BIOGRAPHICAL SKETCH

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NAME: Gregson, Aric Lee

eRA COMMONS USER NAME (credential, e.g., agency login): AGREGSON

POSITION TITLE: Associate Clinical Professor of Medicine

EDUCTION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
University of California, Santa Cruz, CA	B.A.	06/1992	Biology
University of California, Los Angeles, CA	M.D.	05/1997	Medicine
Harbor–UCLA Medical Center, Torrance, CA	Board Cert.	06/2000	Internal Medicine
University of Maryland, Baltimore, MD	Board Cert.	06/2003	Infectious Diseases
Center for Vaccine Development, Baltimore, MD	Post-Doc	10/2005	Clinical Vaccinology

A. Personal Statement

My research is focused on the mechanisms underlying acute and chronic lung allograft rejection and mucosal immunity, particularly the role of infectious agents in these processes. My clinical work involves transplant patients, which helps to inform my research. This clinical work very often involves treating complicated infections due to multidrug-resistant organisms. Prior work has evaluated the effects of post-lung transplantation infection events, such as *Pseudomonas aeruginosa* and *Staphylococcus aureus*, on transplant outcomes. I have also identified unique BALF lymphocytes associated with acute lung allograft rejection and protection from CLAD. More recent work has focused on the BALF exosomal RNA transcriptome during acute allograft rejection.

B. Positions and Honors

Positions and Employment

2001–2003 Instructor of Medicine, Department of Medicine, University of Maryland School of Medicine, Baltimore, MD

2002–2005 Attending Physician & Clinical Instructor, Division of Emergency Medicine, Department of Surgery, University of Maryland School of Medicine, Baltimore, MD

2003–2005 Attending Physician & Clinical Instructor, Division of Geographic Medicine, University of Maryland School of Medicine, Baltimore, MD

2003–2005 Attending Physician, Travellers' Clinic, Department of Medicine, University of Maryland School of Medicine, Baltimore, MD

2005–2006 Scientific and Technical Consultant, Clinical Vaccinologist, Program Officer, RTS,S Vaccine Project, Malaria Vaccine Initiative (MVI), PATH, Bethesda, MD

2006–2007 Clinical Instructor of Medicine, Transplant Infectious Diseases, UCLA School of Medicine

2007–2009 Assistant Clinical Professor of Medicine, Transplant Infectious Diseases, UCLA School of Medicine

2009–2014 Health Sciences Assistant Clinical Professor of Medicine, Division of Infectious Diseases, Department of Medicine, David Geffen School of Medicine at UCLA

2014– Health Sciences Associate Clinical Professor of Medicine, Division of Infectious Diseases, Department of Medicine, David Geffen School of Medicine at UCLA, Transplant Infectious Diseases UCLA Heart & Lung Transplant; Liver, Small Bowel & Pancreas Transplant; Stem Cell Transplant Programs.

Other Experiences and Professional Memberships

2006– International Society for Heart & Lung Transplantation and the American Society of Transplantation

2007– Editorial Board, PLoS ONE

2007– Member, Executive Lung Transplant Committee, UCLA Medical Center
2012– Local Principle Investigator, Use of Pentostam for the Treatment of Leishmania
2012– Associate Editor, PLoS Neglected Tropical Diseases
2012– Site Co-Investigator, CAPSIL, Prophylaxis Versus Preemptive Therapy for the Prevention of CMV in High-Risk R^-D^+ Liver Transplant Recipients, NCT01552369.
2012–2014 Member, Expert Fungal Panel, Scientific Council on Infectious Diseases, ISHLT
2012–2014 Site Co-Principle Investigator, DEFLECT-1, UCLA Medical Center & Optimer Pharmaceuticals, Inc, A Phase 3b Multi-Center, Double-Blind, Randomized, Placebo Controlled Study to Demonstrate the Safety and Efficacy of Fidaxomicin for Prophylaxis against Clostridium difficile-Associated Diarrhea in Adults Undergoing Hematopoietic Stem Cell Transplantation NCT01691248.
2012–2013 Site Co-Investigator, Maribavir/Protocol 1263-202, UCLA Medical Center & ViroPharma Incorporated, A Phase 2, Randomized Study to Assess the Safety and Anti-Cytomegalovirus (CMV) Activity of Different Doses of Maribavir for Treatment of CMV Infections that are Resistant or Refractory to Treatment with Ganciclovir/Valganciclovir or Foscarnet in Transplant Recipients NCT01611974.
2013– Site Co-Investigator, CMX001-301, UCLA Medical Center & Chimerix, Incorporated, A Randomized, Double-Blind, Placebo-Controlled, Parallel-Group, Multicenter, Phase 3 Study of the Safety, Tolerability, and Efficacy of CMX001 for the Prevention of Cytomegalovirus (CMV) Infection in CMV-seropositive (R^+) Hematopoietic Stem Cell Transplant Recipients, NCT01769170.
2013– Infectious Diseases Society of America

