

**CURRICULUM VITAE****NAME:** MIRIAM MERAD

Married

Two children

**BUSINESS ADDRESS:**

Department of Oncological Sciences

Tisch Cancer Institute, Hess Center 5th floor, Room 118

Icahn School of Medicine at Mount Sinai

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**Personal Statement:** My research over the past 20 years has focused on understanding the mechanisms that control the development and functional identity of tissue resident dendritic cells and macrophages during homeostasis, and examining how these regulations are changed in cancer and inflammatory diseases. The overarching goal of my laboratory is to identify dysregulated pathways in macrophages and dendritic cells that can be harnessed to treat Cancer using both genetically engineered mouse models and human lesions to address these questions. To expand the understanding of immune cells contribution to human lesions, I have founded in 2009, the human immune monitoring center at Mount Sinai to implement technology platforms to maximize information obtained from limited biological samples. In 2016, I have taken the leadership of the Precision Immunology Institute at the Icahn School of Medicine (PrISM) to continue to lead initiatives to enhance human immunology science. PrISM integrates immunological research programs across 42 laboratories with synergistic expertise in biology, medicine, technology, physics, mathematics and computational biology which come together to frame novel questions to understand the contribution of immune cells to disease initiation, progression and response to treatment, to implement cutting edge technologies and to develop novel immunotherapy strategies for the treatment of human diseases.

**Contribution to Science** (out of 174 publications).

The complete list of published works can be found at the end of document or at

<https://www.ncbi.nlm.nih.gov/pubmed/?term=merad+miriam>

- 1. Established the embryonic origin of tissue resident macrophages and their distinct contribution to tumor immunity.** In contrast to the mononuclear phagocyte system (MPS) dogma that suggests that tissue resident macrophages arise from circulating monocytes, results from studies performed during my fellowship at Stanford and subsequently in my own laboratory at Mount Sinai established for the first time that tissue resident macrophages (e.g. microglia and Langerhans cells) arise from embryonic precursors that take residence in tissues prior to birth and are maintained throughout life through limited local self-renewal independent of circulating monocytes. In contrast, monocyte-derived macrophages accumulate in tissues mostly in response to inflammatory signals. We showed that these results have clinical implications as embryonic macrophages (but not monocyte-derived cells) are resistant to genotoxic stress and this contributes to graft-versus-host disease and to tumor resistance to radiotherapy. Recently, we distinguished tissue-resident macrophages from monocyte-derived cells in human tumors paving the way for macrophage-targeted therapies to improve anti-tumor immunity. Together, these studies have been cited more than 2,000 times and have challenged the simple model of the MPS igniting a world-wide effort to explore the diversity and clinical contribution of tissue-resident macrophages to human diseases. (Merad et al. **Nat. Immunol.** 2002; Ginhoux et al. **Science** 2010; Price et al. **Nat. Immunol.** 2015; Lavin et al. **Cell.** 2017)

2. **Identified a new subset of dendritic cells specialized in antitumor immunity:** My laboratory identified the tissue resident CD103+ DC lineage and the key transcriptional regulators that control CD103+ DC differentiation in vivo. We established that CD103+ DC control antiviral immunity and is required for tumor response to checkpoint blockade. These studies have raised the community interest in CD103+ DC and their human counterpart, which are now considered a prime target in anti-tumor immunity (Ginhoux et al. *J. Exp. Med.* 2007; Ginhoux et al. *J. Exp. Med.* 2009; Bogunovic et al. *Immunity* 2016)
3. **Generated detailed transcriptional and epigenetic atlases of dendritic cells and macrophages that are widely used resources and uncovered insights in to the regulatory networks and molecular identity of these cells.** I have helped lead several omics studies aimed at gaining a better understanding of the molecular regulation of myeloid cells. This includes my work as the co-leader of the myeloid division of the Immunological Genome (ImmGen) Consortium. As part of ImmGen, we isolated and transcriptionally profiled more than 50 different populations of DCs and macrophages from different mouse tissues. These studies provided some of the first evidence that tissue residency of macrophages has a major influence on their molecular profile, as we had found that while DCs had similar expression patterns in virtually all tissues we isolated them, the expression profile of macrophages was different between tissues. This had important implications as it indicated that macrophages were very heterogeneous, even in a steady-state animal, and that tissue cues influenced the macrophages. We followed up this study with an epigenetic profiling effort that provided additional, and even more striking evidence, of macrophage heterogeneity at the ontogeny and tissue level. The data and concepts from the three studies listed below have become widely adopted in the field, and collectively cited over 1,900 times. (Miller et al. *Nat. Immunol.* 2012; Gautier et al. *Nat. Immunol.* 2012; Lavin et al. *Cell.* 2014)
4. **Discovered functional microbial-neuronal-immune cell crosstalk at the mucosal interface:** My laboratory identified key interactions between the microbiota and the tissue resident mononuclear phagocytes located at the tissue interface and showed that the microbiota regulates a macrophage –neuronal crosstalk that promotes intestinal peristalsis and extraction of food nutrients. (Muller et al. *Cell* 2014; Mortha et al. *Science* 2014; Chudnovskiy et al. *Cell* 2016)

#### **ACADEMIC APPOINTMENTS:**

- 2004-2007: Assistant Professor Academic Track, Department of Gene and Cell Medicine and the Department of Medicine (Hem/Onc division), Icahn School of Medicine at Mount Sinai (ISMMS)
- 2007-2010: Associate Professor with Tenure. Department of Gene and Cell Medicine and the Department of Medicine (Hem/Onc division), ISMMS
- 2009: Program Leader, Cancer Immunology, The Tisch Cancer Institute, ISMMS
- 2010: Professor with Tenure, Department of Oncological Sciences and Department of Medicine (Hem/Onc division) ISMMS
- 2011: Director of the Human Immuno-Monitoring Center, Icahn School of Medicine at Mount Sinai.
- 2014: Endowed Chair in Cancer Immunology, ISMMS
- 2016: Director Precision Immunology Institute, ISMMS (PrIIISM)

#### **EDUCATION AND TRAINING**

Date	Degree	Institution	Subject
2001	Ph.D.	Stanford University and University Paris VII	Immunology
1997	Master Degree	University Paris VII	Biotechnology
1996	Fellowship	University Paris VII	Bone marrow Transplantation
1995	Fellowship	University Paris VII	Clinical Hematology/Oncology
1995	Board Certificate	University Paris VII	Clinical Hematology/Oncology
1992	Residency	University Paris VII (DES)	Internal Medicine
1991	M.D.	University of Algiers	Medicine

**POSTDOCTORAL TRAINING**

2001-2003 Post doctoral Fellow, Department of Pathology, Stanford University

**MEDICAL LICENSURE**

French Board Certified in Hematology. Paris VII University, Paris, France. With unrestricted licensure for European countries

ECFMG certificate USMLE: Passed step 1 [09/2003] step 2 [08/2004], Step 2 CS (10/2004).

