Seminars by Chicago KUH FORWARD

Monday, February 14, 2022
11:00 AM – 12:00 PM Central Time

Host institution: University of Chicago

Join Zoom Meeting: https://northwestern.zoom.us/j/98284850748
Meeting ID: 982 8485 0748

AGENDA

11:00 – 11:05 AM  Welcome and logistics                               Kenneth Cohen, MD
                       Arlene Chapman, MD

11:05 – 11:55 AM  Presentations
                      Effect of BET Inhibitors on β-Globin Expression
                              Using Erythroid Precursor Cells  Kristina Bigelow, PhD
                      Functional Insights into Antibody-Mediated
                              Platelet Refractoriness and Thrombocytopenia  Clarence Chan, MD, PhD
                      The Effect of RBC Transfusion on Fatigue and
                              Fatigability After Hospital Discharge  Micah Prochaska, MD, MSc, FHM

11:55 AM – 12:00 PM  Closing remarks  Kenneth Cohen, MD
                       Arlene Chapman, MD

SPEAKERS

The co-hosts for this seminar are University of Chicago faculty, Kenneth Cohen, MD, Program Leader in Non-Malignant Hematology and Arlene Chapman, MD, Professor of Medicine and Chief of the Section of Nephrology. Dr. Chapman also serves as the University of Chicago site leader for Chicago KUH FORWARD.

Kristina Bigelow, PhD
Postdoctoral Fellow
Section of Hematology/Oncology, Department of Medicine
University of Chicago
Mentor: Lucy A. Godley, MD, PhD

Bio: Dr. Bigelow received her BS and MS degrees from Kansas State University. In 2020 she received her Ph.D. in Pharmacology and Molecular Science at Johns Hopkins University. Her dissertation was using animal models to identify oxazolidinone PK/PD and PK/TD parameters associated with activity and toxicity in the treatment of M. Tuberculosis. She is currently a postdoctoral fellow in the Clinical Therapeutics training program at the University of Chicago working in the lab of Dr. Lucy Godley.

Title: Effect of BET Inhibitors on β-Globin Expression Using Erythroid Precursor Cells

Abstract: We have shown that in the presence of erythropoietin (EPO), bromodomain and extra-terminal inhibitors (BETi’s), like JQ1, cause re-expression of embryonic and fetal α- and β-globin genes in K562 and TF-1 cell lines. Because these lines do not differentiate fully into red blood cells, I seek to extend our results using erythroid precursor cell lines derived from human cord blood (HUDEP-2) or adult bone marrow (BEL-A) to develop BETi clinically for patients with β-globinopathies. I hypothesize that BETi’s will increase the expression of embryonic/fetal β-globin genes (HBE/HBG) in these cell lines.
Clarence Chan, MD, PhD
Clinical Pathology Resident, PGY-2
University of Chicago
Mentor: Geoffrey Wool, MD, PhD

Bio: Dr. Chan is a research-track Clinical Pathology resident at the University of Chicago. He received his MD from the Feinberg school of Medicine and his PhD in structural biology from The Graduate School at Northwestern University. He conducted RNA and protein crystallography at the Advanced Photon Source (Argonne National Laboratory) for his graduate work, under the guidance of his advisor, Alfonso Mondragón. Dr. Chan will complete a fellowship in clinical chemistry at the University of Chicago. Thereafter, he plans to pursue a physician-scientist career in experimental pathology.

Title: Functional Insights into Antibody-Mediated Platelet Refractoriness and Thrombocytopenia

Abstract: Platelet transfusion refractoriness is a common problem among hematology/oncology and ICU patients and can be due to immune and/or non-immune causes. While transfusion of HLA, HPA, or ABO antigen matched platelets can offer a temporizing solution to patients whose platelet counts remain otherwise intractably low, the broader and perhaps more basic problem is that our current understanding of antibody-mediated destruction or consumption of platelets remains incomplete. Severe thrombocytopenia imparts a greater risk of hemorrhage in bleeding and non-bleeding patients alike, and current management efforts favoring the transfusion of matched platelets over random platelets highlight the clinical importance of recognizing the biochemical and biophysical mechanisms of antibody-mediated platelet refractoriness. Our current investigations aim to elucidate these specific mechanisms by purification of anti-platelet antibodies for platelet function studies, as well as biochemical and biophysical methods to interrogate antibody-receptor molecular interactions.

