BIOGRAPHICAL SKETCH

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NAME: Ashley Nicole Gray

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

POSITION TITLE: Assistant Professor of Clinical Pediatrics, University of Southern California (USC)

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

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Start Date MM/YYYY	Completion Date MM/YYYY	FIELD OF STUDY
University of California, Los Angeles (UCLA)	BS	01/2005	06/2009	Physiological Science
University of California, Los Angeles (UCLA)	MS	06/2009	06/2011	Master's Thesis
St. George's University School of Medicine, Grenada	MD	06/2011	06/2015	Medicine
University of California, San Francisco (UCSF) Fresno GME	Residency	06/2015	06/2018	General Pediatrics
University of California, Los Angeles (UCLA)	Fellowship	06/2018	06/2022	Pediatric Hematology/Oncology
Seattle Children's Hospital/Fred Hutchinson Cancer Center	Fellowship	07/2021	06/2022	Pediatric Hematopoietic Cell Transplantation/Immunotherapy

A. Personal Statement

I am currently an Assistant Professor of Clinical Pediatrics at the University of Southern California (USC) and an Attending Physician at Children's Hospital Los Angeles (CHLA) in the Division of Pediatric Bone Marrow Transplantation and Cellular Therapy. I am dedicating my career to improving the morbidity and mortality of children suffering from gastrointestinal (GI) graft-versus-host disease (GvHD). My research interest is focused on elucidating key perturbations in the gut microbiota associated with GI GVHD and evaluating novel therapeutic approaches to the most severe forms of GVHD such as intestinal microbiota transplantation (IMT). I previously enrolled children on a prospective longitudinal descriptive study that identified unique changes in gut microbiota diversity and variation in GI GVHD patients during the post-transplantation period. Concurrently, Dr. Grace Aldrovandi and I hold an IND for a Phase I trial in patients 6-75 years old to determine if FMT is safe and tolerable to administer to allogeneic hematopoietic cell transplantation patients with steroid-refractory/-resistant acute gut GvHD (ClinicalTrials.gov Identifier: NCT04280471) which allows children to gain access to a novel therapeutic intervention that is actively being explored only in the adult population.

My previous research experience will enable me to be successful in my current research project. As a graduate student at UCLA under the guidance of urologist Dr. William Aronson, I studied the progression of prostate cancer in the setting of dietary modifications in both humans and mice. My Master's thesis focused on how a nutritional-regulated growth factor binding protein, IGFBP-1, affects prostate cancer progression in mice which resulted in a first-author publication in the *Journal of Endocrinology* (PMID: 21903863). During my Pediatric Hematology-Oncology fellowship, in addition to the GI GVHD study described above, I was the lead co-investigator on a study of immunosuppressed individuals living in households with and without children to assess the role of household contact with children in the transmission of SARS-CoV-2 to immunocompromised individuals (ClinicalTrials.gov Identifier: NCT04407546). Additionally, I helped coordinate, implement and analyze a large epidemiological study of the humoral response to SARS-CoV-2 mRNA vaccination in healthcare workers and first responders during the COVID-19 pandemic which resulted in a first-author

publication (PMID: 34748607). I believe these laboratory and clinical research skills acquired as a graduate student and Fellow have given me a strong foundation to pursue my clinical research career.

B. Positions and Honors

2009—2011	Research Associate, Department of Urology, University of California, Los Angeles (UCLA), Los Angeles, CA
2009—2011	Teaching Assistant, Department of Integrative Biology and Physiology, UCLA, Los Angeles, CA
2015—2018	General Pediatric Resident, University of California, San Francisco Fresno Graduate Medical Program
2018—2021	Clinical Fellow, Pediatric Hematology/Oncology, UCLA, Los Angeles, CA
2020—2021	Chief Fellow, Pediatric Hematology/Oncology, UCLA, Los Angeles, CA
2021—2022	Advanced Fellow, Pediatric Bone Marrow Transplantation/Immunotherapy
2021—2022	Attending Physician, Seattle Children's Hospital
2022—Current	Attending Physician, Children's Hospital of Los Angeles

Other Experience and Professional Memberships

2011—Present	American Board of Pediatrics, Member
2018—Present	Board Certified, American Board of Pediatrics (ABP), #122992
2019—Present	American Society of Transplantation and Cellular Therapy (ASTCT), Member
2019—Present	American Society of Hematology (ASH), Member
2019—Present	American Society of Pediatric Hematology/Oncology, Member

Honors

2011	UCLA Graduate Division Fellowship Grant
2011	Master Thesis – Global Igfbp1 deletion does not affect prostate cancer development in a c-Myc transgenic mouse model, P.I. William Aronson M.D., Department of Urology
2011—2015	Congress of Italian American Scholarship
2012—2015	Member of Iota Epsilon Alpha—International Honors Society
2015	Distinguished in Research, SGU SOM Medical Student Research Institute
2017	AAP Resident Hardship Scholarship Recipient
2018, 2019, 2020	UCLA Janet and Ray Scherr Fellowship Scholarship
2022	ASTCT Clinical Research Scholar

