

# Adrienne H. Long, MD, PhD

## I. PERSONAL INFORMATION

Title: Clinical Fellow in Pediatric Hematology, Oncology, Stem Cell Transplantation  
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## II. EDUCATIONAL BACKGROUND

- Jul 2019 - Jun 2022 **Fellowship in Pediatric Hematology, Oncology, & Stem Cell Transplantation**
- Lucile Packard Children's Hospital at Stanford
  - Anne T. and Robert M. Bass Endowed Fellow
- Jun 2016 - Jun 2019 **Residency in Pediatrics**
- Boston Children's Hospital and Boston Medical Center (Boston Combined Residency Program, BCRP)
  - Integrated Research Pathway
- Aug 2008 - May 2016 **Doctor of Medicine**
- Northwestern University
  - Medical Scientist Training Program
  - *Magna cum laude*
- Jun 2012 - Aug 2015 **Doctor of Philosophy in Cancer Immunology**
- National Institutes of Health (NIH), in partnership with Northwestern University
  - Advisor: Crystal Mackall, MD
- Sep 2005 - May 2008 **Bachelor of Science in Biomedical Engineering**
- Northwestern University
  - Honors Program in Medical Education
  - *Summa cum laude*

## III. RESEARCH EXPERIENCE

- Jul 2020 - present **Post-Doctoral Fellow**
- Stanford University
  - Advisor: Mark Davis, PhD
  - Studying mechanisms of thymic central tolerance to guide development of novel cancer immunotherapies
- Jan 2017 - Jun 2019 **Integrated Research Pathway Pediatrics Resident**
- Dana-Farber Cancer Institute and Broad Institute
  - Advisor: W. Nicholas Haining, BM, BCh
  - Demonstrated that inhibition of signal peptide peptidase triggers novel antigen presentation on non-classical MHC and sensitizes tumors to checkpoint blockade
- Jun 2012 - Aug 2015 **NIH Partnerships Program Graduate Student**
- NIH, National Cancer Institute (NCI)
  - Advisor: Crystal Mackall, MD
  - Dissertation: 4-1BB costimulation ameliorates T cell exhaustion induced by antigen independent signaling of chimeric antigen receptors (CARs)

- Jul 2011 - May 2012     **Howard Hughes Medical Institute (HHMI)-NIH Research Scholar (Cloister Program)**
- NIH, NCI
  - Advisors: Crystal Mackall, MD and Rimas Orentas, PhD
  - Compared the susceptibility of hematologic and solid malignancies to CAR T cell therapies
- Jun 2009 - Aug 2009     **Medical Student Summer Research Program**
- Northwestern University
  - Advisor: Dean Ho, PhD
  - Synthesized and characterized nanodiamond-antibody complexes for use as targeted, controlled release therapeutics

#### **IV. HONORS AND AWARDS**

- 2019     Fredrick H. Lovejoy, Jr. Senior Resident Award, Boston Children's Hospital
- 2016     Heller Award for Excellence in Clinical Medicine, Northwestern University Medical Scientist Training Program
- 2015     Alpha Omega Alpha Honor Medical Society
- 2015     Scholar-in-Training Award, American Association for Cancer Research
- 2014     Women in Cancer Research Award, American Association for Cancer Research
- 2013     Abstract Achievement Award, American Society of Hematology
- 2013     Fellows Award for Research Excellence, NIH
- 2013     Annual Research Day: Outstanding Presentation, NCI Pediatric Oncology Branch
- 2013     Fellows and Young Investigators Annual Colloquium: Outstanding Oral Presentation, NCI
- 2012     Annual Research Day: Outstanding Presentation, NCI Pediatric Oncology Branch
- 2010     Medical Student Summer Research Program Symposium: Top Poster, Northwestern University

#### **V. SCHOLARLY PUBLICATIONS**

##### **A. PEER-REVIEWED JOURNAL ARTICLES**

Ishizuka JJ, Manguso RT, Cheruiyot CK, Bi K, Panda A, Iracheta-Vellve A, Miller BC, Du PP, Yates KB, Dubrot J, Buchumenski I, Comstock DE, Brown FD, Ayer A, Kohnle IC, Pope HW, Zimmer MD, Sen DR, Lane-Reticker SK, Robitschek EJ, Griffin GK, Collins NB, **Long AH**, Doench JG, Kozono D, Levanon EY & Haining WN. Loss of ADAR1 in tumours overcomes resistance to immune checkpoint blockade. *Nature* 565, 43-48 (2019).

Walker AJ, Majzner RG, Zhang L, Wanhainen K, **Long AH**, Nguyen SM, Lopomo P, Vigny M, Fry TJ, Orentas RJ, & Mackall CL. Tumor Antigen and Receptor Densities Regulate Efficacy of a Chimeric Antigen Receptor Targeting Anaplastic Lymphoma Kinase. *Molecular Therapy* 25, 2189-2201 (2017).