**HONORS/AWARDS**

1997 APHP (Hospital of Paris) Award for Clinical Research  
 1998 ARC (Association pour la recherche contre le cancer) Award for cancer research/ Clinical Fellow  
 2004 Alexandrine and Alexander L. Sinsheimer Scholar Award  
 2004 Japanese Society of Immunology Scholar Award  
 2006 Graduate School Excellence in Teaching Award, Mount Sinai  
 2006 Leukemia Research Foundation Award  
 2006 Faculty Council Award for Academic Excellence, Mount Sinai  
 2006 Harold and Golden Lamport Research Award  
 2006 DANA Foundation Award  
 2007 Dean's Lecture Mount Sinai Medical School  
 2008 Rosenfield Award, Mount Sinai  
 2010 Dean's Award for Excellence in Translational Science  
 2013 Elected to the American Society of Clinical Investigation  
 2014 Endowed Professor of Cancer Immunology  
 2015 Keynote lecture Mexcian Society for Immunology  
 2015 Keynote lecture French Society for Neurology  
 2016 Lecture National Academy of Medicine  
 2016 Thomson Reuters' Highly cited researcher  
 2017 Thomson Reuters' Highly cited researcher  
 2018 Distinguished Public talk series, NYU Abu Dhabi  
 2018 Distinguished Lecture series, University of Maryland  
 2018 Keynote speaker, Duke University Neurology retreat  
 2018 Litchfield Lectureship award, Oxford University  
 2018 Pixie Campbell Memorial Keynote Lecture, Colorado  
 2018 William B. Coley Award for Distinguished Research in Basic and Tumor Immunology  
 2019 Lola and John Grace Distinguished Lectures in Cancer Research, EPFL, Lausanne  
 2019 Sandra L. Clark Endowed lecture award, Seattle

**PATENTS**

Patent 6,423,539: Adjuvant treatment by in vivo activation of dendritic cells  
 Provisional Patent: Use of Flt3L for the treatment of liver fibrosis  
 Provisional Patent: Depletion of macrophages for the treatment of myelofibrosis disease  
 Provisional Patent: Erythropoietic role of resident macrophages in hematopoietic organs  
 Provisional Patent: Tissue profiling using multiplexed immunohistochemical consecutive ctaining (ID # 140505)

**OTHER PROFESSIONAL APPOINTMENTS****MEMBERSHIPS IN SCIENTIFIC PROFESSIONAL ORGANIZATIONS:**

1999 American Association for Cancer Research  
 2000 American Association of Immunologists

2000	American Association of Hematology
2005	Steering Committee "Langerhans cell society"
2007	Member of the American Society of Hematology Committee in Transplantation Biology.
2007-2011	Steering Committee Nikolas Symposium on Histiocytosis
2007	International Committee Dendritic Cell society.
2011	Steering Committee of the Immunological genome project
2013	Keystone conference organizer "Understanding DC Biology to Advance The treatment of Human Disease"
2017	Keystone conference organizer "Dendritic cells, macrophages and monocyte biology in health, disease and therapy"
2017	Co-Chair AACR Special Conference on tumor immunology and immunotherapy
2018	Co-Chair Nature magazine-sponsored International Cancer Inflammation meeting Beijing, China
2019	Co-Chair CRI-AACR International Cancer Immunotherapy meeting, Paris
2019	Co-chair Banbury Center Science Think Tank meeting on Cancer Immunology, Cold Spring Harbor Lab, NY

### EDITORIAL ACTIVITIES

Reviewer for Nature, Science, Cell, Nature Immunology, Immunity, Journal of Experimental Medicine, Journal of Clinical Investigation, Journal of Immunology, Blood, Cancer Research, PNAS, Stem Cells.

Faculty 1000 Antigen presentation

Associate Editor "Journal of Experimental Medicine"

Associate Editor Cancer Immunology Research

### SERVICE TO FUNDING AGENCIES

Reviewer for the Samuel Waxman Cancer Foundation, USA

Reviewer for the National french agency for research, France

Reviewer for the Austria Science Funds, Austria

Reviewer for the Wellcome Trust, United Kingdom

Reviewer for the Swiss Natinal foundation, Switerland

Reviewer for the Israel Science Foundation.

Reviewer for the Italian Ministry

Reviewer for the Institute National de Sante et de Recherche Medicale (INSERM), France.

Reviewer for the French National Institute for Cancer (InCA)

2008: Ad hoc reviewer for the NIH/NIAID " Innate Immunology Inflammation" Study Section

2010: Ad hoc reviewer for the NIAID P01 award on SEP clinical trial.

2010: Ad hoc reviewer for the NIAID P01 award on transplant mouse models.

2011: Ad hoc reviewer for the NIAID P01 award on SEP clinical trial.

2012: Ad hoc reviewer for the P01 award on transplant mouse models.

2014: Ad hoc reviewer of the intramural Cancer Immunology program NIH/ NCI

2014-present: Scientific Board of the Brupbacher foundation for Cancer Research , Zurich , Swizerland

2015: Ad hoc reviewer of the intramural immunology prgram at the Diabetes branch / NIDDK

2016-present: Reviewer for the Human Frontier research Fellowship program

2016-present: Reviewer for the French National Agency for Research (ANR)

2017: Think Tank On "modeling opportunities using Mice and Human Specimen

### INSTITUTIONAL ADMINISTRATIVE APPOINTMENTS

2008-present: Committee of Selection for Special Awards (CoSA)

2008-present: Member search committe for Immunology faculty, Immunology Institute

2009-present: Steering Committee Immunology Institute

2009-present: Leader of the cancer immunology immunotherapy program at Tisch Cancer Institute  
 2009-present: Member of the committee for selection of Tisch Cancer Developmental Fund award  
 2010: Chair of Search Committee for faculty recruitment, Dept. of Gene and cell Medicine  
 2012-present: Member of the Mount Sinai Basic Science Council Steering Committee  
 2012-present: Member of the Appointment and Promotion Committee for the Dept. of Medicine  
 2016 : Director Precision Immunology Institute

#### **SCIENTIFIC ADVISORY BOARD OF ACADEMIC CENTERS OR PRIVATE FOUNDATIONS**

2016-present: Brupbacher cancer research foundation  
 2017-present: Berlin Health Institute, Charite and Max Delbruck center

#### **SCIENTIFIC ADVISORY BOARD OF BIOTECH OR PHARMACEUTICAL COMPANIES**

2017-present : Compugen, Inc.  
 2017-present : Dynavax, Inc.  
 2018-present : Innate Pharma, Inc.  
 2018- present : Pionyr, Inc.  
 2018-present : DBV, technologies  
 2018-present : 5 prime therapeutics, Inc.  
 2018-present : CTI TASAP, Pfizer Inc.  
 2018- present: Myeloid Therapeutic, Inc.  
 2019-present : Celsius Therapeutics

#### **EDUCATIONAL ACTIVITIES**

##### **GRADUATE SCHOOL**

2007-2015: Steering Committee M.D.; Ph.D. program  
 2009-2014: Assistant Director M.D.; Ph.D. program  
 2007-present: Steering Committee Immunology Graduate Program

##### **TEACHING ACTIVITIES**

2004 Weekly journal club with M.D., Ph.D. students, Mount Sinai Medical School.  
 2005 Advanced Immunology course, Graduate Program Biological Science.  
 2006-2012 Group Discussion in Immunology, Graduate Program Biological Science.  
 2007-Present Lecturer G340- Core III Fundamentals in Immunology, Graduate Program Biological Science.  
 2011-2014 Director of BSR2002- Translation Science Course, Graduate Program Biological Science.  
 2014-present Invited Lecturer, Innate Immunity and Inflammation Course, Weill Cornell Graduate School  
 2013-2015 Co-Director of the BSR2501 Problem Solving in Biomedical Science Course.  
 Graduate Program Biological Science  
 2015- Present Director of the BSR3501 and BSR3502 International Immunotherapy course. Videocoference based lectures in patnership with Paris and Sao Paulo University, Graduate Program Biological Science.  
 2019 Lecturer "Immuno-course on Innate Immunity" at The Champalimaud Foundation Lisbon  
 2019 Director International Summer Course of Immunotherapy. New York, June 17-21 2019

##### **CLINICAL STUDIES/CLINICAL TRIALS.**

Recipient Dendritic cells vaccine to promote anti-tumor response in myeloma and lymphoma patients that relapse after allogeneic hematopoietic cell transplantation  
 M. Merad (PI). IRB (# 08-0906) and FDA (IND # 13816).

Systems biology of vaccine responses in patients that receive autologous bone marrow transplantation.

