



January 2019

Hello and Happy New Year! Below you'll find the latest ideas, action items, and news on the progress of the Human Immunology and Immunotherapy Initiative.

HI3 Faculty Recruitment

Mission: To enhance expertise and develop new strengths

- We are pleased to announce that [Peter Nigrovic, MD](#), Director, Center for Adults with Pediatric Rheumatic Illness, Associate Professor of Medicine, Harvard Medical School, Rheumatology, will be visiting the CU Anschutz medical campus January 9-11. Please mark your calendars for his research talk, 'Megakaryocytes as immune cells,' on Thur. January 10, 2:00-3:00pm in Hensel Phelps West. Questions? Contact Michael.Holers@ucdenver.edu or Robert.Fuhlbrigge@childrenscolorado.org

HI3 Translational Immunology Case Study Seminar Series

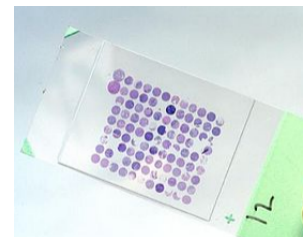
Mission: To extend our understanding of translational immunology and assist in clinical problem solving

- Visit the HI3 website to view the upcoming [HI3 Translational Immunology seminars](#) designed to connect investigators across campus that perform research within immunology and/or treat patients with immune-mediated disorders to learn from one another and extend our understanding of human translational immunology
- Don't forget to attend the January 16, 2019 seminar on, 'Mucosal Immunity as a Contributor to Rheumatologic Disease Development,' by Kristi Kuhn, MD, PhD

HI3 Human Immune Monitoring Shared Resource (HIMSR)

Mission: To facilitate and support human immunology research and discovery

- **The MIBI (finally) arrived on December 17!** A friendly reminder the MIBI is a beta machine so expect glitches. HIMSR will begin the process of validation of the instrument and the development of antibody panels immediately. It is not a high throughput machine and users are encouraged to work with pathology to pre-select regions of interest in tissue to create tissue microarray slides (see photo on right) for efficient analysis.
- Does your research require bioinformatics support? Complete the [online bioinformatics request form](#) to connect with Ron Schuyler, PhD
- Questions about [HIMSR services](#) or the inclusion of HIMSR services in your next grant application? Contact Aimee.Bernard@ucdenver.edu before March 15, 2019 or Kimberly.Jordan@ucdenver.edu after March 15, 2019 (she is on maternity leave - mom and baby are healthy and doing well!)



tissue microarray slide

HI3 Translational Research Networking and Preclinical Models (TRNPM)

Mission: To provide a nexus for multiple aspects of translational immunology research

- Interested in acquiring human tissue of immune relevance for your research? The TRNPM has an approved COMIRB protocol, "Human Immune Tissue Network Biobank," that allows any HI3 investigator to obtain and study fresh human tissue of immunological relevance (adult and pediatric). If interested in using this COMIRB protocol contact Roberta.Pelanda@ucdenver.edu

- To learn more about human immune system (HIS) mouse models and the services offered through the TRNPM contact Julie.Lang@ucdenver.edu or Roberta.Pelanda@ucdenver.edu

HI3 Support for development of Immunotherapeutics

Mission: To facilitate the production of clinical grade biological reagents and cell-based immunotherapeutics

- CD19 CAR-T cell development for use in clinical applications, under the direction of Drs. Terry Fry, Enkhee Purev and Craig Jordan, is ongoing in a collaboration between Clinimmune and the Gates Biomanufacturing Facility.

Mission: To facilitate the use of campus CLIA labs for monitoring patient responses and clinical decision-making

- At this time, most testing monitors clinical response (e.g. improved clinical symptoms, CBCs, CMP, lung capacity, imaging, etc.) but does not adequately monitor adverse (or beneficial) immunologic measures/read outs (e.g. CRS, anti-drug antibodies, T cell activation, granulocyte degranulation, immune complex formation, etc.), which could be useful for improved patient outcomes, understanding mechanism of action and off-target therapeutic effects and prediction for autoimmune complication development, etc.
- HI3 would like to ensure proper monitoring of human patients that are undergoing immunotherapy treatment. To help us fill in the gaps with existing tests and/or develop new and useful tests, we would like to gather your input regarding the following 3 tiers of testing:
 - Tier 1. Standard of Care testing: available in house or send out?
 - Tier 2. FDA recommendations testing: available in house or send out?
 - Tier 3. What tests would you like to develop (not in tier #1 or #2)? What are your innovative ideas?
- Be on the lookout for a HI3 member survey regarding CLIA testing in early 2019
- For reference, HI3 compiled a comprehensive list of the [CLIA labs on the CU AMC](#)