**Long AH**, Highfill SL, Cui Y, Smith JP, Walker AJ, Ramakrishna S, El-Etriby R, Galli S, Tsokos M, Orentas RJ & Mackall CL. Reduction of MDSCs with all-trans retinoic acid improves CAR therapy efficacy for sarcomas. *Cancer Immunology Research* 4, 869-880 (2016).

Decker B, Davis BW, Rimbault M, **Long AH**, Karlins E, Jagannathan V, Reiman R, Parker HG, Drögemüller C, Corneveaux JJ, Chapman ES, Trent JM, Leeb T, Huentelman MH, Wayne RK, Karyadi DM, & Ostrander EA. Comparison against 186 canid whole genome sequences reveals survival strategies of an ancient clonally transmissible canine tumor. *Genome Research* 25, 1646-1655 (2015).

**Long AH**, Haso WM, Shern JF, Wanhainen KM, Murgai M, Ingaramo M, Smith JP, Walker AJ, Kohler ME, Venkateshwara VR, Kaplan RN, Patterson GH, Fry TJ, Orentas RJ, & Mackall CL. 4-1BB costimulation

ameliorates T cell exhaustion induced by tonic signaling of chimeric antigen receptors. *Nature Medicine* 21, 581-590 (2015).

**Smith AH**, Robinson EM, Zhang X, Chow EK, Lin Y, Osawa E, & Ho D. Triggered release of therapeutic antibodies from nanodiamond complexes. *Nanoscale* 3, 2844-2848 (2011).

Jakupciak JP, Gallant ND, **Smith AH**, Becker ML, Tona A, & Atha DH. Improved methods and standards for telomerase detection: quantitative histopathology using antibody staining. *Biotechnic & Histochemistry* 84, 195-206 (2009).

## **B. PEER-REVIEWED PUBLICATIONS, OTHER**

**Long AH**, Fiore JG, Gillani RN, Douglass L, Fujii AM, & Hoffman JD. Hypotonia and Lethargy in a Two-Day Old Male Infant. *Pediatrics* 144, doi: 10.1542/peds.2018-0788 (2019).

**Long AH**, Lee DW, & Mackall CL. Chimeric antigen receptors for cancer: progress and challenges. *Current Stem Cell Reports* 1, 187-196 (2015).

**Long AH**, Haso WM, & Orentas RJ. Lessons learned from a highly-active CD22-specific CAR. *Oncolmmunology* 2, 2:e23621 (2013).

## **C. NON PEER-REVIEWED JOURNAL ARTICLES, REVIEWS, EDITORIALS, ETC.**

Ding YY, Ramakrishna S, **Long AH**, Phillips CA, Montiel-Esparza R, Diorio CJ, Bailey CC, Maude CL, Aplenc R, Batra V, Reilly AF, Rheingold SR, Lacayo NJ, Sakamoto KM, Hunger SP. Delayed cancer diagnoses and high mortality in children during the COVID-19 pandemic. *Pediatric Blood & Cancer*, 2020 Jun 26; e28427.

## **VI. GRANTS AND FELLOWSHIPS**

### **A. CURRENT FUNDING**

Jul 2021 - Jul 2023      **Doris Duke Charitable Foundation Physician Scientist Fellowship**  
• Role: PI

Jul 2020 - Jul 2022      **Stanford Maternal & Child Health Research Institute Clinical Trainee Support Grant**  
• Role: PI

### **B. PENDING / SUBMITTED FUNDING**

Jul 2022 - Jul 2023      **Conquer Cancer, the ASCO Foundation, Young Investigator Award (Submitted)**  
• Role: PI

Jul 2022 - Jul 2023      **AACR - Conquer Cancer, the ASCO Foundation, Young Investigator Award for Translational Cancer Research (Submitted)**  
• Role: PI

### **C. PAST FUNDING**

Jan 2018 - Dec 2018      **NIH Ruth L. Kirschstein National Research Service Award (T32)**  
• Boston Children's Hospital T32 HL007574  
• Role: Trainee

Sep 2015 - May 2016      **NIH Ruth L. Kirschstein National Research Service Award (T32)**  
• Northwestern University T32 GM008152  
• Role: Trainee

Jul 2011 - Jun 2012

**Howard Hughes Medical Institute Research Scholars (Cloister) Program Fellowship**

- Role: Fellow

**VI. SERVICE AS GRANT REVIEWER**

Feb 2014 - Jun 2014

**NIH Fellows Award for Research Excellence**

- Chief Judge - led study section for evaluating immunology grant proposals from graduate students and post-doctoral scholars

