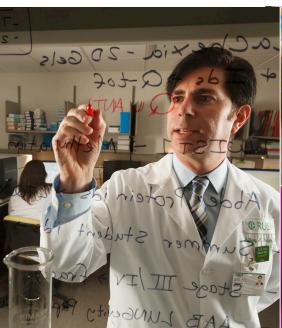
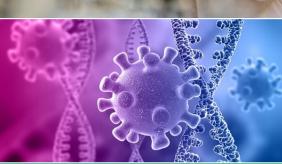
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2021 Rush Mentoring ProgramsSeventh Annual Symposium

Sept. 29-30, 2021

In-Person Podium Presentations

Noon to 3:15 p.m. Searle Conference Center: Brainard (Professional Building, Room 542)

Virtual Poster Session

From Sept. 29 at 3:15 p.m. to Sept. 30 at 5 p.m. VoiceThread (Asynchronous)

Office of Faculty Affairs
Office of Mentoring Programs

Seventh Annual Symposium | Sept. 29 - 30, 2021

Noon - 12:05 p.m. Introductory Remarks

Susan Chubinskaya, PhD

Vice Provost, Office of Faculty Affairs

Susan L. Freeman, MD, MS

Provost and Senior Vice President

The Robert C. and Naomi T. Borwell Presidential Chair

Rush University

12:05 - 12:35 p.m Keynote Speaker

Niranjan S. Karnik, MD, PhD, FAPA, DFAACAP

The Cynthia Oudejans Harris, MD, Professor of Psychiatry

Associate Dean for Community Behavioral Health, Rush Medical College

Director, Great Lakes Node of the National Drug Abuse Treatment Clinical Trials Network

Co-Director, Institute for Translational Medicine KL2 Training Program

2021 Cohn Fellow Presentations

12:35 - 12:50 p.m. Peripheral Adenosine Mono-Phosphate Activated Kinase Alpha as a Novel Analgesic

Target for Chronic Low Back Pain

Vaskar Das, PhD

Assistant Professor

Department of Anesthesiology

Rush Medical College

12:50 - 1:05 p.m. Lifestyle and Cognitive Decline in Patients With Stroke: A Population-Based Cohort Study

Klodian Dhana, MD, PhD

Assistant Professor

Department of Internal Medicine (Division of Digestive Diseases and Nutrition)

Rush Medical College

1:05 - 1:20 p.m. Role of Periostin Expressing Cells in Intramembranous Bone Regeneration

Frank C. Ko, PhD

Assistant Professor

Department of Anatomy and Cell Biology

Rush Medical College

1:20 - 1:35 p.m. Digital Mental Health for Teens With Socially Complex Needs: Considerations From

Teens and Caregivers During the Pandemic and Beyond

Colleen Stiles-Shields, PhD

Assistant Professor

Department of Psychiatry and Behavioral Sciences

Rush Medical College

1:35 - 1:50 p.m. Notch Signaling Is Activated in Knee-Innervating Dorsal Root Ganglia in

Experimental Osteoarthritis

Lai Wang, MD, PhD

Assistant Professor

Department of Internal Medicine (Division of Rheumatology)

Rush Medical College

1:50 - 2:05 p.m. Award Announcements

2021 Mentee, Mentor and Postdoctoral Mentor of the Year

2:05 - 2:15 p.m. Break

2021 Abstract Winner Presentations

2:15 - 2:30 p.m. Recapitulating Stroma-Epithelial Interaction in Pancreatic Ductal Adenocarcinoma:

> A Patient-Oriented Approach Muhammad R. Hague, PhD

Postdoctoral Fellow

Rush Center for Integrated Microbiome and Chronobiology Research

Rush University Medical Center

2:30 - 2:45 p.m. Attenuation of Cue-Induced Heroin-Seeking by the Atypical Antidepressant Mirtazapine

Amanda L. Persons, PhD

Associate Professor

Department of Physician Assistant Studies

College of Health Sciences

2:45 - 3:00 p.m. Association of Alzheimer's Disease Pathology With Metals Released From

