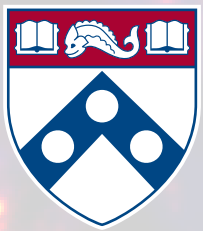

PCXGI Penn Center for Genome Integrity

Penn Center for Genome Intergrity

Inaugural Retreat

June 14, 2022

The Mütter Museum

Perelman SCHOOL OF MEDICINE
UNIVERSITY of PENNSYLVANIA

PCGI Penn Center for Genome Integrity

Penn Center for Genome Integrity (PCGI)
Inaugural Scientific Retreat
Tuesday, June 14, 2022 – Mütter Museum
19 S. 22nd Street, Philadelphia, PA 19103

Registration and Welcome

8:30-9:00 a.m. **Registration & light breakfast**
Ashhurst Room – Second Floor

Session One

Mitchell Hall – Second Floor

Session Moderators: Tianpeng Zhang, PhD (Postdoctoral Researcher, Greenberg Lab) and Janardan Gavade, PhD (Postdoctoral Researcher, Black Lab)

9:00-9:10 a.m. **Opening remarks by Roger A. Greenberg, MD, PhD**
Director, Penn Center for Genome Integrity
J. Samuel Staub Professor of Cancer Biology
Director of Basic Science, Basser Center for BRCA
University of Pennsylvania Perelman School of Medicine

9:10-9:25 a.m. **Trainee Talk – Nootan Pandey, PhD**
Postdoctoral Researcher, Black Lab
"Centromere Innovations within a Mouse Species"

9:25-9:40a.m. **Trainee Talk – Robert (Teddy) Steinbock**
Graduate Student, Cell and Molecular Biology, Weitzman Lab, CHOP
"Adenovirus as model to probe stress responses"

9:40-9:55 a.m. **Trainee Talk – Vidhya Krishnamoorthy, PhD**
Postdoctoral Researcher, Greenberg Lab
"5-5L1 complex: A new macromolecular machine in DNA replication protein quality control"

10:00-10:30 **Keynote Address – Nicolas D. Plachta, PhD**
William Richard Gordon President's Distinguished Professor in Genetics
University of Pennsylvania Perelman School of Medicine
Introduction by Michael Lampson, PhD
"Imaging how the mammalian embryo forms in real time"

10:30-10:50 a.m. **Coffee Break**
Ashhurst Room – Second Floor

Program continued on next page...

Program continued:

Session Two

Mitchell Hall – Second Floor

Session Moderators: Mikel Haggadone, PhD (Postdoctoral Fellow, Shin Lab) and Jerrick To (Graduate Student, Haldar Lab)

10:50-11:05 a.m. **Trainee Talk – Jian-gang Ren, MD, PhD**
Postdoctoral Fellow, Tong Lab, CHOP
Associate Professor, Wuhan University, Wuhan, China
"Novel Regulation of RAS signaling in Myeloid Leukemia"

11:05-11:20 a.m. **Trainee Talk – Marisa Egan**
Graduate Student, Cell and Molecular Biology, Shin Lab
"*Human inflammasome-mediated immune defense against infection*"

11:20-11:35 a.m. **Trainee Talk – Brandon Hayes**
Graduate Student, School of Engineering & Applied Science Doctoral Discher Lab
"Chromosomal instability can favor macrophage-mediated tumor clearance and lead to anti-cancer acquired immunity"

11:35-11:55 a.m. **Trainee Lightning talks**

Darwin Ye
PhD Candidate, CAMB, Minn Lab

Zhengyang Liu, PhD
Postdoctoral Fellow, Jin Lab

Andrew Patterson
Graduate Student, GCB, Auslander Lab

Jenna Beyer
Graduate Student, BMB, Burslem Lab

Nan Zhou, PhD
Research Associate, Busino Lab

Matthew Knarr, MD, PhD
Postdoctoral Researcher, Drapkin Lab

Lunch, Meet & Greet, Tours

12:00-2:00 p.m. **Lunch/Activity Break**
Ashhurst Room – Second Floor

Opportunity to visit Mütter Museum exhibits
Guided group tours, with scavenger Hunt
Photo booth available

Faculty presentation – Lina Axanova, PhD
Senior Associate Director, Penn Center for Innovation (PCI)
Presentation on Entrepreneurial activity at Penn

Program continued on next page...