M. Merad (PI)

Assessing BRAF inhibitor induced antitumor immunity in melanoma treated with Vemurafenib

P. Friedlander (PI), M. Merad (Co-PI)

Measuring myeloid cytokine dysregulation in Cancer Patients

Miriam Merad (PI), Matthew Galsky (Co-PI)

Molecular stratification of patients with IBD lesions

Miriam Merad (PI); Judy Cho (Co-PI); Ryan Ungaro (Co-PI)

Building a Dynamic Atlas of Human NSCLC and HCC lesions

Miriam Merad (PI)

Neoadjuvant anti-PD-1 Ab blockade in patients with resectable NSCLC and HCC lesions

Tom Marron (PI), Miriam Merad (Co-I)

Neoadjuvant CCR2/5 small molecule inhibitor in patients with resectable NSCLC and HCC lesions

Tom Marron (PI), Miriam Merad (Co-I)

Neoadjuvant anti-IL-8 Ab blockade in patients with resectable NSCLC and HCC lesions

Tom Marron (PI), Miriam Merad (Co-I)

## **TRAINING RECORD**

### **POSTDOCTORAL FELLOW ALUMNI**

<b>Trainee Name/ email</b>	<b>Postdoc Training Period</b>	<b>Prior Academic Degree(s)</b>	<b>Current Position of Past Trainees / Awards</b>
Veronika Kana veronika.kana@gmail.com	2014-2017	M.D. Ph.D. (2013)	Neurology Fellow (University of Zurich)
Gilles Boschetti gilles.boschetti@chu-lyon.fr	2015-2017	M.D. (2007)	Assistant Professor (Tenure Track) Department of Gastroenterology Lyon Medical school , France
Arthur Mortha arthur.mortha@utoronto.ca	2013-2016	PhD (2012)	Assistant Professor (Tenure Track) Department of Immunology University of Toronto
Juliana Idoyaga jidoyaga@stanford.edu	2012-2014	PhD (2006)	Assistant Professor (Tenure Track), Department of Microbiology, Stanford University, California. Recipient of the 2015 NIH Pioneer award

<b>Trainee Name/ email</b>	<b>Postdoc Training Period</b>	<b>Prior Academic Degree(s)</b>	<b>Current Position of Past Trainees / Awards</b>
Helene Salmon helene.salmon@mssm.edu	2012-2016	PhD (2011)	Assistant Professor (Research Track ISMMS (2016-2019) Assistant Professor (Tenure Track) Department of Cell Biology Institut Marie Curie, Paris France (starting April 2019)
Priyanka Sathe <a href="mailto:sathe@wehi.EDU.AU">sathe@wehi.EDU.AU</a>	2013-2014	PhD (2012)	Staff Scientist Department of Immunology WEHI Melbourne Australia
Marie-Louise Berres mberres@ukaachen.de	2011-2014	MD, PhD (2006)	Principal Investigator, Division of Gastroenterology University Hospital of Aachen, Germany. Recipient of the Bayer international early excellence science award 2015
Melanie Greter greter@immunology.uzh.ch	2009-2011	PhD (2008)	Assistant Professor (Tenure Track), Institute of Experimental Immunology, University of Zurich, Switzerland.
Christian Becker cbecker@gmail.com	2009-2015	MD (1995) PhD (2001)	Vice Chair of Research and education Wetchester Medical center, New York.
Matthew Collin matthew.collin@newcastle.ac.uk	2009-2010	MD (2000), PhD (1995)	Professor University of New Castle, UK
Daigo Hashimoto daihashi@fc4.so-net.ne.jp	2007-2012	MD (1997), PhD (2006)	Associate Professor, Department of Hematology, Graduate School of Medicine, Hokkaido University Sapporo, Japan.
Julie Helft juliahelft@gmail.com	2007-2012	PhD (2006)	Assistant Professor (Tenure Track), Cell Biology Department Marie Curie Cancer Institute, France
Jeff Donovan jeffrey_c_h_donovan@yahoo.ca	2007-2008	MD (2004), PhD (2002)	Director, Hair Restoration Clinic, Canada
Milena Bogunovic mbogunovich@hmc.psu.edu	2005-2012	MD (1997) PhD (2000)	Assistant Professor (Tenure Track), Department of Microbiology, Penn State University Hershey, Pennsylvania.
Florent Ginhoux Florent_Ginhoux@immunol.a-star.edu.sg	2005-2010	PhD (2004)	Senior Principal Investigator Agency for Science, Technology and Research (A*STAR) Singapore Immunology Network, (SIgN) Recipient of the EMBO Fellowship award

**PHD STUDENTS ALUMNI**

(master students alumni have not been added due to space constraints)

<b>Trainee Name/ email</b>	<b>PhD Training Period</b>	<b>Prior Academic degree Prior academic institution</b>	<b>Current Position of Past Trainees / Awards</b>
Andrew Chow (MD; PhD student)	2008-2012	BS (2006) NYU	Hem/Onc fellow MSKCC
Jennifer Miller (MD PhD student)	2009-2012	BS (2007) GeorgeTown university	Peds Fellow UCSC
Jeremy Price (MD PhD student)	2010-2015	BA (2007) UPENN	Resident Radiation Oncology Duke University
Jalal Ahmed (MD PhD student)	2009-2011	BA (2006) Columbia University	Resident Radiation Oncology ISMMS
Yonit Lavin (MD PhD student)	2012-2016	BA (1995) Harvard University	Resident, Internal Medicine (Research Track) ISMMS
Brandon Hosgtadt (PhD student)	2012-2017	BA (2008) UC Berkeley	Technology Transfer Office, NYU
Aleksey Chudnovskiy (PhD student)	2012-2017	MS (2008) Massachusetts Amherst	Post Doctoral fellowship Rockefeller University (Mentor: Gabriel Victora)

**MEMBER OF THESIS COMMITTEES**

- June 2007: **Stefen Yea (mentor: Scott Friedman).**  
Regulation of the KPF6 Tumor Suppressor and its Contribution to Human Cancer and Differentiation
- 2007-2010: **Tom Marron (mentor: Dr. Charlotte Cunningham)**  
Extracellular Signals in B cell maturation and Memory formation
- 2007-2011: **Keren Rabinowitz (mentor: Dr. Lloyd Mayer)**  
Characterization of the factors and mechanisms involved in gut immune tolerance
- 2007-2011: **Gobind Singh (mentor: Dr. Adrian M. Chan)**  
Role of Ras in DC immune function
- 2006-2011: **Emma Kuan (mentor: Dr. Gwendolyn Randolph)**  
Role of DC in perinodal adipose tissue
- 2007-2010: **Amenda Micsenyi (mentor: Dr. Hans Snoeck)**  
Role of TLRs in HIV capture and transcytosis
- 2007-2010: **Tamar Hermesh (mentor: Dr. Tom Moran)**  
Role of PDCs in influenza immune response
- 2009-2011: **Jingjing Jiao (mentor: Dr. Scott Friedman)**  
Role of DC in liver fibrosis
- 2007- 2011: **Mike Green (mentor: Dr. Hans Snoeck)**  
Development of human thymus from embryonic stem cells
- 2009-2014: **Anthony Bonito (mentor: Dr. Dina Alexandropoulos)**  
Role of DCs in central tolerance
- 2010-2017: **Lauren Peters (mentor: Dr. Joel Dudley)**  
Systems biology of IBD
- 2013-2017: **David Chiang (mentor: Dr. Cecilia Berin)**  
Mechanisms of Immune tolerance to food antigens
- 2013- 2015: **Erica Weiss (mentor: Dr. Dina Alexandropoulos)**