Total Joint Replacements

Robin Pourzal, PhD

Associate Professor

Department of Orthopedic Surgery

Rush Medical College

Director, Implant Materials Analysis

3:00 - 3:15 p.m. Preliminary Investigation of Cement-Implant Interface Debonding in

Total Knee Replacements

Catherine Yuh, PhD

Postdoctoral Fellow

Department of Orthopedic Surgery

Rush Medical College

Starts at 3:15 p.m. Virtual Poster Session - VoiceThread (Asynchronous)

From Sept. 29 at 3:15 p.m. to Sept. 30 at 5 p.m.

Rush Mentoring Programs

Class of 2021 Cohn Fellows



Vaskar Das. PhD Assistant Professor Department of Anesthesiology Rush Medical College



Frank C. Ko. PhD Assistant Professor Department of Anatomy and Cell Biology Rush Medical College

Klodian Dhana, MD, PhD

Assistant Professor Department of Internal Medicine (Division of Digestive Diseases and Nutrition) Rush Medical College



Lai Wang, MD, PhD **Assistant Professor** (Division of Rheumatology)

Department of Internal Medicine Rush Medical College

Colleen Stiles-Shields. PhD Assistant Professor Department of Psychiatry and Behavioral Sciences **Rush Medical College**

Award Winners



2021 Mentee of the Year

Ryan Ross, PhD

Assistant Professor

Department of Anatomy and Cell Biology
Rush Medical College

Awarded by the Rush Mentoring Programs in recognition of excellence in scholarly work, leadership and involvement in the Mentoring Program

From nominator D. Rick Sumner, PhD:

Ryan exemplifies everything one would want in a mentee, including personal and professional integrity, ability to both lead and follow while also looking out for the greater good of the lab and being savvy about his own needs for professional advancement. He has been integral to my lab developing a number of new research directions, including a focus on bone composition, as well as developing a novel small animal model for studying bone remodeling. That model was funded with me as the principal investigator (PI) in an R21, and now Ryan has recently received a 19th percentile ranking on the first submission of an R01.

His ability to consistently present and publish has made him unusually well-known nationally and internationally for someone at his level of training. For instance, he has served as an ambassador for the Orthopaedic Research Society since 2017. In that capacity, he co-planned regional meetings at the University of Michigan and at Rush. Ryan has become an effective mentor himself. Due to a variety of circumstances, he is the primary adviser of three PhD students, which is unusual at Rush for someone at his faculty rank.

Ryan currently is a PI on a K01 and an R03 grant and is a subcontract PI on another National Institutes of Health (NIH) grant. He has several other grants pending, including a Searle grant, an Orthopedic Research and Education Foundation grant, a Campbell Foundation grant, an NIH R01 grant on an area he has developed independently of me (bone and HIV), and a subcontract on an NIH grant in addition to the R01 with the 19th percentile ranking that will be resubmitted in the next year. He has 30 PubMed publications with a Rush affiliation (2014-2021), with 13 of these in 2020 or 2021. Ryan was recently appointed to the ORS Community Council. He was recently invited as a grant reviewer for the NIH and the Deutsche Forschungsgemeinschaft and is a peer reviewer for several journals.

Ryan started as a T32 postdoctoral fellow in 2011 in my laboratory and then was appointed as an assistant professor in 2016. He is clearly dedicated to Rush and has found collaborators at Rush (e.g., in the Alzheimer's Disease Center and the Department of Microbial Pathogens and Immunity), locally (UIC and Northwestern), nationally (Indiana University, Harvard University and Columbia University) and internationally (University of Odense, Denmark). Besides all of this, he has been a key member of the Rush MicroCT/ Histology Core since 2012 and has provided guidance for many researchers on the use of microcomputed tomography. He served on an LCME preparation task force and is currently on the departmental advisory committee. He is a co-chair of the JOINT Seminar series. He served on the Rush Medical College Faculty Council from 2015-2019.