C. Contributions to Science

a. **Early Career:** Pediatric hematopoietic cell transplantation continues to be a curative option for children with malignant and non-malignant diseases. My research focuses on studying improving the morbidity and mortality of children suffering from gastrointestinal (GI) graft-versus-host disease (GvHD).
   a. **Gray, A.N.,** Tobin, N.H., Moore, T. B., Li, F., Aldrovandi, G. Longitudinal Relationship Between Gut Microbiota Variation and Diversity and Gut Graft-versus-Host Disease (GvHD) Following Pediatric Allogeneic Hematopoietic Cell Transplantation (HCT). *Under review at the Journal of Pediatric Hematology & Oncology.*
   b. Gregory, P.F., Angus, J., Brothers, A.W., **Gray, A.N.,** Gooley, T, Davis, C., Kim, H., Weissman, S.J., Mallhi, K., Zheng, H.B., Baker, K.S. Risk Factors for Development of Pneumatosis Intestinalis After Pediatric Hematopoietic Stem Cell Transplantation: A Single Center Case-Control Study. Transplant Cell Ther. 2022 Aug 27:S2666-6367(22)01592-5. doi: 10.1016/j.jtct.2022.08.023. PMID: 36038104.
   c. **Gray, A.,** Dang BN, Moore TB, Clemens R, Pressman P. A review of nutrition and dietary interventions in oncology. *SAGE Open Med*. 2020;8:2050312120926877. Published 2020 Jun 1. PMID: 32537159, PMC7268120
   d. Dang, B., De Oliveira, S., **Gray, A.,** Bowels, L. Moore, T.B. Successful engraftment of haploidentical bone marrow with post transplantation cyclophosphamide in patients with aplastic anemia. Pediatric Transplantation. Pediatr Transplant. 2020 Jan 16:e13652. PMID: 22562985, PMC3392522.

b. **Graduate Career**: Dietary interventions may play an important role in tumorigenesis of prostate cancer. Low-fat diet and caloric restriction are variations in diet that we have shown promising reduction in proliferation through tissue biomarkers in human prostate cancer specimens. More specifically, our works cited showed that targeted interventions of the insulin-like growth factor-1 (IGF-1) axis via nutritional interventions in addition to receptor blockade antibodies have decreased tumor proliferation in xenografts and mouse prostate cancer models.
    a. Galet, C., **Gray, A.,** Barnard, R.J., Castor, B., Wan, J., *et al.* Effects of Calorie Restriction and IGF-1 Receptor Blockade on the Progression of 22Rv1 Prostate Cancer Xenografts. International Journal of Molecular Science 2013 July 3; 14 (7):13782-95. PMID:23823800, PMC3742217
    b. Konijeti, R., Koyama, S., **Gray, A.,** Barnard, R.J., Said, J., *et al.* Effect of Low-Fat Diet Combined with IGF-I Receptor Blocking Antibody on 22Rv1 Prostate Cancer Xenografts. Molecular Cancer Therapeutics 2012 July; 11(7): 1539-46. PMID: 22562985, PMC3392522.
    c. **Gray, A.,** Aronson, W.J., Barnard, R.J., Mehta, H.H., Wan, J., *et al.* Global IGFBP-1 deletion does not affect prostate cancer development in a c-Myc transgenic mouse model. Journal of Endocrinology 2011 December; 2011(3):297-304. PMID: 21903863, PMC3271951.
    d. Galet, C., Kobayashi, N., Barnard R.J., Elashoff, D., **Gray, A.,** *et al.* Phase II Prospective Randomized Trial of a Low-Fat Diet with Fish Oil Supplementation in Men Undergoing Radical Prostatectomy. Cancer Prevention Research 2011 December; 4(12):2062-71. PMID: 22027686, PMC3232341.

c. **Residency training:** As a Pediatric resident physician, my contributions the scientific community focused on case reports of rare disease presentations which were presented a regional conference for 2 consecutive years. I also helped publish a collaborative study with obstetrics & gynecology which examines maternal and fetal outcomes of repeat cesarean sections.
    a. **Gray, A.** Do, P. The Case of the Unwanted Crystal: A Pediatric Case of Pulmonary Actinomyces. Journal of Pediatrics, Clinical Case Reports 2018 May 18; doi:10.1002/ccr3.1555. PMID: 29988629.
    b. Roloff, K., **Gray, A.,** Valenzuela, G. Repeat cesarean delivery in the 39-week rule era: outcomes at a community-based hospital. Clinical and Experimental Obstetrics & Gynecology 2018 June 6; 45 (3): 391-5.
    c. **Gray, A** and Do, P. How A Bronchoscopy Prevented a Lobectomy: A Pediatric Case of Pulmonary Actinomyces Odontolytics. Poster presentation at the 2018 Western Medical Research Conference.

Complete List of Publish Work in MyBibliography
https://www.ncbi.nlm.nih.gov/myncbi/1zQH8rzR-vN50/bibliography/public/

D. Additional Information: Research Support and/or Scholastic Performance

Current: None.

Previous:
PI: Kohn Developmental Hematology T32 Training Grant 4/1/2020-4/30/2022
Mentor: Aldrovandi
Evaluation of Immune Reconstitution and its Relationship to Gut Dysbiosis and Gut GvHD Following Allogeneic Hematopoietic Stem Cell Transplantation
Delayed immune reconstitution leaves hematopoietic stem cell transplantation (HSCT) patients at increased susceptibility to infection and transplant-related morbidity and mortality from gut graft-versus-host disease (GvHD). Murine models have shown that antibiotic depletion of the intestinal flora impairs hematopoiesis and differentiation. In this study, we are prospectively investigating key perturbations that occur in the gut microbiome and their metabolites and assess immune reconstitution following allogeneic HSCT to gain added insight into the mechanisms and complications of gut GvHD.
Award provides salary support and a stipend for a few supplies.