Research highlight: Nelson lab & systemic sclerosis

Dr. J. Lee Nelson is a well-established autoimmunity researcher and rheumatologist at Seattle’s Fred Hutchinson Cancer Research Center. Dr. Nelson completed her fellowship in rheumatology at the University of Washington and has been a faculty member with the Division since the 1980s.

Recent studies from Dr. Nelson’s research group have documented distorted paternal versus maternal HLA inheritance observed in SSc patients, in contrast to healthy controls where inheritance was 50-50 as expected. Considering the important role of charge carried by the HLA-DRβ1 3rd hypervariable region in rheumatoid arthritis as precedent, they conducted analysis categorizing the 3rd hypervariable region amino acid sequence and associated charge irrespective of specific HLA-DRB1 alleles. Skewed parental HLA inheritance was observed, strongly implicating epigenetic modification of HLA. The importance of HLA molecules in SSc and other autoimmune diseases is well-established and although a central role of epigenetic modifications in SSc pathogenesis is supported by recent studies, an epigenetic effect on HLA has not previously been considered.

Dr. Whitney Harrington, MD, PhD, pediatric infectious disease fellow in Dr. Nelson’s lab, was selected as an awardee by the Burroughs Wellcome Fund. Dr. Harrington is first author of a paper published in the Journal of Infectious Disease in which they investigated women who have malaria during pregnancy. Investigators found evidence for maternal cells in cord blood that significantly correlated with the probability that the neonate would get malaria but interestingly, decreased risk that the child would become symptomatic or hospitalized with malaria.

Dr. Sami Kanaan, PhD, post-doctoral research fellow in the Nelson lab, has a paper in press in OncoImmunology that investigated maternal cells in cord blood and found maternal cells were frequently present in immune cellular subsets including T cells, B cells, NK cells and monocyte/macrophages. They also showed in a patient who received a cord blood transplant for leukemia treatment that maternal cells could be detected post-transplantation in the patient.

Neutrophil activation & autoimmune disease

Dr. Christian Lood, Dr. Keith Elkon, Dr. Jeffrey Ledbetter, and visiting scientist Sabine Arve, MSc, recently published their paper TLR7/8 activation in neutrophils impairs immune complex phagocytosis through shedding of FcgRIIA in the Journal of Experimental Medicine.

Neutrophils are essential to host defense. However, in SLE circulating nucleic acid-containing immune complexes may engage neutrophils and contribute to chronic inflammation and tissue destruction. In the current investigation researchers asked how these RNA-containing lupus immune complexes are sensed by neutrophils, and the particular role of the RNA component of the immune complexes in regulating subsequent neutrophil effector functions. In brief, they made the novel observation that activation of TLR7/8, the main RNA sensing receptors in neutrophils, shifted neutrophils from phagocytosis of immune complexes to the inflammatory neutrophil cell death process, NETosis, extruding its nuclear and cytosolic content causing marked inflammation and damage.

These observations extend our understanding of neutrophil function in regulation of autoimmunity and inflammation, and suggest that therapeutic interventions to prevent TLR7/8 activation would increase phagocytic clearance of immune complexes while limiting their ability to induce inflammatory NETosis.
In March 2017 the Division held the annual James J. Lane Jr. Endowed Lecture Series. The Lane Lecturer this year was Dr. Martin Herrmann, Professor of Experimental Medicine at the Friedrich-Alexander University and researcher at the Erlangen-Nurnberg Institute for Clinical Immunology. His talk was entitled *Neutrophils & NETs Orchestrate Initiation and Resolution on Gout and Other Inflammatory Diseases.*

Dr. Jie An, PhD, has been appointed as a Research Assistant Professor. Dr. An obtained a PhD degree in the field of Biochemistry & Cell Biology from the Chinese Academy of Sciences in Shanghai, China. His current research is focused on the role of interferon in SLE. In particular, he is studying the role of the cGAS-STING pathway and developing drugs to block this pathway.