Ryan has been a fixture in the Mentoring Program. He was one of the founding board members of the Rush Postdoctoral Association and was a full participant in its activities and successes. He has served on the Mentoring Program Symposium steering committee since 2017. He was a Cohn Fellow in 2016-2017. He is a consistent contributor to mentoring sessions and will soon be more known as a mentor than a mentee. In fact, he has mentored two high school students and two medical students (in addition to the graduate students mentioned above).

I'm sure I've left out some accomplishments, and they are plentiful. However, the qualities that have most impressed me include his broad scientific curiosity and knowledge, and his helpful way of interacting with all around him.

Award Winners



2021 Mentor of the Year

D. Rick Sumner, PhD

The Mary Lou Bell McGrew Presidential Professor for Medical Research
Professor and Chairperson, Department of Anatomy and Cell Biology, Rush Medical College
Fellow: American Association for the Advancement of Science, American Association for Anatomy,
Orthopaedic Research Society

Awarded by the Rush Mentoring Programs in recognition of outstanding contributions to mentees success, commitment and involvement in the Mentoring Program

From nominator Frank C. Ko, PhD:

From a funding perspective, Dr. Sumner's mentors have been successful this year. One of the mentees, Dr. Ryan Ross, has secured an NIH RO3, Rush Catalyst and several other internal awards. I have also acquired NIH KO1 and an ORS Collaborative exchange grant. Dr. Sumner's assistance with these grants have no doubt played a crucial role in broadening the relevance to our studies. From a publication perspective, Dr. Sumner continues to guide his mentees to stay productive in the scholarly work.

Dr. Sumner provided key support (both financial and knowledge) that allowed us to acquire preliminary data that eventually led to my ORS collaborative exchange grant and a National Institutes of Health K01 award. In addition, in 2020-2021 we have published five papers together, two of those with me being the first author. Dr. Sumner always provides important feedback that improves the scientific impact of the manuscript.

As an international leader in orthopedic research, Dr. Sumner has connections that makes it easy for his mentees to approach senior investigators. I have been able to reach out to a skeletal stem cell expert (Noriaki Ono), nerve and bone expert (Erica Scheller) and developmental biologist (Deneen Wellik) for either seminar speaking engagements or advisory roles for my grant.

Dr. Sumner has been a speaker and is a committee member for the Mentoring Program in the past. While his involvement these days has mostly been limited to attending the seminars (which is still remarkable as a senior mentor), he continues to strongly encourage junior faculty within his department to participate in the Mentoring Programs.

Award Winners



2021 Postdoctoral Mentor of the Year

Rachel E. Miller, PhD
Assistant Professor
Department of Internal Medicine
(Division of Rheumatology)
Rush Medical College

Awarded by the Rush Postdoctoral Society in recognition of outstanding contributions to the postdoctoral fellow's success, commitment and involvement in the Mentoring Program

From nominator Terese Geraghty, PhD:

Rachel Miller is an exemplary scientist, engineer and professor, and she is also an excellent mentor. Not only does she go above and beyond as the leader of the lab, but she is also very approachable and friendly, and treats everyone with mutual care and respect. She is a responsive, careful, critical thinker and has an impeccable work ethic. As a mentor, she is mindful of the career development of each of her students, trainees and techs, and does what she can to augment their growth. As a professor, she is involved in the Graduate College curriculum committee and extends her mentorship across different career development programs and seminars at Rush. Rachel leads by example and by teaching others how to do things, whether it's writing or lab techniques, so they can become independent scientists, too.

Rachel exemplifies the type of scientific leader I hope to become someday. She is a great listener. She'll troubleshoot problems, ask the right questions and communicate what the next steps would be. I truly enjoy our weekly meetings because Rachel leads our discussion toward hypothesis-driven science, and I've learned a lot from her approach to problems. She also brings a kind-spirited, fun, approachable atmosphere to the lab and meetings. She significantly helped me as I wrote and submitted an F32 postdoctoral fellowship grant application. She also helps tremendously in preparing manuscripts and is always there for me and any lab member.