Micah T. Prochaska MD, MSc, FHM
Assistant Professor of Medicine
Section of Hospital Medicine, Department of Medicine
University of Chicago
Mentor: David Meltzer MD, PhD

Bio: Dr. Prochaska is a clinical investigator and hospitalist clinician, and is supported by grants from the National Heart, Lung, and Blood Institute (NHLBI) to study how red blood cell transfusion for hospitalized patients with anemia affects their fatigue, activity, and fatigability levels after they have been discharged from the hospital. Dr. Prochaska is also the Associate Director and Co-Investigator of the University of Chicago Hospitalist Project research infrastructure, and involved in the integration of the Chicago Area Patient Centered Outcomes Research Network (CAPriCORN) into clinical research at the University of Chicago. He is Co-Investigator of the University of Chicago Translational Medicine Program (CTMP), and the Cultivating Health & Aging Researchers by Integrating Science, Medicine, & Aging (CHARISMA) Program, both of which train undergraduate students in clinical and translational research. Dr. Prochaska is an Assistant Director of the MacLean center for Clinical and Medical Ethics and a Healthcare Delivery Science and Innovation Scholar, both at the University of Chicago.

Title: The Effect of RBC Transfusion on Fatigue and Fatigability After Hospital Discharge

Abstract: Fatigue is the primary symptom of anemia, and fatigue and activity influence each other. Since fatigue adversely affects patients’ quality of life and can reduce their activity levels, physicians sometimes treat anemia-related fatigue with red blood cell transfusion. However, whether transfusion improves fatigue remains uncertain. Data from past studies have been inconclusive in part because these studies measured the effect of transfusion on fatigue only, and did not measure or account for concomitant changes in patient activity. This is problematic because if transfusion reduces fatigue, activity may increase, which in turn can offset any potential reductions in fatigue. Therefore, measuring both fatigue and activity levels is necessary to know whether transfusion benefits patients, since “failure” to reduce fatigue may simply reflect transfusion-enabled increases in patient activity. Fatigability, which is a measure of fatigue relative to an objective amount of activity has been suggested as a way to study the effectiveness of interventions aimed at reducing fatigue in other patient contexts and conditions, and by measuring fatigability changes in either fatigue, activity, or the relationship between fatigue and activity post-transfusion can be captured.
Dr. Prochaska’s talk will describe the observational data collected in hospitalized patients with anemia demonstrating that: 1) fatigability is more strongly associated with clinical and demographic characteristics expected to be associated with anemia than is fatigue itself, and 2) in patients with high fatigability (high fatigue, low activity) during hospitalization, transfusion reduces fatigability levels after hospital discharge. Last, this talk will describe an active transfusion trial with fatigability as the primary outcome in order to determine whether there is a beneficial effect of transfusion on fatigue and/or patients’ activity level after hospital discharge.

Chicago KUH FORWARD is a NIDDK-funded interdisciplinary training program for pre- and postdoctoral trainees in basic, translational, or clinical research in the fields of kidney, benign urologic, and benign hematologic diseases across Chicago. Partnering institutions include Northwestern University, Loyola University, Lurie Children’s Hospital, Rush University, University of Chicago, and University of Illinois at Chicago. NIH U2CDK129917 and TL1DK132769

Seminars by Chicago KUH FORWARD is a forum that brings together our city-wide KUH research community to learn about new and existing cross-cutting tools and promote cross talk among scientists at Chicago KUH FORWARD institutions. Seminars are virtual and open to all levels of researchers interested in advancing KUH training and research. Seminar recordings may be made available upon request.

Your participation in Chicago KUH FORWARD seminars and events helps us maximize integration and promote a true trainee community that engages, recruits, prepares, and sustains the next generation of kidney, urology, and hematology researchers. Any predoctoral or postdoctoral fellow or early career investigator interested in presenting at a future KUH Seminar can let us know by sending a message to chicago.kehforward@northwestern.edu.

Please take the time to provide your feedback on Chicago KUH FORWARD programs. Seminar attendees will be given the opportunity to complete a brief survey at the end of the seminar.

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