HI3 Training Program

Mission: To develop and establish training programs across the training continuum at the pre-doctoral, post-doctoral, and junior faculty level

- HI3 offered a free 2.5 day 'fun-sized' Human Immunology and Immunotherapy Overview workshop October 8-10 and November 12-14, 2018 for HI3 trainees. Due to demand, HI3 will offer a third workshop April 22-24, 2019. If interested, please visit the [Training page of the HI3 website](#). Questions? See last 2 pages of newsletter and/or contact Aimee.Bernard@ucdenver.edu

HI3 Clinical Research Program

Mission: To provide expertise and coordination with established campus clinical research services to HI3 research teams to effectively operationalize clinical research

- The 'Autoimmunity (and SLE) Interest Group' will meet on January 23 from 3:00-4:00pm in RC1-North, Room 6107. Please attend the meeting if you are interested in collaborations between basic and clinical researchers interested focused on human research within the context of the stages of pre-clinical autoimmunity, transition to clinical disease and/or prevention of clinical disease. Questions? Contact Mike Holers or Kevin Deane.
- HI3 members Kevin Deane, MD, PhD, and Michael Holers, MD, will lead a collaboration with colleagues at the University of California San Diego under support from the [Allen Institute for Immunology](#). The fundamental goal of the research program is to identify novel mechanisms by

which rheumatoid arthritis develops so that the disease can be halted before symptoms begin, and if not, reversed to the normal state once arthritis begins.

UPCOMING EVENTS and ACTION ITEMS

JANUARY

- **January 3:** Guest seminar, 'Combining Early Phase Clinical Trials with Translational Research to Better Understand Disease Mechanisms in Autoimmunity,' by Matthew C. Baker, MD, from 9:00-10:00am in Barbara Davis Center, Room 2104
- **January 10:** HI3 Autoimmunity co-Director candidate seminar, 'Megakaryocytes as immune cells,' by Peter Nigrovic, MD, in Hensel Phelps West from 2:00-3:00pm
- **January 11:** HI3 seminar, 'CAR-T Production at the Gates Biomanufacturing Facility,' by Matthew Seefeldt, PhD, Director, Cell Therapy and Manufacturing, The Gates Biomanufacturing Facility (GBF) from 12:00-1:00pm in Hensel Phelps East
- **January 16:** HI3 Translational Human Immunology Seminar, 'Mucosal Immunity as a Contributor to Rheumatologic Disease Development,' by Kristi Kuhn, MD, PhD in Hensel Phelps West from 4:00-5:00pm
- **January 23:** HI3 Autoimmunity (and SLE) Interest Group, 3:00-4:00pm in RC1-North, Room 6107

FEBRUARY

- **February 7:** HIMSR Vectra User Group meeting at 2:00pm in RC1-North, Room 8108. Abigail Kimball (from Eric Clambey's lab) will discuss quantification methods, various programs for analysis and algorithms. **Mark your calendars** - these meetings take place on the first Thursday of every month at 2:00pm in RC1-North, Room 8108.
- **February 20:** HI3 Translational Human Immunology Seminar, something like 'Type I Diabetes and TrialNET,' by Kimber Simmons, MD, in Hensel Phelps West from 4:00-5:00pm

MARCH

- **March 7:** HIMSR Vectra User Group meeting at 2:00pm in RC1-North, Room 8108. Ron Schuyler, PhD (HIMSR) will discuss bioinformatics tools for data analysis
- **March 20:** HI3 Translational Human Immunology Seminar, something like 'The Development of bi- and tri-specific Immune Killer Engagers, BiKes & TriKes,' by Mike Verneris, MD, in Hensel Phelps West from 4:00-5:00pm

APRIL

- **April 22-24:** 2.5 day 'fun-sized' Human Immunology Workshop. Register through the [Training section of the HI3 website](#). Space is limited to the first 16 registrants. Questions? Read the next 2 pages of the newsletter and/or contact Aimee.Bernard@ucdenver.edu



Human Immunology & Immunotherapy Initiative (HI³)