Program continued:

Session Three

Mitchell Hall – Second Floor

Session Moderators – Namrata Kumar, PhD, Postdoctoral Fellow (Weitzman Lab) and Mai Wang (Graduate Student, Discher Lab)

2:00-2:15 p.m. **Trainee Talk – Cara Brand, PhD**
Postdoctoral Researcher, Levine Lab
"Cross-species incompatibility between a DNA satellite and the Drosophila Spartan homolog poisons germline genome integrity"

2:15-2:30 p.m. **Trainee Talk – Damien Dudka, PhD**
Postdoctoral Researcher, Lampson Lab
"Experimental evidence of evolutionary innovation at the kinetochore"

2:30-2:45 p.m. **Trainee Talk – Mikael Garabedian, PhD**
ACS Postdoctoral Fellow, Good Lab
"Phase separation and DNA Damage Repair"

2:45-3:00 p.m. **Trainee Talk – Jasmine Peake, PhD**
Postdoctoral Fellow, Brown Lab
"Utilizing iPOND2-QMS to Identify Predictive Biomarkers For Cancer Treatment"

3:00-3:15 p.m. **Trainee Talk – Diqiu Ren, PhD**
Postdoctoral Researcher, Kohli/Shi Lab
"Controllable dropout screens with split-engineered base editors"

3:15-3:40 p.m. **Trainee Lightning talks**

Sina Bagheri, MD
Postdoctoral Researcher, McDonald Lab

Kelly Hicks
Laboratory Technician, McDonald Lab

Mwangala Akamandisa, PhD
Postdoctoral Researcher, Nathanson Lab

Phillip Wulfridge, PhD
Postdoctoral Fellow, Sarma Lab

3:40-4:00 p.m. **Faculty Talk – Andy Minn, MD**
Professor of Radiation Oncology
Director, Mark Foundation for Immunotherapy, Immune Signaling, & Radiation
Introduction by Namrata Kumar, PhD
"Decoding the Complexities of Interferon and Pattern Recognition Receptor Signaling in Cancer Immunotherapy"

4:00-4:30 p.m. **Keynote Address – Maiken Scott**
Host and Executive Producer, The Pulse, WHYY
Introduction by Mia Levine, PhD
"Why talking about science matters, especially now"

Program continued on next page...

Program continued:

4:30-5:00 p.m.	**Panel Discussion Moderated by Roger A. Greenberg, MD, PhD**
	Maiken Scott Host and Executive Producer, The Pulse, WHYY
	Chengcheng Jin, PhD Assistant Professor of Cancer Biology Member, Institute for Immunology
	Nicolas D. Plachta, PhD William Richard Gordon President's Distinguished Professor in Genetics University of Pennsylvania Perelman School of Medicine
5:00-5:15 p.m.	**Closing Remarks**
5:15-7:00 p.m.	**Reception in Sir John Templeton Veranda and Medicinal Herb Garden**

Speaker Biographies

Keynote and Featured Speakers

Maiken Scott
Maiken Scott hosts WHYY's The Pulse - a national health and science radio show and podcast that explores the people and places at the heart of health and science. Since its launch in December 2013, The Pulse has crafted a unique, "ground-level" approach to telling compelling stories and breaking down complicated issues. Prior to hosting The Pulse, Maiken spent seven years as a Behavioral Health Reporter, playing an integral part of WHYY's award-winning Health and Science desk. WHYY is Greater Philadelphia's leading public media provider and PBS/NPR member station, serving southeastern Pennsylvania, southern New Jersey and all of Delaware.

Nicolas Plachta, PhD
Dr. Nicolas Plachta is the William Richard Gordon President's Distinguished Professor in Genetics at the Department of Cell and Developmental Biology, Perelman School of Medicine, University of Pennsylvania, and a faculty member of the Institute of Regenerative Medicine (IRM). Originally from Argentina, he studied biology at Tel-Aviv University (Israel), earned his Ph.D. in neurobiology from the University of Basel (Switzerland) under the supervision of Prof. Yves-Alain Barde, and performed postdoctoral studies in biological imaging at Caltech, with Prof. Scott Fraser. He was one of the first PIs for the European Molecular Biology Laboratory (EMBL) Australia at the Australian Regenerative Medicine Institute of Monash University (Melbourne, Australia). In 2015, Dr. Plachta moved to the Institute of Molecular and Cell Biology (IMCB) at the Agency for Science, Technology and Research (ASTAR) in Singapore. In 2018, he became HHMI International Scholar and in 2019 Chih-Ye Visiting Professor of the State Key Laboratory of Stem Cell and Reproductive Biology of the Chinese Academy of Sciences (CAS, Beijing).