Ad-hoc reviewer for Lancet Respiratory Medicine, Annals of Internal Medicine, Journal of Infectious Diseases, JAMA, Vaccine, American Journal of Transplantation, International Society for Heart & Lung Transplantation, Transplantation, Transplant Infectious Diseases, Clinical Transplantation, PLOS Neglected Tropical Diseases, American Journal of Tropical Medicine and Hygiene, Molecular and Biochemical Parasitology, ACP PIER Modules, Clinical Dermatology

Honors and Awards

1992 Phi Beta Kappa, Honors in Biology, College Honors, University of California, Santa Cruz
1996 Marietta Voge Memorial Fund for Tropical Medicine, UCLA School of Medicine
1997 Alpha Omega Alpha, UCLA School of Medicine
2001 Malaria Research Training Program in Mali, University of Maryland-Fogarty International Center
2002 Burroughs Wellcome Fund-American Society of Tropical Medicine and Hygiene Post-Doctoral Fellowship in Tropical Disease Research
2005 Burroughs Wellcome Fund-Howard Hughes Medical Institute Course in Scientific Management
2009 Visiting Professor Asahi General Hospital, Asahi, Japan
2011 Clinical and Health Services Research Award, Junior Faculty, Department of Medicine Research Day
2013 Invited Lecturer & Moderator, The Role of Bacterial Infection & Colonization on Chronic Allograft Dysfunction, International Society for Heart & Lung Transplantation, 33rd Annual Meeting, Montreal
2014 Invited Lecturer, Treatment of Invasive Fungal Infections: State of the Art. Consensus Guidelines & Recommendations ISHLT Fungal Expert Panel, 34th Annual Meeting, San Diego, California

C. Contribution to Science

Adapted New Technologies to Advance Understanding Lung Transplant Immunology Long-term outcomes in lung transplantation have not substantially improved in nearly thirty years. New approaches to understanding the allograft's response to a variety of insults is critical to developing therapies to improve survival. I was the first to identify novel effector lymphocyte populations associated with acute allograft rejection using flow cytometry. I was also the first to apply multiparameter flow cytometry to BALF populations in lung transplantation, identifying the mTreg as protective against CLAD. More recently, I was the first to describe the exosomal RNA transcriptome during acute rejection and quiescence, and to compare this to the BALF cell pellet, thereby identifying a unique allograft compartment.

[1] **Gregson AL**, Hoji A, Saggar R, Ross DJ, Kubak BM, Jamieson BD, Weigt SS, Lynch III JP, Ardehali A, Belperio JA, Yang OO. Bronchoalveolar immunologic profile of acute human lung transplant allograft rejection. *Transplantation* **2008** Apr 15; 85(7):1056–1059. PMC2744369

[2] **Gregson AL**, Hoji A, Palchevskiy V, Hu S, Weigt SS, Liao E, Derhovanessian A, Saggar R, Song S, Elashoff R, Yang OO, Belperio JA. Protection Against Bronchiolitis Obliterans Syndrome is Associated with Allograft CCR7$^+$CD45RA$^-$ T Regulatory Cells. *PLoS ONE* **2010** Jun 29; 5(6):e11354. PMC2894051

[3] **Gregson AL**, Hoji A, Injean P, Poynter ST, Briones C, Palchevskiy V, Weigt SS, Shino M, Derhovanessian A, Sayah D, Saggar R, Ross D, Ardehali A, Lynch III JP, Belperio JA. Altered Exosomal RNA Profiles in Bronchoalveolar Lavage from Lung Transplants with Acute Rejection. *American Journal of Respiratory and Critical Care Medicine* **2015** Dec; 192(12):1490–1503. 10.1164/rccm.201503-0558OC (See accompanying Editorial)

Identify Host-Pathogen Interaction Influences within Transplantation Transplant recipients are constantly exposed to environmental stimuli, and this is particularly relevant for lung transplant recipients whose transplanted organ acts to filter the world around them. With impaired defenses and altered immune responses, pathogen interactions within the host become ever more important determiners of the allograft fate. In addition to studying this relationship, I developed a multistate Markovian-based model to examine the effect of *Pseudomonas aeruginosa* and *Staphylococcus aureus* upon the outcomes of death, CLAD and death after CLAD, within the context of the lung allograft milieu. This allowed for an accurate determination of each co-variate depending upon the present state of the transplant recipient, an approach that had not previously been used.

[1] Kubak BM, **Gregson AL**, Pegues DA, Leibowitz MR, Carlson M, Marelli D, Patel J, Laks H, Kobashigawa JA. Use of Hearts Transplanted From Donors With Severe Sepsis and Infectious Deaths. *Journal of Heart and Lung Transplantation* **2009** March; 28(3):260–265.