SCHOOL OF MEDICINE

UNIVERSITY OF COLORADO ANSCHUTZ MEDICAL CAMPUS

HI3 Overview of Human Immunology and Immunotherapy Workshop

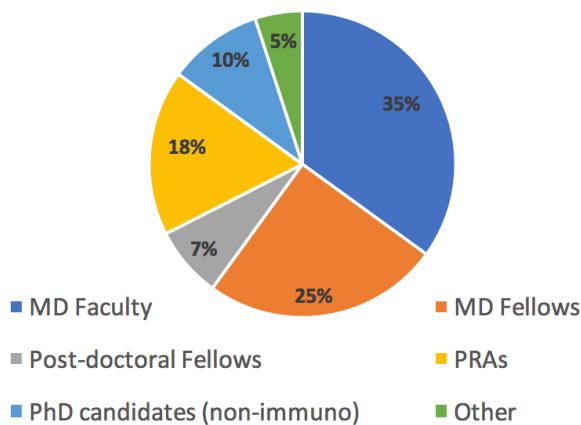
a full portion of immunology packed into a 2.5 day 'fun-sized' workshop

HI3 developed and offered a free 'fun-sized' human immunology workshop October 8-10 and November 12-14, 2018 to HI3 members across the Anschutz medical campus and scientific community to promote a better understanding of the core concepts of immunology and an introduction to the rapidly growing and changing field of immunotherapy.

The workshop was a 2.5-day intensive overview of human immunology and immunotherapy. The first 2 full days, designed and taught by Aimee Bernard, PhD, Assistant Director of the HI3, focused on how the immune system functions when in balance, what can go wrong when out of balance, descriptions of existing immunotherapies and an overview of immune-related adverse events. The third half-day, taught by Kim Jordan, PhD, Assistant Director of the [Human Immune Monitoring Shared Resource \(HIMSR\)](#), focused on the immunologist's toolbox and the human immune monitoring services offered through the HIMSR. This half-day session concluded with an opportunity for each participant to discuss their individual research projects 1:1 with Kim Jordan. Future workshops will also include an overview of the human immune system mouse models available through the HI3 [Translational Research Networking and Preclinical Models \(TRNPM\) Shared Resource](#). TRNPM services, human immune system mouse models and human tissue of immune relevance will be presented by Julie Lang, PhD, Assistant Director of the TRNPM.

Participants gave very positive feedback in a post-workshop anonymous survey. Quotes from several different participants are listed below. In general, it was stated that the workshop gave "excellent coverage of materials for a basic to intermediate understanding of immunology since it is a rapidly growing frontier of medicine." The course was, "a rare opportunity and really great to have a multidisciplinary discussion about Immunology." Another participant stated, "**this review was definitely one of the best educational activities I have attended as a junior faculty and I highly recommend it to my colleagues who work in the same field I do.**"

HI3 'Fun-Sized' Immunology Workshop Attendees 2018



"After 1.5 years of having to teach myself immunology throughout my Allergy and Clinical Immunology fellowship, this course was a greatly appreciated offering and a great use of my time. Aimee was able to provide an **excellent overview of the immune system, allowing information that I had previously learned to come together and be cemented.** I also appreciated the opportunity to learn from experts of all different fields of immunology - oncology/hematology, transplant, pediatrics, PhDs, etc. **The discussion time provided collaborative thoughts and ideas,** which I found helpful and

interesting. **If more workshops such as this were given, I imagine that the discussion would lead to collaboration in medicine and in the lab"** wrote another participant.

"I think that for anyone wanting a general review of undergrad/grad school level immunology in a short span of time would greatly benefit from this workshop. It is a short time to learn so much, but **it felt like a conference in terms of intellectual stimulation. It was really interesting to learn how other people on campus are utilizing immunotherapy so differently and yet so cohesively.**"

Another participant wrote, “I believe this workshop was very beneficial, even coming from an immunology background. There were a lot of participants that came from different areas that were able to provide an in-depth perspective of areas of immunology I don't work on myself and it was very engaging. The course leader (Aimee) was extremely knowledgeable and the information was presented in an accessible way that remained engaging throughout the 3 days of the course. **I would highly recommend this course to anyone even remotely interested in immunology, as well as people who might just need a refresher course.**”

Due to overwhelming interest from the October and November workshops, HI3 plans to offer a third workshop in April 2019. Please see the [‘Training’ section of the Human Immunology and Immunotherapy Initiative website](#) for the announcement and electronic registration.