Dr. Christian Lood, PhD, has been appointed as an Assistant Professor effective April 16th 2017. Under this new title Dr. Lood’s extensive teaching and service contributions to our fellowship program as well as his research productivity are recognized. In addition, Dr. Lood will continue his research at our South Lake Union campus where his primary focus is to identify the causes of neutrophil mediated inflammation and to find methods to block the inflammation. Dr. Lood obtained his PhD degree in the field of Biomedicine-Rheumatology from Lund University, Sweden. He has significant research experience in Immunology/Autoimmune disease. He worked with internationally renowned research scientists, Drs. Bengtsson and Sturfelt at the University of Lund.

Dr. Jenna Thomason, MD, MPH, has been appointed as an Acting Instructor. She obtained her MD from Emory University School of Medicine and her MPH from the Emory University Rollins School of Public Health. Dr. Thomason completed an Internal Medicine Residency and Rheumatology Fellowship at the University of Washington. Dr. Thomason will see patients primarily at HMC and participate in the division's ACGME Fellowship Training Program.

The Division has launched a new website that matches the University of Washington Department of Medicine’s website. The new site is hosted on Drupal and now contains updated information such as news and events in addition to our entire conference schedule in a more user friendly format.

The new website can be accessed at [www.rheumatology.uw.edu](http://www.rheumatology.uw.edu).

Dr. Alison Bays, MD, MPH, has been appointed Associate Director of the Rheumatology Fellowship Program. Dr. Bays obtained her MD and MPH from Tulane University School of Medicine and School of Public Health. Dr. Bays completed an internal medicine residency at the University of Washington followed by a fellowship in rheumatology at the University of California, San Francisco. She is a clinician-educator interested in medical education, quality improvement, musculoskeletal ultrasound and is currently researching the effects of TNF inhibitors on viral loads. She sees patients at Harborview Medical Center and will be bringing her expertise as a clinician-educator to the fellowship program.

Dr. Scott Pollock, MD, has been appointed as a Clinical Emeritus Professor. Dr. Pollock has been a member of the Division since completing his residency and fellowship at the University of Washington in the 1980s.

Dr. Pollock was pivotal in developing the fellowship program’s ultrasound and musculoskeletal training curriculums. He has presented on ultrasound at the American College of Rheumatology Annual Meeting and internationally. Dr. Pollock’s many years of service are appreciated. The Division will recognize this new title with a celebration at the annual ACR Meeting in November 2017.

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NEW ACGME RHEUMATOLOGY FELLOWS

Dr. Sarah Chung attended medical school at Georgetown School of Medicine. She completed her residency at the University of Washington in Seattle, WA.

Dr. Jean Liew attended medical school at the University of Texas Medical Branch School of Medicine, Galveston. She completed her residency Oregon Health & Science University in Portland, OR.

Dr. Muhsen Al-ani attended medical school at the University of Baghdad College of Medicine in Iraq. He completed his most recent residency at Maricopa Integrated Health Systems, AZ. He also completed a Fellowship in Nuclear & Radiation Medicine in Iraq.

DIVISION GRANTS

Dr. Jie An received a $10,000 award through the Institute of Translational Health Sciences Research Scholars Program. The one-year program supports research and career development.

Dr. Keith Elkon was awarded an NIH R21 award entitled “Link between Retroelements, Ro and Interferon Biology in Lupus”. This will support a two year project in collaboration with Dr. Michael Gale of the Department of Immunology.

Dr. Keith Elkon also received a Co Motion Innovation Fund grant in support of his project titled “cGAS-STING”.

Dr. Natalia Giltiay has been awarded a grant from the Lupus Research Alliance in the amount of $300,000 to research anit-BDCA2-targeted therapy for SLE. This grant will last three years.

Dr. Christian Lood was awarded an investigator initiated grant from Pfizer, Inc. The project entitled, “Neutrophil-Derived Biomarkers in Rheumatic Diseases” is funded for two years with a total budget of $150,000.

DIVISION AWARDS

We congratulate Drs. Gregory Gardner, Julie Carkin, Mark Wener, and Philip Moberg for being listed as Top Doctors in Seattle Met for 2017.

Dr. Grant Hughes was nominated for American College of Rheumatology Distinguished Program Director Award.

Dr. Mark Wener was nominated as a American College of Rheumatology Master to honor his decades of work as a rheumatologist.

Program Operations Specialist and Fellowship Program Administrator Kat McGhee was nominated for the 2017 University of Washington Distinguished Staff award.

DIVISION PUBLICATIONS