- 2014-2017: Role of mTEC in peripheral tolerance  
**Sean Lynch (mentor: Dr. Jeremiah Faith)**  
 Effect of Diet in the pathogenesis of intestinal inflammation
- 2014-present: **Eva Xia (mentor: Dr. Andrew Chess)**  
 Next generation sequencing of T cell function
- 2016-present: **John Finigan (mentor: Nina Bhardwaj)**  
 Role of mutation-derived tumor antigens
- 2016- present: **Luciana Muniz (mentor: Nina Bhardwaj)**  
 Role of MMP2 in the TME
- 2016-present: **Ranjan Upadhyay (mentor: Josh Brody)**  
 Searching for novel checkpoint molecules to increase tumor response
- 2017- present: **Anastasia Efthymiou (mentor: Alison Goate)**  
 Mapping of Alzheimer disease loci in myeloid cells
- 2017- present: **Eziwoma Alibo (mentor: Brian Brown)**  
 Stem cell immunosurveillance
- 2017-present: **Cynthia Tan (Mentor : Google verily)**  
 Identification of Myeloid Targets
- 2018-present : **Shikha Nayar (mentor: Judy Cho)**  
 Role of monocytes in IBD-associated strictures

#### EXTERNAL EXAMINER ON THESIS DEFENSE

- 2011: Matthew Meredith (mentor: Dr. Michel Nussenzweig, Rockefeller University)  
 Identification of Zbtb46 as a key regulator of the DC lineage
- 2010: Marie Collins (mentor: Dr. Andreas Erlebacher, NYU)  
 Role of DC in maternal foetal tolerance
- 2013: Margaret O'Connor (mentor: Dr. Marcel Vander Brink, MSKCC)  
 Role of innate lymphocyte cells in graft versus host disease
- 2015: Jacob Levine (mentor: Dr. Dana Pe'er, Columbia University)  
 Quantitative approaches of Immune Responses.
- 2017: Bertrand Routy (mentor: Laurence Zitvogel, Institut Gustave Roussy, France)  
 Microbiome control of tumor response to checkpoint

#### PRIMARY MENTOR ON K-AWARD APPLICATION

##### Completed

- 2008:** K23 (Jody Tversky, Assistant professor, Clinical Immunology)  
 NIH/NIAID  
 Role of IgE Expression on Dendritic Cells In Allergic Disease
- 2009:** K12 (Keren Osman, Assistant professor, Hem/Onc Division)  
 NIH/NCI  
 Host Dendritic Cell Vaccination For Prevention Or For Treatment Of Relapsed Disease After Allogeneic Hematopoietic Cell Transplantation In Patients With Hematological Malignancies
- 2011:** K01 (Costica Aloman, Assistant professor, Liver Division)  
 NIH/NIDDK  
 Role of Dendritic cells in Liver Fibrosis
- 2011:** K99/R00 Pathway (Balaji Manicassamy, Post doctoral Fellow Garcia Sastre's laboratory)  
 NIH/NIAID  
 Role of Pattern Recognition Receptor In Influenza Immunity
- 2012:** K99/R00 Pathway (Juliana Idoyaga, Post doctoral Fellow Ralph Steinman)  
 NIH/NIMS

Targeting DC to treat autoimmune disease

**2012:** K08 (Costica Aloman, Junior faculty , Liver division)  
NIH/NIDDK

Role of innate myeloid cells in Liver fibrosis

**2016 :** K99/R00 (Jun Tang , Post doctoral Fellow Translational imaging Institute)  
NIH/NCI

A library technology to create TAM-targeting nanoparticles for melanoma diagnosis and therapy

#### MENTORING COMMITTEE OF JUNIOR FACULTY

- 2010-2015:** Julie Wang, M.D.; Assistant Professor, Clinical educator Track, Faculty Department of Pediatrics
- 2010-2015:** Christian Becker, M.D.; Assistant Professor, Investigator Track, Faculty Department of Medicine (Pulmonology division)
- 2012-present:** Joshua Brody, M.D.; Assistant Professor, Investigator Track, Faculty Department of Medicine (Hem/Onc division)
- 2012-present:** David Dunkin, M.D.; Assistant Professor, Clinical educator Track, Faculty Department of Pediatrics
- 2013-2016:** Garabet Yeretsian, Ph.D.; Assistant Professor, Investigator Track, Faculty Immunology Institute
- 2013-present:** Jeremiah Faith, Ph.D.; Assistant Professor, Investigator Track, Faculty Immunology and Genomic Institute
- 2013-present:** Chiara Giannarelli M.D.; Assistant Professor, Investigator Track, Faculty Department of Medicine (Cardiovascular Institute)
- 2014-present:** Irene Ramos, Ph.D.; T32 Microbiology Training Grant, Instructor Department of Microbiology
- 2016-2017:** Shalini Singh, PhD. Assistant Professor, Research Track, Department of Urology
- 2016-present :** Uri Laserson PhD. Assistant Professor, Investigator Track, Faculty Genetics Department and Multiscale Biology Institute.

#### ORIGINAL PUBLICATIONS

2018

1. Wroblewska A, Dhainaut M, Ben-Zvi B, .... **Merad M**, Rahman A, Brown B. Protein Barcodes enable CRISPR screens with high dimensional phenotyping at single cell resolution. **Cell**, 2018 (175(4)):1141-1155
2. Brandon Hogstad , Marie L. Berres , Rikhia Chakraborty, .... Helene Salmon, Kenneth L. McClain, Poulikos Poulikakos, Jerry Chipuk, Willen Mulder, Carl E. Allen\*, **Merad M\***. BRAFV600E abrogates CCR7-mediated migration and prolongs survival to trap dendritic cells in Langerhans Cell Histiocytosis lesions. **J. Exp. Med.**, 2018; 215(1):319-336
3. Judith Agudo, Eun Sook Park, Samuel A. Rose, ..., Alessia Baccarini, **Merad M** & Brian D. Brown. Quiescent Tissue Stem Cells Evade Immune Surveillance. **Immunity**, 2018; 20;48(2):271-285
4. Konnikova L, Boschetti G, Rahman A, ... **Merad M**, Snapper SB. High-dimensional immune phenotyping and transcriptional analyses reveal robust recovery of viable human immune and epithelial cells from frozen gastrointestinal tissue. **Mucosal Immunol.** 2018 (in press).
5. Nina Linde, Arthur Mortha, Nicole Saenger, Adeeb Rahman, .... **Merad M** & Julio Aguirre-Ghiso. Macrophages orchestrate early dissemination of HER2+ cancer cells. **Nature Communication**, 2018;9 (1):21.
6. Wang J, Hodes GE, Zhang H, ...., **Merad M**, Han MH, Russo SJ, Pasinetti GM. Epigenetic modulation of inflammation and synaptic plasticity promotes resilience against stress in mice. **Nat Commun.** 2018;9(1):477.
7. David Chiang, Xintong Chen, Stacie M., ... **Merad M**, Hugh A. Sampson, Bojan Losic, and M. Cecilia Berin. Single-cell profiling of peanut-responsive T cells in patients with peanut allergy reveals heterogeneous effector Th2 subsets. **J Allergy Clin Immunol**, 2018. 141(6):2107-2120
8. Kirkling ME, Cytlak U, Lau CM, ... Salmon H, **Merad M**, Tsigos A, Collin M, Bigley V, Reizis B. Notch Signaling Facilitates In Vitro Generation of Cross-Presenting Classical Dendritic Cells. **Cell Rep.** 2018; 23(12):3658-3672

9. McClain KL, Picarsic J, Chakraborty R, ...Parsons DW, **Merad M**, Man TK, Allen CE. CNS Langerhans cell histiocytosis: Common hematopoietic origin for LCH-associated neurodegeneration and mass lesions. **Cancer**. 2018;124(12):2607-2620.