[2] Weigt SS, **Gregson AL**, Deng JC, Lynch JP, Belperio JA. Respiratory Viral Infections in Hematopoietic Stem Cell and Solid Organ Transplant Recipients. *Seminars in Respiratory and Critical Care Medicine* **2011** Aug; 32(4):471–93. PMC4209842

[3] **Gregson AL**, Wang X, Weigt SS, Elashoff R, Lynch JP III, Ross DJ, Kubak BM, Saggar R, Ardehali A, Li G, Belperio J. Interaction Between Pseudomonas and CXC Chemokines Increases Risk of BOS and Death in Lung Transplantation *American Journal of Respiratory and Critical Care Medicine* **2013** Mar; 187(5):518–526. PMC3733405

[4] **Gregson AL**, Wang X, Injean P, Weigt S, Shino M, Sayah D, DerHovanessian A, Lynch JP, Ross DJ, Saggar R, Ardehali A, Li G, Elashoff R, Belperio JA. Staphylococcus via an Interaction with the ELR$^+$ CXC Chemokine ENA-78 is Associated with BOS. *American Journal of Transplantation* **2015** Mar; 15(3):792–799. 10.1111/ajt.13029

[5] Humphries R, Yang S, Hemarajata P, Ward K, Hindler J, Miller SC, **Gregson A**. First Report of Ceftazidime-Avibactam Resistance in a KPC-3 Expressing Klebsiella pneumoniae. *Antimicrobial Agents and Chemotherapy* **2015** July; Published Online. 10.1128/AAC.01165-15.

Examine Host-Pathogen Interactions Between Malaria and Humans Malarial drug resistance is a significant problem that has plagued eradication and treatment efforts since before the first World War. I designed and executed a trial, the first, to demontrate the transmission of drug-resistant malarial gametocytes in the field from infected persons to host mosquitoes. Although previously shown in the laboratory setting, this was the first “natural” demonstration of this and noted that choice of drug treatment has an effect on transmission of drug resistance genes.

[1] **Gregson AL**, Plowe CV. Mechanisms of Resistance of Malaria Parasites to Antifolates. *Pharmacological Reviews* **2005** Mar; 57(1):118–145.

[2] Beavogui A, Djimdé AA, **Gregson AL**, Dao A, Maiga H, Fofana B, Coulibaly B, Tekete M, Sacko A, Ouologuem D, Niare O, Kone A, Toure AM, Plowe CV, Doumbo OK. Low Infectivity of Post-Sulfadoxine-Pyrimethamine *Plasmodium falciparum* Gametocytes to *Anopheles gambiae* in Mali. *International Journal for Parasitology* **2010** May 8; 40(10):1213–1220. PMC3571761 doi:10.1016/j.ijpara.2010.04.010

Malaria Vaccine Development As noted above, drug resistance has been the bain of malaria eradication for decades. Vaccine development has been held as the holy grail for malaria control and eradication, but thus far an effective, universal vaccine remains elusive. My prior work and training in vaccinology is particularly relevant to my present work in understanding the innate and adaptive immune response to allotransplantation.

[1] **Gregson AL**, Edelman RA. Does Antigen Overload Exist?. *Immunology Allergy Clinics of North America* Vaccines in the 21st Century, **2003** Nov; 23(3):649–664.

[2] Thera MA, Doumbo OK, Coulibali D, *et. al.* Safety and Allele-Specific Immunogenicity of a Malaria Vaccine in Malian Adults: Results of a Phase I Randomized Trial. *PLoS Clinical Trials*. **2006** Nov 24; 1(7):e34. doi:10.1371/journal.pctr.0010034

[3] Thera MA, Doumbo OK, Coulibali D, *et. al.* Safety and Immunogenicity of an AMA-1 Malaria Vaccine in Malian Adults: Results of a Phase I Randomized Trial. *PLoS ONE* **2008** Jan 23; 3(1):e1465. PMC2186380 doi:10.1371/journal.pone.0001465

[4] **Gregson AL**, Oliveira G, Othoro Watta C, Calvo-Calle JM, Thorton GB, Nardin E, Edelman R. Phase I trial of an alhydrogel adjuvanted hepatitis B core virus-like particle containing epitopes of *Plasmodium falciparum* circumsporozoite protein. *PLoS ONE* **2008** Feb 6; 3(2):e1556. PMC2216688

Complete list of my published work can be found in this publicly available, digital database:
http://orcid.org/0000-0001-6806-0868

D. Research Support

Ongoing Research Support

K23 HL102220 Career Development Award (Gregson PI) 12/1/10–06/30/16
NIH/NHLBI
"Role of T Regulatory Cells in Preventing Human BOS"
Proposal objectives are to develop my career in translational transplantation immunology through the investigation of important lymphocyte subsets and their effects and associations with BOS outcomes in lung transplantation.

Completed Research Support

Pilot and Feasibility Award (Gregson PI) 4/1/10–3/31/12
Cystic Fibrosis Foundation
"Harnessing T Regulatory Cells to Prevent Chronic Lung Allograft Rejection"
Proposal objectives are to establish a protective association of intragraft T_{reg} against BOS and to generate a better understanding of the biologic mechanisms underlying the intragraft recruitment and persistence of T_{reg}, particularly with regards to CCL21/CCL19 and IL-1.