One time I was having trouble taking images of my slides with the microscope. I tried the standard things: power on and off, reinstalling software, etc. Rachel came to the rescue, and as an engineer did not give up until the problem was solved. She stopped what she was doing to help my problem. She is the kind of mentor who quickly and efficiently addresses problems as they arise. I am impressed by her intellect and leadership, and I am lucky to have her as my mentor.

Class of 2022 Cohn Fellows

Every year, the Cohn Family Foundation provides grant funding to support junior faculty at Rush University who are mentees in the Rush Research Mentoring Program. The Cohn Fellowship allows mentees to gather preliminary data for research proposals and continue their research activities.

The following faculty members were selected as the Class of 2022 Cohn Fellows after a very competitive process.



Puja Agarwal, PhD, is an assistant professor in the Departments of Internal Medicine (Section of Epidemiology Research) and Clinical Nutrition. She is also a nutritional epidemiologist at the Rush Alzheimer's Disease Center. Her research concentrates on nutrition and healthy aging. Dr. Agarwal is working on identifying modifiable risk factors, specifically focusing on the role of dietary patterns, food groups, and nutrients for Alzheimer's disease, dementia, disability, and cognitive and motor decline among diverse older adults. She is also interested in understanding the mechanistic links between diet and Alzheimer's and Parkinson's disease pathology in the aging brain. Her work as a postdoctoral fellow at Rush demonstrated a relation between healthy diet and Parkinsonian signs, disability and Alzheimer's dementia. These findings helped shape her projects to look at these relationships in underrepresented populations and understand various related mechanisms. Her Cohn Fellowship research will initiate a dietary study in an ongoing longitudinal cohort of older African Americans to determine the relationship of diet with various cognitive domains and brain neuroimaging in this underrepresented population.



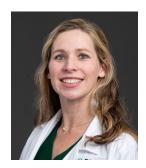
Lauren E. Bradley, PhD, is an assistant professor in the Department of Psychiatry and Behavioral Sciences at Rush Medical College. Her research centers on the use of technology to assess weight-control behaviors and promote behavior change, particularly in bariatric surgery patients. Dr. Bradley's Cohn Fellowship research will focus on using ecologically valid measures to compare behavioral patterns in patients who have regained weight after bariatric surgery and those who have maintained their weight losses. The results of this research will provide an improved understanding of behavioral risk factors for weight regain, which is essential to inform postoperative interventions.



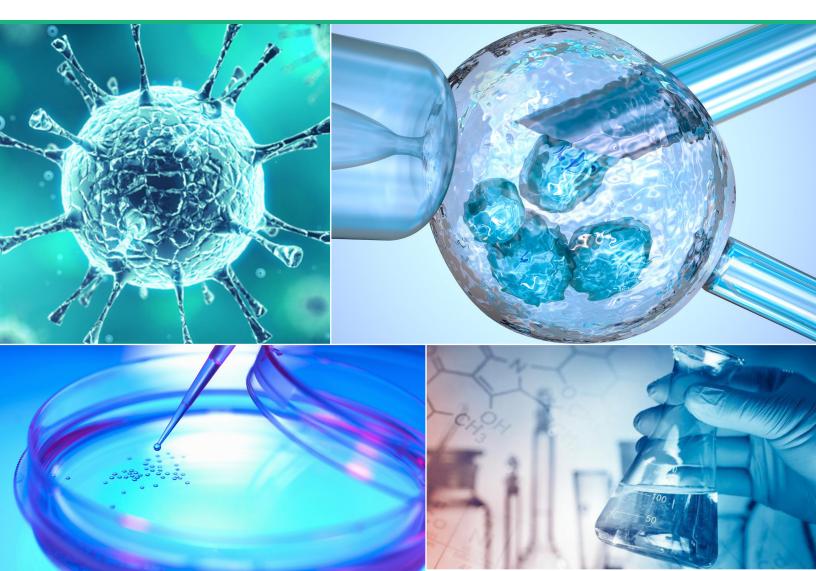
Kajal Gupta, PhD, is an instructor in the Department of Internal Medicine (Division of Hematology, Oncology and Cell Therapy) at Rush Medical College. She is currently working with Andrew Zloza, MD, PhD, to understand the mechanisms underlying novel microbial-based cancer therapies. Her research focuses on persister cells in cancer. Dr. Gupta is investigating persister cells in the context of hormonal therapy for breast cancer and deciphering the role of the microbiome in the development of persister cells in patients on hormonal therapy. Her Cohn Fellowship research will focus on developing novel markers for the identification of persister cells and establish in vivo models to study persister cell development.



