



July 2019

Hello and Happy Summer! 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 **Tuoqi Wu, PhD** accepted our offer for an Assistant Professor faculty position in basic human immunology in the Department of Immunology and Microbiology and will officially join our campus on August 1. Tuoqi came from the Genetic Disease Research Branch at the National Human Genome Research Institute at the NIH and the focus of his research is the transcriptional regulation of antiviral and antitumor T cell responses.
- We are pleased to announce the arrival of **Mercedes Rincon, PhD** as a Professor of Immunology and Microbiology. Mercedes is a world-renowned scientist who comes to us from the University of Vermont College of Medicine. She is currently studying the role of IL-6 in the immune response and autoimmune diseases, the role of p38 MAPK in thymocyte development and T cell activation/death and mechanisms of chemoresistance in breast cancer.

HI3 Translational Immunology Case Study Seminar Series

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

- The HI3 Translational Immunology seminar series is designed to connect investigators across campus that perform research in immunology (i.e. scientists) and/or treat patients with immune-mediated disorders (i.e. physicians) to one another and extend our understanding of human translational immunology. Although the HI3 community has expressed interest in this seminar series, attendance has declined over the last 2 years. **To help us better serve the HI3 community, please email your thoughts on this seminar series to Aimee.Bernard@ucdenver.edu. Let us know what can we do to improve the series and **reinvigorate attendance**.** Tell us what you think about the occurrence (currently the 3rd Wed at 4:00pm), the location, the focus of seminars, etc. All thoughts are welcome! Please also email if you would be interested in speaking in the seminar series.

HI3 Human Immune Monitoring Shared Resource (HIMSR)

Mission: To facilitate and support human immunology research and discovery

- Since the arrival of the MIBI in December 2018, the HIMSR has been working diligently to validate capabilities of the instrument. The HIMSR goals for the MIBI over the summer include the optimization of staining protocols at altitude, calculation of the correlation curve between isotopic concentration and signal intensity, instrument calibration for internal optimization, and calculation of the correlation curve between staining signal intensity drop off with increasing tissue scanning depth

There are two positions posted on CU Careers for the MIBI; an operator (Research Associate-16487, position# 00761037 <https://cu.taleo.net/careersection/2/jobdetail.ftl>) and a data scientist (Research Associate-Data Scientist-16487, position# 00763083 <https://cu.taleo.net/careersection/2/jobdetail.ftl>).

NOTE: the hyperlinks to these jobs have not been behaving - you may need to copy and paste into your browser.

Please pass the job links to anyone who may be interested in either of these research faculty positions.

- Questions about [HIMSR services](#) or adding HIMSR services in your next grant application? Contact Kimberly.Jordan@ucdenver.edu for pre-written text for your grant or for help with building a budget.

HI3 Translational Research Networking and Preclinical Models (TRNPM)

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

- Interested in using human tissue of immune relevance for your research? The [TRNPM](#) has an **approved COMIRB protocol that can provide regulatory approval to HI3 investigators for their human tissue studies**. This protocol allows investigators to obtain fresh (adult or pediatric) human tissue of immunological relevance upon donor consent or as medical waste (depending on the origin of the tissue).
- At present, the tissue approved on the protocol includes blood, tonsils, bone marrow, bone and associated marrow, lymph nodes, spleen, thymus, tumor, and stool. Additional tissue can be added to the protocol upon request. **Regarding blood samples, it is now possible for interested HI3 investigators to obtain fresh blood samples from a group of selected healthy donors**. If interested in using this COMIRB protocol for your human studies and/or getting healthy blood samples, please 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

Translational & Diagnostic Immunology and Allergy Laboratory at Children's Hospital Colorado

- In an effort to provide HI3 members with information and access to assays available on this campus to interrogate the human immune system, we would like to share some **exciting news from Vijaya, Knight, MD, PhD, (D)ABMLI, Director of the Translational and Diagnostic Immunology and Allergy Laboratory at Children's Hospital Colorado**.
- **Flow cytometry assays available for clinical use:**
 - (1) **Naïve, memory and recent thymic emigrant T cell panel:** This 8-color flow cytometry panel identifies the following subsets of T cells – naïve (CD45RA+), total memory (CD45RO+), effector memory (CD45RA-CCR7-), central memory (CD45RA-CCR7+), effector memory T cells re-expressing RA (RA+CCR7-) and recent thymic emigrant (CD4+CD45RA+CD31+) T cells. Analysis of these T cell subsets is useful for general assessment of the T cell compartment for investigation of primary or acquired immunodeficiency and for assessment of the quality of immune reconstitution following bone marrow transplant.
 - (2) **Autoimmune Lymphoproliferative Syndrome (ALPS):** Flow cytometry for ALPS includes analysis of 'Double Negative T cells' (or DNTs) defined as CD3+CD4-CD8-TCR+ T cells. An increase in DNTs may support the diagnosis of ALPS when other clinical features are present.
 - (3) **TCR and TCR subsets:** Analysis of TCR and TCR subsets of CD3 T cells is useful for general assessment of the immune system. Mild increases in gamma/delta T cells may occur in inflammatory states. A significant increase in gamma/delta T cells may occur in ataxia telangiectasia and in patients with Autoimmune Lymphoproliferative Syndrome (ALPS).
- **Flow cytometry assays in development:**
 - (1) **B cell subset panel:** Includes percentages of naïve, class-switched, unswitched and transitional CD19+B cells, and plasmablasts.
 - (2) **T cell proliferation to PHA.** This assay, performed by flow cytometry, specifically identifies CD3+ T cells responding to stimulation by phytohemagglutinin. The test is of utility in the assessment of general T cell competence.