10. Casanova-Acebes M, Nicolás-Ávila JA, Li JL, García-Silva S, ...**Merad M**, Mortha A, Ng LG, Peinado H, Hidalgo A. Neutrophils instruct homeostatic and pathological states in naive tissues. **J. Exp. Med.** 2018. 215(11):2778-279

## 2017

1. Lavin Y, Kobayashi S, Leader A, Amir ED, ....., Beasley MB, Flores R, Gnjatic S, Pe'er D, Rahman A, Amit I, **Merad M**. Innate Immune Landscape in Early Lung Adenocarcinoma by Paired Single-Cell Analyses. **Cell**. 2017; 169(4):750-765

2. Regev A, Teichmann SA, Lander ES, ... **Merad M**.....& Human Cell Atlas Meeting Participants. The Human Cell Atlas. **Elife**. 2017; (6). pii: e27041.

3. Menard C, Pfau ML, Hodes GE, Kana V, Wang VX, Bouchard S, Takahashi A, Flanigan ME, Aleyasin H, LeClair KB, Janssen WG, Labonté B, Parise EM, Lorsch ZS, Golden SA, Heshmati M, Tamminga C, Turecki G, Campbell M, Fayad ZA, Tang CY, **Merad M**, Russo SJ. Social stress induces neurovascular pathology promoting depression. **Nat Neurosci**. 2017 (12):1752-1760

4. Peckham-Gregory EC, Chakraborty R, Scheurer ME, .... **Merad M**, Parsons DW, McClain KL, Lupo PJ, Allen CE. A genome-wide association study of LCH identifies a variant in SMAD6 associated with susceptibility. **Blood**. 2017. 130(20):2229-2232.

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35. **M. Merad**, M.Collin, J. Bromberg. 2007. Dendritic cell homeostasis and trafficking in transplantation. **Trends in Immunology**. 28 (8) : 353-9.
36. Young JW, **Merad M**, Hart DN. 2007. Dendritic Cells in Transplantation and immune based therapies. **Biol Blood Marrow Transplant**. Jan;13(1 Suppl 1):23-32.
37. **Merad M**. 2005. Ontogeny of Langerhans cells and Graft versus host disease. *Adv Exp Med Biol*;560:115-23

#### **BOOK CHAPTER**

1. **Miriam Merad**, Matthew Collin, E. G. Engleman. 2007. Dendritic cell in Transplantation in: **Thomas' Hematopoietic Cell Transplantation**. Fourth Edition. Blackwell Sciences, Oxford, UK
2. **Miriam Merad**, E. G. Engleman. 2013. Dendritic cell in Transplantation in: **Thomas' Hematopoietic Cell Transplantation**. Fifth Edition. Blackwell Sciences, Oxford, UK.
3. Kenneth M. Murphy and **Miriam Merad**. 2013. Development and function of myeloid cell subsets. **Advances in immunology** . Elsevier Inc. ISBN: 978-0-12-417028-5

#### **INVITED PRESENTATION AT INTERNATIONAL CONFERENCES**

##### **2003-2007**

- Invited speaker, Society for Immunology. Harrogate, UK 2003
- Invited speaker, Dendritic Cell French Society. Paris, 2003
- Invited speaker at the annual international conference on innate immunity. Irvine, CA, 2004
- Invited speaker, Japanese Society for Immunology. Kyoto, Japan, May 2004
- Invited speaker, Nikolas Symposium on the Histiocytoses. Athenes, Greece, May 2005
- Invited speaker, international Langerhans cell conference. Madeira, Portugal, September 2005.
- Session Chair at the FASEB summer meeting on transplantation immunology. Oregon, June 2006.
- Invited speaker, European dendritic cell meeting. Paris, France, December 2006.
- Invited speaker, Keystone meeting on "intervention on human disease" Big Sky, Montana, 2007.
- Invited speaker, Keystone meeting on Bone marrow transplantation Keystone, February 2007.
- Invited speaker, International symposium on clinical use of cellular products Regensburg, 2007.
- Invited speaker, Nikolas symposium on LCH Athenes, Greece, 2007.
- Invited speaker and session chairman, International Society of cellular therapy. Sydney 2007.
- Invited speaker and session chairman, Langerhans international Meeting » Berne 2007.
- Invited speaker, "Montagna Symposium on the biology of skin", Oregon 2007

Invited speaker Immunology Task Force. NIH, Bethesda 2007.

### **2008**

Invited speaker , The FOCIS meeting Boston, USA June 2008.

Invited speaker and session chair, International Conference on Chemoimmunotherapy. Paris 2008

Invited speaker ,The Translational Transplantation Meeting Nantes, France, 2008.

Invited speaker, The International Dendritic Cells Meeting Kobe, Japan 2008

### **2009**

Invited speaker, Keystone Conference on Dendritic cell biology, Banff, CA. 2009

Invited speaker, Fondation des treilles on « dendritic cell heterogeneity » France 2009

Invited speaker , Nikolas symposium on LCH, Corinthe May 2009

Invited speaker,European Macrophage and Dendritic cell society (EMDS) Regensburg 2009

Invited speaker, International conference on Langerhans Cells, Portugal 2009

Invited speaker, Australian Immunology Society, Cairns December 2009

### **2010**

Invited speaker , Swiss Immunology Society, Berne 2010

Invited speaker, International vaccine symposium, Lugano 2010

Invited speaker, Keystone conference on cancer and inflammation, Keystone, 2010

Invited speaker, American Histiocytosis Cell Society Meeting, Boston 2010

Invited speaker, International Immunology Conference Meeting, Kobe 2010

### **2011**

Invited speaker, Keystone conference on adaptive immunity. Santa Fe, March 2011

Invited speaker, Montagna Symposium on skin biology October 2011

### **2012**

Invited speaker, Miletenyi Biotech Cancer immunology symposium, Paris June 2012

Invited speaker, International DC meeting Korea October 2012.

Keynote speaker, Tumor Microenvironment U54 Workshop Washington DC May 2012

Invited speaker ,Symposium on Cancer Research September 2012

Invited speaker, American Transplant Congress June 2012

### **2013**

Primary organizer Keystone conference on DC biology, Keystone March 2013

Invited speaker ,Keystone symposium on monocyte biology, Keystone February 2013

Invited speaker, French DC society, Paris 2012

Invited speaker, Ipsen Cancer Foundation, Italy 2013

Invited speaker Canadian Society for Immunology , Whistler Canada 2013

Invited Speaker International conférence in immunology, Milan 2013

Invited speaker, Cold spring harbor laboratory 78th symposium on Immunity& Tolerance, May 2013

Invited speaker, European Society for Transplant Immunology Nantes, France June 2013

Invited speaker, International Symposium on the regulators of Adaptive Immunity, Erlangen September 2013

Invited speaker, Cancer and Inflammation symposium, NCI , Bethesda september 2013

### **2014**

Invited speaker ,Keystone symposium on cancer Biology, Keystone February 2014

Invited speaker, Keystone symposium on virus –host interaction, Keystone March 2014

Invited speaker , Gordon Research Conference on Immunochemistry and Immunobiology Maine, June 2014

Invited speaker, European Society for Macrophages Biology, Vienna Austria, September 2014

Invited speaker , DC international symposium Tours, France 2014

Keynote speaker, 50th anniversary Dutch Society of Immunology, Netherlands 2014

Invited speaker, American Society of Hematology , San Francisco 2014

Invited speaker, Microglia Focused meeting , New York 2014

Invited speaker, International meeting of the Histiocytosis Society, Toronto 2014

Invited speaker, Keystone symposia on dendritic cell and macrophage biology, Montreal, March 2014

## **2015**

Invited speaker, Oxford University symposium on human immune monitoring, Oxford, UK February 2015

Invited speaker, Life science institute symposium, Michigan, June 2015

Invited Speaker, SU2C and Google joint meeting on Cancer Immunotherapy, Boston, July 2015

Invited Speaker on International symposia on Cancer Immunology, Italy, September 2015

Keynote Speaker European Academy of Tumor Immunology meeting in Microbiome, tumor microenvironment and immunopathology, Paris, July 2015