**VII. SERVICE TO PROFESSIONAL ORGANIZATIONS**

**A. MEMBERSHIPS**

American Association of Cancer Research  
American Medical Women's Association  
American Society of Clinical Oncology  
American Society of Hematology  
Children's Oncology Group  
Omega Alpha Honor Medical Society  
Society for the Immunotherapy of Cancer  
Tau Beta Pi Engineering Honor Society

**B. LEADERSHIP ROLES**

Oct 2008 - Sep 2010

**American Medical Women's Association, Northwestern Student Chapter - Coordinator Vice President**

**VIII. PRESENTATIONS**

**A. NATIONAL AND REGIONAL MEETINGS**

*Oral:*

**Long AH.** Recent results of checkpoint inhibitors for pediatric cancers. *Pediatric Oncology Experimental Therapeutics Investigators' Consortium (POETIC) Summer Meeting, Palo Alto, CA (2020).*

**Long AH, Haso WM, Smith JP, Walker AJ, Fry TJ, Orentas RJ, & Mackall CL.** 4-1BB costimulation ameliorates exhaustion and prolongs in vivo persistence of chimeric antigen receptor (CAR) expressing T cells. *American Association for Cancer Research Annual Meeting, Philadelphia, PA (2015).*

**Long AH, Orentas RJ, & Mackall CL.** 14g2a based GD2 specific chimeric antigen receptors constitutively signal, leading to rapidly induced T cell exhaustion and poor anti-tumor efficacy in vivo. *American Association for Cancer Research Annual Meeting, San Diego, CA (2014).*

**Long AH, Orentas RJ, & Mackall CL.** Synthetic chimeric antigen receptors (CARs) rapidly induce exhaustion and augmented glycolytic metabolism in human T cells. *American Society of Hematology Annual Meeting, New Orleans, LA (2013).*

*Poster:*

**Long AH, Orentas RJ, & Mackall CL.** Enhanced glycolytic metabolism is associated with exhaustion and poor antitumor efficacy in a xenograft model of chimeric antigen receptor T cell therapy for sarcoma. *Society for Immunotherapy of Cancer Annual Meeting, National Harbor, MD (2013).*

**Long AH**, Haso WM, Orentas RJ, & Mackall CL. Evaluating the susceptibility of solid tumors to chimeric antigen receptor modified T cell therapies: T cell exhaustion and poor anti-tumor efficacy. *American Association for Cancer Research Annual Meeting*, Washington, DC (2013).

**Long AH**, Highfill SH, Haso WM, Orentas RJ, & Mackall CL. Evaluating the susceptibility of solid tumors to chimeric antigen receptor (CAR) modified T cell therapies: murine myeloid derived suppressor cells suppress human CAR T cells in solid tumor xenograft model systems. *Society for the Immunotherapy of Cancer Annual Meeting*, Rockville, MD (2012).

## **B. INTERNATIONAL MEETINGS**

*Oral:* **Long AH**, Manguso RT, Klaeger S, Cheruiyot CK, Keane R, Ishizuka JJ, Carr SA, Haining WN. Inhibition of signal peptide peptidase triggers novel antigen presentation on non-classical MHC and sensitizes tumors to checkpoint blockade. *Keystone Symposia - Cancer Immunotherapy: Mechanistic Insights to Improve Clinical Benefit*, Whistler, BC (2019).

## **IX. COMMUNITY SERVICE**

- Jul 2021 - present **Stanford Pediatrics Fellows Council - Heme/Onc Representative**
- Lucile Packard Children's Hospital, Stanford
  - Serving as a liaison to Stanford-wide fellowship leadership; working towards improving the fellowship experience of the fellowship community
- Jul 2020 - present **Bass Center Chemotherapy Taskforce - Fellow Member**
- Lucile Packard Children's Hospital, Stanford
  - Helping develop policies and practices for optimal, safe chemotherapy administration
- Jul 2017 - Jun 2019 **BCRP Academy of Basic and Translational Investigation - Resident Leader**
- Boston Children's Hospital
  - Developed afternoon and evening curriculum for pediatric residents with interests in basic and translational science
- Sep 2016 - Jun 2019 **BCRP Housestaff Association - Committee Member**
- Boston Children's Hospital
  - Fundraised for and organized events to support pediatric residents

## **X. TEACHING EXPERIENCE**

- Aug 2020 - present **Research Supervisor**
- Stanford University
  - Direct research mentor for a Life Science Research Professional whose goal is to go to graduate school
- Jul 2012 - Aug 2015 **NIH Internship Program in Biomedical Research - Mentor**
- NIH, NCI, Pediatric Oncology Branch
  - Direct research mentor for two high school students, one undergraduate student, and one post-baccalaureate fellow
- Jun 2013 - Sep 2014 **NIH Cancer Immunotherapies Class for Summer Interns - Leader**
- NIH
  - Taught a weekly class and journal club for high school and undergraduate students