Andy Minn, MD, PhD
Dr. Andy Minn is a Professor in the Department of Radiation Oncology and an Investigator in the Abramson Family Cancer Research Institute at the University of Pennsylvania. He is also Director of the Mark Foundation Center for Immunotherapy, Immune Signaling, and Radiation, and a project member in the Parker Institute for Cancer Immunotherapy. He received his MD and PhD from the University of Chicago and finished his residency in radiation oncology along with his post-doctoral training at Memorial Sloan-Kettering Cancer Center. Dr. Minn's research seeks to understand key mechanisms of...

Bios continued on next page...

Bios continued (Andy Minn, MD, PhD):

...cancer immunotherapy resistance. Specifically, his work focuses on the role of pattern recognition receptors and interferon signaling pathways, which are pathways that are typically activated when normal cells become infected with a virus. Surprisingly, cancers and many cancer therapies also can activate these pathways, prompting an interest in understanding how this happens, the impact on anti-tumor immunity, and its clinical significance. An overarching goal is to translate this understanding to better inform the design of clinical trials. Dr. Minn's work has been published in prestigious scientific journals such as Cell, Immunity, and Nature. He is also a member of the American Society for Clinical Investigators (ASCI).

Lina Axanova, PhD
Lina Axanova is currently a Senior Associate Director at the Penn Center for Innovation (PCI) at The University of Pennsylvania. In her current role, Dr. Axanova manages an extensive portfolio of intellectual property (IP) generated by the Medical School of the University of Pennsylvania. This includes IP in oncology, stem cells, neuroscience, research tools, diagnostics, medical devices and software. She leads drafting, negotiation, and execution of various contracts with companies of all sizes. Previously, Dr. Axanova served in similar roles at Salk Institute for Biological Studies in San Diego, CA and Tufts, University, Boston, MA. Dr. Axanova hold M.S. in Foods and Nutrition and Ph.D. in Cancer Biology.

Trainees

Cara Brand, PhD
Dr. Cara Brand attended college at the University of Maryland where she majored in Biology. She pursed her PhD at the University of Rochester, under the direction of Dr. Daven Presgraves, studying the evolutionary genetics of selfish chromosome segregation and recombination in Drosophila. Currently, Dr. Brand is a postdoc in Dr. Mia Levine's lab at the University of Pennsylvania. Her research investigating the causes and functional consequences of intra-genomic coevolution is funded by a fellowship from the Life Sciences Research Foundation.

Damien Dudka, PhD
Dr. Dudka came from Poland where he went to college at the University of Warsaw. He performed his PhD research on mitotic chromosome segregation at the University of Geneva, Switzerland in the laboratory of Professor Patrick Meraldi. After getting an early Postdoctoral Fellowship from Swiss National Science Foundation, he joined the lab of Dr. Michael Lampson at UPenn in 2019. He is currently studying evolutionary innovation in chromosome segregation machinery using computational and cell biology approaches.

Marisa Egan
Marisa is a 4th year Ph.D. candidate in the Microbiology, Virology, and Parasitology (MVP) graduate group. In Dr. Sunny Shin's lab, she studies human innate immune responses to the Gram-negative bacterial pathogen, Salmonella. In particular, she is interested in understanding inflammasome responses that restrict Salmonella's growth in human macrophages. Marisa graduated from Saint Joseph's University in 2018 with her B.S. in Biology, where she studied bacterial pathogenesis in Dr. Shantanu Bhatt's lab. In addition to scientific research, Marisa is very passionate about teaching and mentoring.

Mikael Garabedian, PhD
Dr. Mikael Garabedian received his BS in Biological Sciences from Drexel University, where he began his career in science. As an undergraduate, he conducted research in the lab of Dr. Eishi Noguchi at Drexel University College of Medicine, focusing on histone modifications that contribute to DNA replication and DNA repair. For his PhD, Mikael studied mechanisms of actin polymerization and regulation of (cont.)

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Bios continued (Mikael Garabedian, PhD):

...cytoskeletal architecture both in cells and by *in vitro* biochemical reconstitution in the lab of Dr. Bruce Goode at Brandeis University. Upon completing his PhD, Dr. Garabedian joined the lab of Dr. Matthew Good at the University of Pennsylvania to study protein self-assembly and liquid-liquid phase separation. During his time here, Mikael has published several papers on bioengineering synthetic protein condensates in vitro and engineering condensates with the ability to control cellular decision making. He has now turned his focus on protein condensates involved in DNA repair and was recently awarded an American Cancer Society Postdoctoral Fellowship to conduct this work.

Brandon Hayes
Brandon received his B.S.E in Chemical and Biomolecular Engineering at the University of Pennsylvania in 2018. He has continued his studies here, pursuing a PhD in Bioengineering with Dr. Dennis Discher. For his thesis work, Brandon is exploring a range of topics related to genomic instability, from developing live-cell reporters to track chromosomal aberrations to leveraging chromosomal instability to improve outcomes for macrophage-based immunotherapy approaches.