Invited speaker, Oxford University symposium on "Cytokines, Autoimmunity and Immunotherapy" Oxford, UK, 2015

Keynote speaker, French society of neuroimmunology, Paris, November 2015

Invited speaker, Ipsen and Cell joint meeting symposia on Cell Plasticity, San Diego October 2015

Invited speaker, Janssen –sponsored meeting on Mucosal Immunity, San Diego October 2015

## **2016**

Invited speaker, Cancer immunotherapy symposium, February Cancun Mexico 2016

Invited speaker, "Regulatory Myeloid Cells: From Basic Discovery to Therapeutic Application." Philadelphia June 2016

Invited speaker, Osteoimmunology meeting , Crete , June 2016

Invited speaker, Dendritic cell international meeting, Shanghai, September 2016

Invited speaker, International immunology Congress, Melbourne, August 2016

Invited speaker, Society for Immunotherapy of Cancer (SITC), Maryland November 2016

Invited speaker, AACR, Boston October 2016

Invited speaker, International symposium on lymphocyte behavior and function, Lisbon May 2016

Invited Speaker , Cell Symposium : 100 years of phagocytes , Sicily September 2016

Invited Speaker , Cancer Research Institute (CRI), NYC September 2016

Invited Speaker, Cancer Inflammation meeting, Washington DC, September 2016

Invited Speaker , French Society for Immunology , Paris November 2016

Invited Speaker, American Society of Hematology, San Diego, December 2016

## **2017**

Co-Organizer Keystone international conference on mononuclear phagocytes, Austin April 2017

Invited speaker, European Macrophage and DC society, Madrid September 2017

Invited speaker, Brubacker Cancer Research foundation, Zurich February 2017

Invited speaker, International symposium "immune response in cancer and infection", Lyon September 2017

Invited speaker, Ragon Institute of MGH, MIT and Harvard Boston, Workshop on Macrophage infection by HIV: Implications for pathogenesis and cure, January 2017

Invited speaker, International symposium in "Immuno Radiation therapy", Paris September 2017

Invited speaker, AACR, Washington DC, April 2017

Invited speaker, EACR-AACR-SIC Special Conference 2017: The Challenges of Optimising Immuno and Targeted Therapies: From Cancer Biology to the Clinic, Florence June 2017

Invited speaker, Jacques Monod conference on "Glial cells at the crossroads of innate immunity and brain functions" France June 2017



Invited speaker, FASEB SRC Signal Transduction in the Immune System, Florida June 2017  
Invited speaker, From the laboratory to the clinic, Oxford UK September 2017  
Invited speaker, Cytokine and interferon international meeting, Japan October 2017  
Invited speaker, Autumn Conference of Immunology, Chicago November 2017  
Organizer and Chair, AACR Cancer immunology meeting, Boston October 2017  
Organizer and Chair, International Langerhans cell meeting, New York, October 2017  
Invited speaker, Society for Immunotherapy of Cancer (SITC), Maryland November 2017

### **2018**

Invited speaker, Toll18 International meeting on innate immunity, Portugal  
Organizer and Chair, Nature magazine sponsored Cancer Inflammation Conference, Beijing, China  
Invited speaker, Midwinter Conference of Immunology, Asilomar 2018  
Keynote speaker, CRI –organized Cancer Immunotherapy Consortium meeting NYC  
Keynote speaker, Cancer Immunotherapy, International Union of Immunological Societies, Morocco  
Invited speaker, “Frontiers in Immunomodulation and Cancer Therapy”, Madrid  
Invited speaker, “Immuno-oncology: heterogeneous cells battling in the TME”, Paris  
Invited speaker “Annual symposium on Medical research and therapy organized by the University of Tokyo in NYC,  
Invited speaker LSI Symposium, The Power of One: Frontiers in Single Cell Biology, University of Michigan  
Invited Speaker, NCI workshop on early Metastasis, Bethesda 2018  
Keynote speaker, Regulatory and Systems Genomics Conference, New York.  
Keynote lecture, Wistar Cancer Institute Retreat , Pennsylvania  
Keynote lecture, Single cell genomic international conference, Berlin, Germany

### **2019**

Co-Chair Banburry conference on Cancer Immunity, CHSL  
Invited speaker, AACR annual meeting, Atlanta  
Invited speaker, Cancer Research Immunotherapy, Paris  
Invited speaker, International Conference Immunology, Beijing  
Invited speaker, Brubpacher Cancer Symposium, Zurich  
Invited speaker, Keystone conference on Cancer vaccines, Vancouver  
Invited speaker, Keystone conference on innate and non-classical immune cells, Keystone  
Keynote speaker, novel concepts of niche-directed cancer therapy, Frankfurt

### **INVITED PRESENTATION AT ACADEMIC INSTITUTION SEMINAR SERIES**

#### **2005-2009**

University of Alabama at Birmingham Immunology Seminar Series. Alabama, April 2005.  
University of Minnesota Immunology Seminar Series. Minnesota, October 2006  
NYU Immunology Seminar Series, New York, November 2006.  
Dean’s Lecture, Mount Sinai Medical School, May 2007  
Oncology Grand Round. University of Pittsburgh, USA. June 2008  
Kings College Immunology Seminar Series, London 2009  
Washington University at Saint Louis Missouri Immunology series, November 2009.  
Massachusetts General Hospital Immunology series, Boston, October 2009.  
NYU Immunology series, New York, November 2009.

#### **2010-2012**

Stanford Immunology series, Palo Alto, March 2010.  
Fred Hutchinson Research Cancer Center series, Seattle, March 2010.  
UCSF and Genentech Immunology Seminar Series, March 2011

U PENN Immunology Seminar Series, January 2011  
MSKCC Immunology Seminar Series, May 2011  
University of Minnesota Immunology Seminar Series. Minnesota, December 2011  
NYU Immunology series, New York, November 2011.  
NCI/Fredrick Cancer Immunology Branch, March 2012  
Charleston Cancer center seminar series 2012

**2013** :

University of Washington Immunology Seminar Series 2013  
Harvard Medical School Immunology Seminar Series 2013  
St Jude Hospital Immunology and Microbiology Seminar Series 2013  
University of Pittsburgh, Transplant Series May 2013  
Cleveland Clinic, Immunology Series 2013  
MSKCC immunology series May 2013  
NIAID Immunology series, 2013

**2014** :

University of Alabama Immunology Series 2014  
University of Connecticut Immunology Series 2014  
University of Virginia Brain Center Series 2014  
University of Madrid, Spain, Immunology Series 2014  
University of Munich, Germany, Immunology Series 2014  
IRB, Bellinzona, Switzerland, Immunology Series 2014  
Yale University, Immunology Series 2014  
Oregon University, Oncological Science Seminar Series 2014  
Max Planck Institute for Biophysical Chemistry Gottingen, Germany, Seminar Series 2014

**2015** :

Yale University Immunology Series 2015  
Northwestern University Immunology Series 2015  
Stanford University Immunology Series 2015  
Genentech, Inc. Immunology Series 2015  
University of North Carolina, Immunology Series 2015  
Austrian Academy of Sciences, Research Center for Molecular Medicine Seminar Series 2015

**2016**

Columbia university Immunology series 2016  
NYC Tri-institutional Immunology series 2016  
NYU immunology series 2016  
Wistar Institute Cancer series 2016

**2017**

Harvard/ MGH Immunology series 2017  
Yale University Immunology series 2017  
University Virginia Neuroscience series 2017  
Corenell Weill Immunology Series 2017  
Genentech Immunology Series 2017  
Pfizer Immunology Series 2017

**2018**

Washington University, St Louis, Immunology series, April 2018  
 UCSF Immunology seminar series, May 2018  
 Duke University Neurology series, April 2018  
 Umass endowed seminar series, March 2018  
 New York Abu Dhabi University, (Talk open to the public) March 2018  
 Stanford University Immunology series, October 2018  
 NYU, Immunology Seminar Series , October 2018  
 Columbia university , Immunology Seminar Series, November 2018

