

CMSR P30 Pilot Program converts \$500k into \$21.2M in New Investigator Pilot Program

Research scientists aren't born, they're made – and it doesn't happen overnight. A critical factor in their early development: seed funds to launch their own research projects.

Federal and University of Rochester-sourced funds help young researchers at CMSR build skills in scientific investigation, writing research papers and grant proposals, and presenting their work. A relatively modest investment in promising researchers yields big returns for them.

A core belief of the CMSR is that outstanding New/Early Stage Investigators (N/ESI, defined by NIH as faculty who have not received a large independent research grant) who gain access to pilot research funding, and state-of-the-art research equipment, will produce the preliminary data necessary to support their NIH R01 and K-award applications, and establish themselves as independent investigators and national leaders in their respective field. Evidence that the CMSR is excelling with this primary mission comes from the remarkable 42-fold return on investment (ROI) on its NIH P30 Core Center Pilot Program. The CMSR extended a total of \$500K in pilots from 2014-2018 (\$100K per year, approximately \$22.7K per award to 24 awardees, including 2 applicants that only received Research Core support, but no budget).

These pilots catalyzed \$21,169,818 in extramural funding from NIH and other agencies (direct cost only) to date. Beyond the financial ROI, the pilots enabled 62 publications and resulted in 17 faculty promotions. To add to its P30 Pilot Program, the CMSR plans to award \$30K from a new Discovery Fund (awards up to \$5,000 to be used in the CMSR's Research Cores), which will be expeditiously awarded by the CMSR's Mentoring Core without a formal grant application or review process.

"At a time when federal funding for investigations is at a premium – and when many young researchers choose industry over academic research – every dollar matters so much," said Edward Schwarz, Ph.D., Richard and Margaret Burton Distinguished Professor of Orthopaedics and Director of CMSR. "P30 funding enables our researchers to move from collaborating on our PIs' research projects, to working independently and developing autonomy, discipline, experience and professional networks that will serve them over the course of their careers, and help us develop research scientists for the future."

On August 8, 2020, the CMSR submitted its 5-year competitive renewal application to continue its highly successful NIH-funded P30 Core Center that has been running since 2011. If renewed, this University of Rochester Resource-based Center for Bone, Muscle and Orthopaedic Research (ROCSTARR) program would receive \$500k per year, including \$100k per year in P30 Pilot grant funding for N/ESI, and would run from July 2021 to June 2026.