Alana E. Kirby, MD, PhD, is an assistant professor in the Department of Neurological Sciences at Rush Medical College. She recently completed a postdoctoral fellowship at Beth Israel Deaconess Medical Center/Harvard Medical School, followed by a movement disorders fellowship here at Rush. She works closely with T. Celeste Napier, PhD, and her research interest is in Parkinson's disease. Dr. Kirby is particularly interested in understanding how deep brain stimulation of the subthalamic nucleus in Parkinson's disease mediates its effects in order to improve outcomes for patients. Her Cohn Fellowship research will focus on developing leading-edge optogenetic strategies in a rat model of Parkinson's disease to interrogate the effects of deep brain stimulation. She will use these techniques to screen and identify important circuits engaged by deep brain stimulation and ultimately improve stimulation strategies for patients.



Carrie Richardson, MD, MHS, is an assistant professor in the Department of Internal Medicine (Division of Rheumatology) at Rush Medical College. Her research focuses on rheumatic diseases. Dr. Richardson's research includes the mechanisms of ectopic calcification in rheumatic diseases. Her current research involves developing and characterizing a mouse model of ectopic calcification in systemic sclerosis (scleroderma). Her Cohn Fellowship research will investigate the role of dermal macrophages in this model, with the aim of using the results to inform future translational studies in human systemic sclerosis.



2021 Graduating Mentees

Mentees graduate from the Rush Research Mentoring Program and becomes junior mentors after they have been in the program for five years.



Christopher Ferrigno, PhD, MPT
Assistant Professor
Department of Anatomy and Cell Biology
Rush Medical College



Rachel E. Miller, PhD
Assistant Professor
Department of Internal Medicine
(Division of Rheumatology)
Rush Medical College



Jared A. Greenberg, MD, MSc
Assistant Professor
Department of Internal Medicine
(Division of Pulmonary, Critical Care and
Sleep Medicine)
Rush Medical College
Assistant Director, Medical Intensive Care Unit
Rush Medical College Admissions Executive
Committee Member



Shahram Oveisgharan, MD
Assistant Professor
Department of Neurological Sciences
Rush Medical College
Rush Alzheimer's Disease Center



Shannon Halloway, PhD, RN
Assistant Professor
Department of Community, Systems and
Mental Health Nursing
College of Nursing



Allison Wainer, PhD
Assistant Professor
Department of Psychiatry and
Behavioral Sciences
Rush Medical College
Research Director, Autism Assessment,
Research, Treatment and Services
(AARTS) Center



Philip Held, PhD
Assistant Professor
Department of Psychiatry and Behavioral Sciences
Rush Medical College
Licensed Clinical Psychologist
Research Director, Road Home Program:
The National Center of Excellence for
Veterans and Their Families at Rush