**2019**

UPENN Microbiology Series, February 2019  
 Stanford Immunology Series

**INVITED PRESENTATION BY BIOTECH /PHARMACEUTICAL INDUSTRY (starting from 2018)****2018:**

Invited speaker, Dynvax Inc., January 2018  
 Invited Speaker, Takeda Inc., Cancer and Immunology program, May 2018  
 Invited Speaker, Genentech Inc., Immunology Seminar series, May 2018  
 Invited Speaker, Boehringer Ingelheim Inc., Cancer Immunology division, August 2018  
 Invited Speaker, B.Riley FBR Healthcare Conference NYC, September 2018

**D. Research Support.****ACTIVE**

2 R01 CA154947-06A1 (Merad) 01/01/2016 – 12/31/2020 1.2 Calendar  
 NIH/NCI \$253,344

ERK Control of Dendritic Cell Differentiation, Homeostasis and Disease

The goal of this study is to explore how the cell intrinsic RAF/ERK dysregulation leads to LCH lesions but also to explore cell extrinsic cues provided by T cells and macrophages, that accumulate in large number in LCH lesions, to disease pathogenesis.

Role: PI

5R01 CA 173861 (Merad) 12/01/2008 – 01/31/2018 1 Calendar  
 NIH/NCI \$242,500

Contribution of the Cutaneous APC Network to Melanoma Progression and Therapy

The overall goal of this project is to identify immune mediated strategy that could potentiate BRAF response using a BRAF V600E inducible spontaneous tumor mouse melanoma.

Role: PI

U24 CA224319 (Gnjatic) 09/30/2017-06/30/2022  
 NIH/NCI \$1.5M

High Dimensional Immune Monitoring Core of NCI-Supported Immunotherapy Trials

Role: Co-Investigator

1 R01 AI 104848 (Merad and Brown) 05/24/2013 – 4/30/2018 0.9 Calendar  
 NIH/NIAID \$250,000

## Post-transcriptional regulation of the Dendritic Cell transcriptome

The purpose of this study is to identify regulators of dendritic cell development and function. This is of major relevance for discovering the genetic factors that can contribute to autoimmune and inflammatory disease, and will potentially benefit the design of better viral and cancer vaccines.

Role: Multiple PI

1R01 CA 190400-01 (Merad) 02/06/2015 – 01/31/2020 1 Calendar  
NIH/NCI \$207,500

Harnessing Csf-2 compartmentalized role on tissue resident phagocytes to uncouple anti-tumoral from pathological immunity induced by checkpoint inhibitors.

The purpose of this study is to exploit the dual regulatory and immunogenic role of Csf2 to promote antitumor response while preventing mucosal injuries induced by checkpoint inhibition therapy.

Role: PI

U19 (Farber) 12/01/2016-11/30/2021 0.84 Calendar  
NIH/NIAID \$229,200

Multiscale analysis of tissue macrophage response to CMV

The goal of this application is to perform the most comprehensive multiscale analysis of human tissue-resident macrophages and identify the regulatory programs that control primary macrophage response to CMV and other innate stimuli.

Role: Project PI

1U24 AI 118644-01 (Merad, Berin) 06/30/2015 – 05/31/2020 0.9 Calendar  
NIH/NIAID \$235,988

Novel tools to maximize profiling of tissue and antigen specific immune dysregulation in allergy and inflammatory bowel disease

The goal of this application is to develop novel immune profiling tools to assess the dysregulation of allergen specific T cells in food allergic children as well as dissect the nature and functional state of the immune cell compartment that infiltrate and contribute to inflammatory gut tissue lesions in IBD patients.

Role: Multiple PI

1R01 MH 104559 (Merad and Russo) 07/24/2014 – 06/30/2019 1 Calendar  
NIH/NIMH \$391,445

Peripheral IL-6 from leukocytes controls susceptibility to social defeat stress

In this application, we will define the detailed mechanisms by which susceptible mice produce and release more IL-6. We will further define the functional relevance of such changes to development of depression-like behavior and test novel therapeutic strategies, such as bone marrow re-engineering to reduce stress susceptibility.

Role: Multiple PI

(Merad) 09/01/2015 – 07/31/2016 0.6 Calendar  
Boehringer Ingelheim, Ltd. \$618,079

Dissect the heterogeneity of early IBD lesions

Role: PI

1U19 AI 118610-01 (Sesma, Harris) 06/24/2015 – 05/31/2020 0.9 Calendar  
NIH/NIAID \$2,402,811

Dengue Human Immunology Project Consortium (DHIPC)

Human Immunology Project Consortium (DHIPC) is based on an innovative strategy, considerable preliminary studies, and a wide network of functional collaborations and will study the human immune responses 1) during or

following infection, 2) before and after vaccination, using high-throughput systems biology approaches coupled with detailed clinical phenotyping in well-characterized human cohorts.

Role: Project PI

1U19 AI 117873-01 (Sealfon) 05/08/2015 – 04/30/2020 0.3 Calendar  
NIH/NIAID \$977,591

Modeling Early Immunity to Human Influenza Infection

This research program will improve the understanding of the mechanisms underlying the immune response to IAV in order to provide the basis for improved strategies for therapeutics and vaccination.

Role: Project PI

1P30 CA 196521-01 (Burakoff) 07/01/2015 – 06/30/2020 0.12 Calendar  
NIH/NCI \$1,000,000

The Tisch Cancer Institute - Cancer Center Support Grant

The mission of the Tisch Cancer Institute (TCI) is to advance the field of cancer research, treatment and prevention and to facilitate the availability of these advancements to our communities so as to extend and improve the lives of cancer patients and their families.

Role: Co Director of the Cancer Immunology Program

3R01 MH 101479-02 (Gabbay) 07/01/2014 – 06/30/2019 0.4 Calendar  
NIH/NIMH \$388,528

Neuroinflammation and PVS deficits in adolescents

The proposed RDoC project is the first to systematically investigate complex immunological processes underlying specific PVS deficits while bringing together a stellar multidisciplinary team of experts. This high-impact translational study targets a critical developmental period and has the potential to elucidate biomarkers early on and to facilitate the development of preventive therapies.

Role: Co-Investigator

1R01 AI 113221-01A1 (Brown) 01/01/2015 – 12/31/2019 0.3 Calendar  
NIH/NIAID \$248,380

Modulating Immunity to Nucleic Acids and Inducing Tolerance by Gene Transfer

The objective of this project is to identify molecular and cellular pathways that control the innate response to oligos and gene vectors, to target these pathways to dampen the innate response to gene delivery, and to exploit this effect for inducing immune tolerance.

Role: Co-Investigator

1R01 CA180913-02 (Bhardwaj) 01/07/2014 – 06/30/2019 0.4 Calendar  
NIH/NCI \$207,500

Matrix metalloproteinase-2 modulates inflammation via TLR2

Goals: Matrix metalloproteinase-2 (MMP-2) is a protein that is over-expressed by most cancers and which modulates anti-tumor immune response. The proposed studies aim to characterize the mechanism underlying MMP-2- dependent OX40L over-expression, in order to determine how MMP-2 induces inflammatory TH 2 cells in vivo (Aim 1). Our data strongly indicate that TLR2 is the key receptor by which MMP-2 induces OX40L. We will next determine the physiological and clinical relevance of this MMP-2-mediated TH 2 cell skewing (Aim 2). Finally, in Aim 3, we will investigate the role of MMP-2 in the activation of melanoma associated-TLR2, based on our recent observation that melanoma cells express TLR2 and produce inflammatory cytokines upon MMP-2 exposure. Altogether, these studies will reveal how MMP-2 influences anti-tumor immunity towards melanoma and ascertain its direct effects upon tumor cell biology.