Pilot Year	Principal Investigator	✓ N/ESI ROI or Equivalent Moved to Another	Pilot Title	Pilot Award Amount	# of PMCID Pubs	Promotion	Funding Agency and Grant Number	Period	Funding Directs (ROI)
2014	Loiselle, Alayna	✓	"Type II Diabetes impairs tendon homeostasis and repair through decreased insulin receptor signaling and Mmp2 activity."	\$ 25,000	3	Assistant to Associate Professor	NIH/NIAMS R01AR073169 NIH/NIAMS R21AR073961 NIH/NIAMS K01AR068386 Internal - University Research Award	4/1/18 - 2/28/23 7/1/18 - 6/30/21 4/1/16 - 3/31/20 7/1/15 - 6/30/16	\$1,100,000 \$242,000 \$447,800 \$50,000
	Buckley, Mark	✓	"Defining the Role of Mechanical Compression in Insertional Achilles Tendinopathy"	\$ 25,000	4	Assistant to Associate Professor with tenure	NIH/NIAMS R01AR070765 Valerie and Frank Furth Award Internal - University Research Award	8/1/17 - 3/31/22 7/1/15 - 6/30/16 7/1/15 - 6/30/16 7/1/16 - 6/30/17	\$1,100,000 \$10,000 \$50,000 \$72,600
	Daiss, John		"Diagnosis and Monitoring of Ongoing <i>Staphylococcus aureus</i> Infections Using Circulating Cell-Free Bacterial DNA and Circulating Antibody-Secreting Cells"	\$ 12,500	4		NIH/NIAMS R21 AI119646 NIA/NIAMS P50 AR072000	2/15/16 - 10/31/18 9/1/17 - 8/31/22	\$275,000 \$1,230,193
	Dong, Yufeng	✓	"Effects of PTH on stem cell sheet-wrapped allograft healing in a murine model"	\$ 25,000	3	Tenured Associate Professor and Director of Translational Research in Orthopaedic Surgery at LSU Shreveport	NIH/NIAMS R21 AR063803 NIH/NIAMS R01 AR073277	7/1/13 - 6/30/16 1/1/19 - 12/31/23	\$233,750 \$920,120
	Yao, Zhenqiang	✓	"Development of Bone-targeted Chloroquine using Novel Bisphosphonate Prodrug Technology to Inhibit Bone Loss"	\$ 12,500	6	Research Assistant Professor to Assistant Professor	NIH/NIA R01 AG049994 New York State DOH #C34928GG Breast Cancer Coalition of Rochester 2015	1/1/16 - 12/31/20 11/1/19 - 10/30/21 4/1/15 - 3/31/17	\$820,000 \$338,781 \$50,000
2015	Elbarbary, Reyad	✓	"Regulation of Adipogenesis by Tudor-SN-mediated miRNA Decay: Implications in Obesity-impaired Fracture Healing"	\$ 25,000	2	Research Assistant Professor to Assistant Professor	NIH/NIDDK R01 DK121327	9/11/2019 - 6/30/24	\$1,250,000
	Eliseev, Roman	✓	"Effect of cyclophilin D knock-out on bone loss after hormone depletion"	\$ 25,000	4	Assistant to Associate Professor	NIH/NIAMS R21 AR070928 NIH/NIAMS R01 AR072601 OREF/MTF 000587 Sanabit Technologies Research Contract Internal Award Wilmot Cancer Institute CTSI	8/1/17 - 5/31/19 3/1/18 - 12/31/22 7/1/17 - 6/30/19 10/23/17 - 8/31/20 7/1/19 - 6/30/20 6/1/19 - 5/31/20	\$275,000 \$1,100,000 \$98,000 \$75,000 \$100,000 \$50,000
	Weber, David	✓	"Assessment of Calcium Metabolism in Adolescents with Type I Diabetes Stable Calcium Isotopes Method"	\$ 25,000	1	ASSOCIATE CHOP	NIH/NIDDK K23 DK114477 ASBMR Rising Star Award	7/1/17 - 5/31/20 7/1/19 - 6/30/20	\$531,189 \$60,000
	Frisch, Benjamin		"The role of CCL3 in leukemia-induced osteolineage dysfunction"	\$ 25,000	4	Research Assistant Professor to Assistant Professor	UR Ventures Drug Development Award University Research Award UL1 TR002001 Pilot Award	6/1/18 - 5/31/19 7/1/16 - 6/30/18 8/15/16 - 5/31/17	\$50,000 \$75,000 \$50,000
	Oh, Irvin		"Clinical Applicability of Using Circulating Antibody-Secreting Cells for Assessments of Treatment Response and Prognosis of Active	Cores Support	5	Assistant to Associate Professor	NIH/NIAMS R21 AR073321 NIH/NIAMS R21 AR074571 American Orthopaedic Foot & Ankle Society	9/13/18 - 8/31/21 5/1/18 - 2/28/20 5/1/19 - 4/30/20	\$242,000 \$242,000 \$40,000
2016	Elfar, John	✓	"4AP to Prevent Muscle Atrophy after Peripheral Nerve Injury"	\$ 20,000	5	Assoc Prof to Michael and Myrtle Baker Professor and Vice Chair for Research	DOD CDMRP OR150103 DOD CDMRP DM180396	9/30/16 - 9/29/19 9/1/19 - 2/28/21	\$991,400 \$521,097
	Kuo, Catherine	✓	"Axial and Limb Tendon Progenitor Cell Baseline and FGF4-Induced Differences"	\$ 20,000	4	Associate to Associate Professor with tenure	NIH/NIMAS R01 AR072886 DOD BC160689 Internal Award Tech Development Fund	9/21/17 - 8/31/21 12/1/16 - 1/31/21 4/1/20 - 3/31/21	\$1,000,000 \$240,972 \$100,000
	Zhang, Hengwei		"Proteasome inhibition enhanced bone fracture healing through PDGFRb signaling"	\$ 20,000	1		NIH/NIA R01 AG059775 (Co-I)	1/1/20 - 11/30/24	\$1,006,692
	Xie, Chao	✓	"Anti-IsdB IgG Antibodies Promote Sepsis, Multi-organ Failure and Death in <i>Staphylococcus aureus</i> Infected Patients"	\$ 20,000	4	Assistant to Associate Professor	NIH/NIAMS R44 AI25060 NIH/NIAMS, P50 AR072000	1/13/20-12/31/22 9/1/17-8/31/22	\$487,011 \$1,623,635
	Jonason, Jennifer		"The Role of RUNX2 in the Progression of Post-Traumatic Osteoarthritis"	\$ 20,000	2		NIH/NIAMS R21 AR070928	8/1/17 - 5/31/19	\$275,000
2017	Kamal, Fadia	✓	"Establishing an in vivo bioimaging mouse model for cartilage degeneration quantification and preclinical OA drug discovery" (Not Funded)	Cores Support	1	Research Assistant Professor to Assistant Professor	NIH/NIAMS R01 AR071968	2/21/19 - 1/31/24	\$1,100,000
	Jonason, Jennifer		"Role of the CCL20/CCR6 Chemokine Axis in the Development of Post-Traumatic Osteoarthritis"	\$ 25,000	1		NIH/NIAMS R21 AR070928	8/1/17 - 5/31/19 5/7/20 - 4/30/25	\$275,000 \$1,100,000
	Thirukumaran, Caroline	✓	"Big Data Methods for Surveillance of Post-Operative Complications in Orthopaedics"	\$ 25,000	1	Promoted from Graduate Research Assistant to Assistant Professor (tenure track)	NIH/NIMHD R01 MD012422	9/20/17 - 4/30/21	\$1,000,000
	Buckley, Mark		"The influence of chondrocyte mechano-protective adaptation on the progression of osteoarthritis and the effect of aging"	\$25,000	3	Assistant to Associate Professor with tenure	IanTECH/Carl Zeiss Meditec 061087-002 University of Rochester PumpPrimer II	1/1/19 - 12/31/20 7/1/19 - 6/30/20	\$19,096 \$45,000
	Eliseev, Roman		"Generation of a novel transgenic mouse to study the role of mitochondrial dysfunction in the pathogenesis of osteoarthritis"	\$ 25,000		Assistant to Associate Professor			
2018	Calvin, Cole		"IL-12 Treatment Attenuation of Skeletal Muscle Loss in a Murine Model of Pancreatic Cancer"	\$ 25,000	1		NIH/NCI Washington University SPORE Grant	7/1/20 - 6/30/22	\$150,000
	Jonason, Jennifer	✓	"Inflammation-mediated mineralization of the meniscus in OA pathogenesis"	\$ 25,000		Research Assistant Professor to Research Associate Professor	NIH/NIAMS R01 AR076623		
	Ketonis, Constantinos		"Establishment of a Murine Model of Pyogenic Flexor Tenosynovitis and Investigation of Novel Treatment Strategies"	\$ 25,000					
	Zhang, Yi		"Investigation into the mechanism of radioulnar synostosis."	\$ 25,000	3				