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

- After a tremendous effort on the part of many groups on campus the CD19 CAR T cell trial IND is nearing completion. Plans are in place to launch the first gene-modified T cell trial at UCH utilizing a UCD-manufactured product by fall with a parallel CD19 CAR T cell trial to open at CHCO soon after. Funds from HI3 were instrumental in preparing this IND, which will serve as a foundation for subsequent trials testing novel immune effector cell therapies developed by multiple investigators at UCD. The timeline and effort needed for these trials will be greatly reduced by the HI3-enabled CD19 CAR T cell IND.

Mission: To facilitate the use of campus labs to monitor patient responses and aid clinical decisions

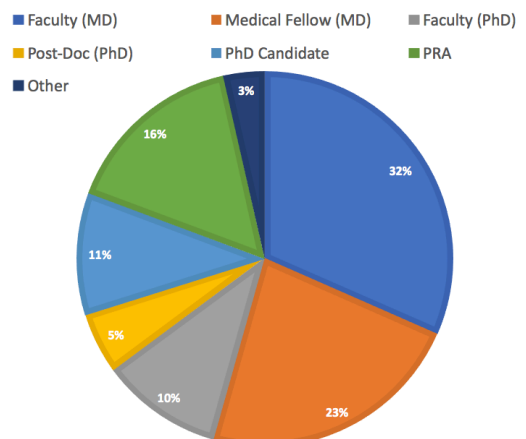
- At this time, most testing monitors clinical response (e.g. improved clinical symptoms, CBCs, CMP, lung capacity, imaging, etc.) but does not adequately monitor adverse (or beneficial) immunologic measures/read outs (e.g. CRS, anti-drug antibodies, T cell activation, granulocyte degranulation, immune 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:
 1. CAP/CLIA approved laboratory testing
 2. Immune monitoring assays for clinical trials
 3. Research assays (what are your innovative ideas?)
- **To help us better serve the HI3 community in the context of translational and diagnostic immunology testing services on campus and beyond, please complete this [short survey](https://www.surveymonkey.com/r/HI3_IMMUNOASSAY_SURVEY) https://www.surveymonkey.com/r/HI3_IMMUNOASSAY_SURVEY**
- For reference, the HI3 website displays a comprehensive list of all [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-size' Human Immunology and Immunotherapy Overview workshop three times within the last year to 57 participants within various stages of their career (see chart) and from a diverse array of specialties, including infectious disease, cardiology, surgery, rheumatology, hem/onc, pediatrics, allergy/immunology and many others.
- Due to demand, HI3 will offer a fourth workshop October 14-16, 2019. If interested in participating, please visit the [Training page of the HI3 website](#).
- Questions? Contact Aimee.Bernard@ucdenver.edu

HI3 'FUN-SIZE' IMMUNOLOGY WORKSHOP PARTICIPANTS



UPCOMING EVENTS and ACTION ITEMS

Mark your calendars - the HIMSR Vectra User Group meetings take place on the first Thursday of every month at 2:00pm in RC1-North, Room 8108.

JULY

- **July 4** is a HOLIDAY - NO HIMSR Vectra User Group (enjoy the day off!)

AUGUST

- **August 1:** HIMSR Vectra User Group meeting at 2:00pm in RC1-North, Room 8108.
- **August 28-30:** [20th Annual Colorado Immunology and Microbiology Conference](#) at the Steamboat Grand Hotel in Steamboat Springs, CO. If interested, please register for the conference through the [link here](#). Don't forget to make your own room reservations at the [Steamboat Grand Hotel](#) and tell them you are with the conference for discounted room rates.

SEPTEMBER

- **September 5:** HIMSR Vectra User Group meeting at 2:00pm in RC1-North, Room 8108
- **September 18:** HI3 Translational Immunology Seminar Series at 4:00pm in **RC1-North, 9107**

OCTOBER

- **October 3:** HIMSR Vectra User Group meeting at 2:00pm in RC1-North, Room 8108.
- **October 14-16:** 2.5 day 'FUN-SIZE' Human Immunology Workshop. Learn more and register through the [Training section of the HI3 website](#). Space is limited to the first 20 registrants. Questions? Contact Aimee.Bernard@ucdenver.edu
- **October 16:** HI3 Translational Immunology Seminar Series at 4:00pm in **RC1-North, 9107**

NOVEMBER

- **November 20:** HI3 Translational Immunology Seminar Series at 4:00pm in **RC1-North, 9107**