Role: Co-Investigator

- R01 DK106593 (Cho) 07/01/16-06/30/21 0.6 calendar  
 NIH/NIDDK \$566,500  
 Integrative Genomic Analyses of Macrophages in Crohn's Disease  
 This project proposes a intestine-focused studies to more fully elucidate the phenotype and regulation of intestinal macrophages, and define mechanisms whereby disease-associated transcription factors and rapidly induced autocrine cytokines modulate macrophage phenotype and function.  
 Role: Co-Investigator
- OC150282 04/01/16-03/31/18 0.6 calendar  
 Department of the Army (Weber) \$125,000  
 Generation of a Suppressor-tRNA Mediated Anti-Tumor Immune Response to Treat Ovarian Cancer  
 We propose that an efficient way of generating tumor-associated neoantigens is to take advantage of the protein synthesis machinery.  
 Role: Co-Investigator

**PENDING**

- U2C (Merad) 09/01/2018-08/31/2023 1.8 calendar  
 NIH/NCI \$1,002,500  
 Building a Dynamic Atlas of Early Tumor Response to Therapy  
 The goal of this proposal is to build a high dimensional atlas of transitional tumor lesions, which will capture with unprecedented granularity the spatial interactions and phenotypic and molecular changes of the different cellular compartments that constitute clinically, histologically and radiologically annotated tumor lesions at key stages during tumor progression.  
 Role: PI
- R01 (Gianarelli) 07/01/2018-06/30/2023 0.1 calendar  
 NCI \$250,000  
 Dissecting the role of adaptive immune dysregulations in human atherosclerosis  
 These studies will help the development of new immunomodulatory strategies for the treatment of atherosclerotic cardiovascular disease.  
 Role: Co-Investigator
- R01 (Gianarelli) 09/01/2018-08/31/2023 0.1 calendar  
 NCI \$439,698  
 Changing the Immune Paradigm of Human Atherosclerosis with Single-Cell Analysis  
 These studies will identify systemic and local immune networks that contribute to the progression of atherosclerosis toward cardiovascular events. Additionally they will allow the unbiased selection of novel targets for the development of new therapeutic strategies for the treatment of atherosclerotic cardiovascular disease  
 Role: Co-Investigator
- R01 (Merad) 04/01/2018-03/31/2023 1.2 calendar  
 NIH \$1,765,213  
 The Immune Cell Atlas – A Robust Framework to Map the Entire Human Immune System  
 The Immune Cell Atlas (ICA) is a collaborative consortium of scientists and clinicians with distinct and synergistic expertise in Immunology, Genomics and Computational Biology with the goal of generating a comprehensive map of all immune cell populations that reside in human tissues at baseline and challenged states  
 Role: PI

R01 (Gabbay) 04/01/2018-03/31/2023 0.3 calendar  
NIH \$544,985

The Neuroimmunology of Anhedonia

This interdisciplinary approach addresses a critical gap in the knowledge as to why depression persists into adulthood for only some depressed youth, and has the potential to provide novel targets for treatment strategies and prevention measures.

Role: Co-Investigator

T32 (Lira) 09/01/2018-08/31/2023 0.1 calendar  
NIH/NCI \$394,893

Immunology Training Grant

This training program is designed to provide pre- and postdoctoral candidates with the individual intellectual and technical skills required to become outstanding academic scientists in the field of Immunology

Role: Co-Director

COMPLETED

5R01 HL 116340 (Frenette) 09/26/2012 – 06/30/2016 0.4 Calendar  
NIH/NHLBI \$254,238

In Vivo Function of Macrophage in Healthy and Diseased Erythropoiesis

We will characterize some key molecular mechanisms using macrophage-specific genetic deletion and manipulate macrophage numbers to gain insight on their function in healthy and diseased erythropoiesis.

Role: Subcontract PI

U01 (Levinsohn) 07/01/2015 – 06/30/16 0.1 Calendar  
NIH/NIAID \$56,500

Oregon Health & Science University

Tissue control of macrophages innate immune response against respiratory tract infection

Thus we propose to investigate in Aim 1 the cellular and molecular basis of the enhanced inflammatory response in RAG-/-mice, while in Aim 2 we will examine the contribution of the commensal flora in the enhanced inflammatory response observed in RAG-/-mice upon respiratory tract infection with *S. pneumoniae*.

Role: Co-Investigator

R01 CA154947A (Merad) 4.2 calendar 01/14/11 – 12/31/15  
NIH/NCI \$195,050

Characterizing a New Human Dendritic Cell Lineage and Its Role in Langerhans Cell Histiocytosis

The goal of this project is to identify the origin of the Langerhans cell histiocytosis cell.

Role: PI

N/A (Merad) 0.6 calendar 01/01/14-12/31/14  
Histiocytosis Association of America \$50,000

Unraveling the pathophysiological role of the BRAFV600E mutation in Langerhans cell histiocytosis (LCH) and its therapeutic implications with murine models of High-Risk LCH

Role: PI

N/A (Merad) 0.6 calendar 01/01/13-12/31/14  
Pfizer, Inc. \$177,500

Complex Immunophenotyping of immune cell subsets pathophysiologically relevant to granuloma formation and maintenance in patients with chronic pulmonary sarcoidosis before, during and after a 12 week treatment course with MCSF-Ab

Role: PI

Novo Nordisk (Merad, Brown) 0.4 calendar 03/15/13-03/14/15  
 Inducing Tolerance by Targeting Immature Dendritic Cells \$62,500

The aims of this project are: (1) Assess the ability of  $\alpha$ DEC to deliver a miR-155-regulated antigen-encoding transgene to DCs, and mediate antigen expression specifically in immature DCs, (2) Evaluate the immune response to the  $\alpha$ DEC miR-155-regulated antigen, including induction and expansion of antigen-specific Tregs, and (3) Utilize the  $\alpha$ DEC miR-155-regulated platform to target insulin antigen to immature DCs, expand islet-protective Tregs, and prevent T1D in a mouse model of the disease.

Role: Multiple PI

5U01 AI 095611 (Merad and Palucka) 07/15/2011 – 06/30/2016 0.9 Calendar  
 NIH/NIAID \$237,375

Role of Mucosal Dendritic Cell Subsets in the Control of Influenza Virus Infections

The goal of this application is to dissect the role of human and mice dendritic cell subsets in the control of humoral and adaptive immunity to influenza virus and identify whether targeting specific dendritic cell subsets can promote vaccine efficacy to influenza virus.

Role: Multiple PI

U19 AI089987 (Palucka) 1.2 calendar 07/12/10-06/30/14  
 NIH/NIAID \$136,310

Systems Analysis Vaccine Responses in Healthy and Hyporesponsive Humans

The major goal of this project is to use system biology to assess immune response to vaccines in Myeloma patients that receive autologous transplantation.

Role: Subcontract PI

5U01AI095776 (Lewinsohn, Gold) 0.5 calendar 07/01/13-06/30/14  
 NIH/NIAID \$100,000

To characterize the dynamics and function of Flu-specific T cells induced by different lung DC subsets in human lungs  
 The aims of this project are to (1) characterize the dynamics and interactions of Flu-specific CD8+ T cells educated by lung tissue resident CD1c+ or CD141+ DCs within the human lung epithelia and (2) characterize Flu-specific CD8+ T cells elicited by human lung tissue resident CD1c+ or CD141+ DCs at the phenotypical, transcriptional and functional level.

Role: Co-Investigator; Site PI

N/A (Merad) 0.12 calendar 01/01/12-12/31/13  
 ImClone Systems Corporation \$22,293

ImClone Research: Collection of Blood Specimens for Analysis of Interleukin-34 and Colony Stimulating Factor-1

To evaluate the frequency of elevated CSF-1 and IL-34 levels in cancer patients across different tumor types we propose to measure CSF-1 and IL-34 serum levels.

Role: PI