator	■
	Northwestern Anagram Test (NAT)	■
	Northwestern Assessment of Verb Inflection (NAVI)	■
	Northwestern Assessment of Verbs & Sentences (NAVS)	■
	Northwestern Naming Battery (NNB)	■
	Real-Time Patient Volume Predictor Instrument	■
	REPET (REpeating Pattern Extraction Technique)	■
	SAFE (Situational Awareness for Events): A Data Visualizatio	■
	Sequential Action Control	■
	Simulation-based Mastery Learning for Peripherally Inserted	■
	Simulation-based Mastery Learning for Ultrasound Guided Peri	■
	Social Media-Based Preference Determination and Recommendati	■
	The Digital Loft	■
	Treatment of Underlying Forms (TUF)	■
Twitter Profiling/Mindshare	■	
Uranine: Real-time Privacy Leakage Detection and Prevention	■	
4-MARKET	A Method to Search Audio Synthesizers Using Vocal Imitation	■
	Administrative Network Manager	■
	Advanced Encryption System	■
	Algorithm to Produce High Performance Steel & Alloys	■
	AppShield: A Proxy-based Data Access Mechanism in Enterprise	■
	Artificial Intelligence & Writing	■
	bloXroute: a Scalable Trustless Blockchain Distribution Network	■
	Chematica	■
	Digital Language Lab	■
	Integrated Scheduling Software	■
	Marketing Algorithm Based on Social Media	■
Optimization Software	■	

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