Poster Presentations

- 1. Adnan, D. et al. Inconsistent Eating Times Are Associated With Higher BMI
- 2. Agarwal, P. et al. MIND and Mediterranean Diet Association With Alzheimer's Disease Pathology
- 3. Alsayid, M. et al. Colorectal Cancer-Associated Gut Microbiome Varies Based on Patient's Age
- 4. Chee, A. et al. (#1) Biodegradable Microspheres and Hydrogel Drug Delivery System of Multiple Therapeutics for Chronic Degenerative Disc Disease
- 5. Chee, A. et al. (#2) Disc Degeneration, Inflammation and Subjective Morphine-Induced Relief of Chronic Back Pain in Rats
- 6. Das, V. et al. (#1) Effect of Opioid and AMPA Antagonists on (2R, 6R)-HNK (Hydroxynorketamine) Anti-Hyperalgesic Activity
- 7. Das, V. et al. (#2) Peripheral Adenosine Mono-Phosphate Activate Kinase Alpha as a Novel Analgesic Target for Chronic Low Back Pain
- 8. David, B. et al. Age-Related Differences in Inflammatory and Behavioral Responses Following Spinal Cord Contusion in Rats
- Dillon, E. et al. Measurement of Pragmatic Language in ASD: Clinical Adaptations to the Pragmatic Rating Scale, School-Age (PRS-SA)
- 10. Dutta, M. et al. Examining the Relationship Between Executive Functions, Spoken Discourse and Life Participation Outcomes in Aphasia
- 11. Esposito, A. et al. IGF1-CXCR4 Axis Plays a Critical Role in Fracture Repair
- 12. Geraghty, T. et al. Macrophages in Knee-Innervating Dorsal Root Ganglia Contribute to Osteoarthritis Pain
- 13. Guidetti, M. et al. New MRI-Based Virtual Surgical Resection Plan for Femoroacetabular Impingement Syndrome
- **14. Gustafson, J. et al.** Effects of Femoral Head Taper Out-of-Roundness on Contact Mechanics of Total Hip Head-Neck Modular Junctions
- **15.** Impergre, A. et al. In Vitro Biotribological Evaluation of Pyrocarbon: A Novel Implant for Interposition Shoulder Arthroplasty
- **16. Jones, K. et al.** Assessment of the Dosimetric Impact of Rogue Leaf Pair Openings in Modulated Stereotactic Radiosurgery Plans
- 17. Kirby, A. et al. Building a Rat Model of Apathy in Parkinson's Disease
- 18. Mace, C. et al. New Animal Model of Non-HIV Collapsing Glomerulopathy
- 19. Mahmud, K. et al. Therapeutic Evaluation of Immunomodulators in Reducing Surgical Wound Infection
- **20.** Mansini, A. et al. CD52+ve Tumor Cell Sub-Population in Conjunction With S100A4 Oncoprotein Generates Immunosuppressive Microenvironment in Prostate Cancer: Predictive of Metastatic Recurrence in Patients
- 21. Mathew, A. et al. Development of a Targeted Behavioral Treatment for Smoking Cessation Among Individuals with Chronic Obstructive Pulmonary Disease

- 22. Mell, S. et al. Component Alignment Minimizes TKR Wear An In-Silico Study With Nine Alignment Parameters
- 23. Mohamed, M. et al. CrkII/Abl Phosphorylation Cascade Is Critical for NLRC4 Inflammasome Activity and Is Blocked by Pseudomonas aeruginosa ExoT
- **24. Molina-Jijon, E. et al.** Secretion of the PCSK9 From the Kidney Cortical Collecting Duct May Initiate Hypercholesterolemia in Minimal Change Disease-Related Nephrotic Syndrome
- 25. Moran, M. et al. Wrong-Time Eating and Alcohol Disrupt the Gut-Bone Axis
- 26. Neto, M. et al. Effect of Microstructure on the Corrosion Behavior of Ti-6Al-4V Orthopaedic Implants
- 27. Piscitello, G. et al. Clinician Ethical Perspectives on Extracorporeal Membrane Oxygenation in Practice
- 28. Radice, S. et al. Real-Time Identification of CoCrMo Corrosion Products in Simulated Synovial Fluid Using Raman Spectroscopy
- 29. Ross, R. et al. Bone-Fat Crosstalk in Antiretroviral Treated People Living With HIV
- 30. Suryadevara, V. et al. IL $36R\alpha$ Induces Proliferation and Differentiation in Primary Articular Chondrocytes

Special Thanks

The Cohn Family

Susan Chubinskaya, PhD

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