Vidhya Krishnamoorthy, PhD
Dr. Krishnamoorthy received her B.Sc. (2009) and M.Sc (2011) in Biotechnology from the University of Mumbai, India, where she carried out research on genetic markers influencing the incidence of sickle cell disease in tribal populations of India. She started her Ph.D. at CSIR-Centre for Cellular and Molecular Biology, Hyderabad, India and joined the group of Dr. Veena K Parnaik. Her research focused on the role of E3 ubiquitin ligases in the turnover of nuclear envelope proteins, lamins, and their interactors and understanding their role in the pathophysiology of nuclear envelopathies. Her work resulted in two first-author publications (Krishnamoorthy V, et. al., Biochem Biophys Res Commun. 2018; and Krishnamoorthy V, et. al., Biochem Biophys Acta Mol Cell Res. 2018). She received her Ph.D. in 2019, and joined the Greenberg lab as a postdoc in March 2019. She is currently studying the role of AAA+ ATPases in DNA replication and repair.

Nootan Pandey, PhD
Dr. Pandey received her MS in Microbiology from Mody University, India in 2011. She then joined Dr. Yoshiaki Azuma's lab at the University of Kansas in 2014, where she received her PhD in Molecular, Cellular, and Developmental Biology. Dr. Pandey's thesis work in the Azuma lab focused on the role of Topoisomerase II alpha SUMOylation in mitosis progression. Upon graduating in 2019, Dr. Pandey joined Dr. Ben Black's laboratory at The University of Pennsylvania as a Postdoctoral Fellow, where she is currently trying to understand the relationship between centromere DNA sequence and centromere function. She is also interested in studying the molecular mechanism that regulates PARP-1 activity in the DNA damage response, and how can it be effectively targeted in homologous recombination-deficient cancers. Dr. Pandey has received a Basser Fellowship from the Basser Center for BRCA for her research on PARP-1.

Jasmine Peake, PhD
Dr. Jasmine Peake received her B.A. in Biology from Arcadia University in 2014, where she studied phylogenetic relationships among heterokont lineages. She then went on to receive her PhD in Molecular & Cell Biology & Genetics from Drexel University college of Medicine, where she worked in the lab of Dr. Eishi Noguchi. During her time at Drexel, Dr. Peake conducted impactful research on acetaldehyde-dependent DNA damage response in esophageal cancer (Peake et al, Mol Onc. 2021). Upon graduating in 2020, Dr. Peake came to the University of Pennsylvania as an IRACDA-funded PennPORT postdoctoral fellow in the in the laboratory of Dr. Eric J. Brown. In the past year, she has served as an Adjunct Professor of Cell Biology, Molecular Biology, and Anatomy & Physiology I at Lincoln University. Dr. Peake currently studies the effects of ATR and WEE1 inhibition on replication fork dynamics in ovarian cancer.

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Bios continued:

Diqiu Ren, PhD
Diqiu Ren completed her PhD at Peking University in Beijing studying epigenetic regulation and genetic architecture for heterosis in plant. In the fall of 2019, Diqiu joined the Shi lab as a postdoc and started to collaborate with Kohli lab last year to develop split-engineered base editor toolkit used for genetic screening in cancer. Today her talk will mainly focus on the advantages of split base editors compared to the intact version and how they perform in CRISPR tiling screens.

Jian-gang Ren, MD, PhD
Dr. Jian-gang Ren is a Postdoctoral Fellow in the laboratory of Dr. Wei Tong at the Children's Hospital of Philadelphia (CHOP) and Perelman School of Medicine at the University of Pennsylvania & Associate Professor in Wuhan University. He investigates both normal and oncogenic signaling processes that control hematopoietic stem cell self-renewal and leukemic transformation. Furthermore, Dr. Ren has made significant contributions to our understanding of kinases, ubiquitin enzymes and protein post-translational modifications that play important roles in various aspects of stem cell biology and leukemia.

Robert (Teddy) Steinbock
Teddy is a fifth-year MD-PhD candidate in the lab of Dr. Matthew Weitzman, where he studies innate immune sensing of viral infection and viral countermeasures. He graduated from Dartmouth College in 2014 with a BA in Cell Biology, and worked in Dr. Joseph Sodroski's HIV research lab at Dana-Farber Cancer Institute for 3 years prior to graduate school. Teddy is interested in leveraging our growing understanding of virus-host interactions to create safer and more effective viral vectors for gene therapy and vaccines.

Thank you all for joining us!