

# Stanford

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## Juliana Idoyaga

Assistant Professor of Microbiology and Immunology  
Microbiology & Immunology

### CONTACT INFORMATION

- **Editor**

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### Bio

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### ACADEMIC APPOINTMENTS

- Assistant Professor, Microbiology & Immunology
- Member, Bio-X
- Member, Maternal & Child Health Research Institute (MCHRI)
- Member, Stanford Cancer Institute
- Faculty Fellow, Stanford ChEM-H

### HONORS AND AWARDS

- The Freidenrich BII Autoimmune Award, Translational and Clinical Innovation Award, Stanford University (2016-2017)
- NIH Director's New Innovator Award, NIH (2015-2020)
- Baxter Faculty Scholar Award, Baxter Foundation (2015)
- Gabilan Faculty Fellow, Stanford University (2014-2017)
- Pathways to Independence Award (K99/R00), NIH/NIAMS (2012-2017)
- PhD Fellowship, National Autonomous University of Mexico, Mexico. (2005-2007)
- Student Fellowship, Faculty of Sciences, University of Buenos Aires, Argentina (2002-2003)

### PROFESSIONAL EDUCATION

- Postdoctoral Associate, The Rockefeller University, New York, USA , Cellular Physiology and Immunology (2012)
- Ph.D., National Autonomous University of Mexico , Immunology & Biomedical Sciences (2007)
- B.S., University of Buenos Aires, Argentina , Biology & Immunology (2004)

### LINKS

- Idoyaga Lab Website: <http://idoyagalab.stanford.edu/>

## Research & Scholarship

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### CURRENT RESEARCH AND SCHOLARLY INTERESTS

The Idoyaga Lab is focused on the function and biology of dendritic cells, which are specialized antigen-presenting cells that initiate and modulate our body's immune responses. Considering their importance in orchestrating the quality and quantity of immune responses, dendritic cells are an indisputable target for vaccines and therapies.

Dendritic cells are not one cell type, but a network of cells comprised of many subsets or subpopulations with distinct developmental pathways and tissue localization. It is becoming apparent that each dendritic cell subset is different in its capacity to induce and modulate specific types of immune responses; however, there is still a lack of resolution and deep understanding of dendritic cell subset functional specialization. This gap in knowledge is an impediment for the rational design of immune interventions. Our research program focuses on advancing our understanding of mouse and human dendritic cell subsets, revealing their endowed capacity to induce distinct types of immune responses, and designing novel strategies to exploit them for vaccines and therapies.

## Teaching

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### COURSES

#### 2017-18

- Immunology: Homeostasis and Disease: MI 214 (Win)

#### 2016-17

- Advanced Immunology I: IMMUNOL 201, MI 211 (Win)

### STANFORD ADVISEES

#### Doctoral Dissertation Reader (AC)

James Harden, Kevin Meng

#### Postdoctoral Faculty Sponsor

Marcela Alcantara Hernandez, Derek Clements, Kimberly Perez, Sirimuvva Tadepalli

#### Doctoral Dissertation Advisor (AC)

Rebecca Leylek

#### Orals Evaluator

Kevin Meng

### GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Immunology (Phd Program)
- Microbiology and Immunology (Phd Program)

## Publications

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### PUBLICATIONS

- **High-Dimensional Phenotypic Mapping of Human Dendritic Cells Reveals Interindividual Variation and Tissue Specialization.** *Immunity*  
Alcántara-Hernández, M., Leylek, R., Wagar, L. E., Engleman, E. G., Keler, T., Marinkovich, M. P., Davis, M. M., Nolan, G. P., Idoyaga, J.  
2017
- **Expansion and Activation of CD103(+) Dendritic Cell Progenitors at the Tumor Site Enhances Tumor Responses to Therapeutic PD-L1 and BRAF Inhibition** *IMMUNITY*

- Salmon, H., Idoyaga, J., Rahman, A., Leboeuf, M., Remark, R., Jordan, S., Casanova-Acebes, M., Khudoynazarova, M., Agudo, J., Tung, N., Chakarov, S., Rivera, C., Hogstad, et al  
2016; 44 (4): 924-938
- **CDKN1A regulates Langerhans cell survival and promotes Treg cell generation upon exposure to ionizing irradiation.** *Nature neuroscience*  
Price, J. G., Idoyaga, J., Salmon, H., Hogstad, B., Bigarella, C. L., Ghaffari, S., Leboeuf, M., Merad, M.  
2015; 16 (10): 1060-68
  - **Induction of innate and adaptive immunity by delivery of poly dA:dT to dendritic cells** *NATURE CHEMICAL BIOLOGY*  
Barbuto, S., Idoyaga, J., Vila-Perello, M., Longhi, M. P., Breton, G., Steinman, R. M., Muir, T. W.  
2013; 9 (4): 250-256
  - **Specialized role of migratory dendritic cells in peripheral tolerance induction** *JOURNAL OF CLINICAL INVESTIGATION*  
Idoyaga, J., Fiorese, C., Zbytniuk, L., Lubkin, A., Miller, J., Malissen, B., Mucida, D., Merad, M., Steinman, R. M.  
2013; 123 (2): 844-854
  - **SnapShot: Dendritic Cells** *CELL*  
Idoyaga, J., Steinman, R. M.  
2011; 146 (4): 660-U186
  - **Comparable T helper 1 (Th1) and CD8 T-cell immunity by targeting HIV gag p24 to CD8 dendritic cells within antibodies to Langerin, DEC205, and Clec9A** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Idoyaga, J., Lubkin, A., Fiorese, C., Lahoud, M. H., Caminschi, I., Huang, Y., Rodriguez, A., Clausen, B. E., Park, C. G., Trumfheller, C., Steinman, R. M.  
2011; 108 (6): 2384-2389
  - **Features of the dendritic cell lineage** *IMMUNOLOGICAL REVIEWS*  
Steinman, R. M., Idoyaga, J.  
2010; 234: 5-17
  - **Antibody to Langerin/CD207 localizes large numbers of CD8 alpha(+) dendritic cells to the marginal zone of mouse spleen** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Idoyaga, J., Suda, N., Suda, K., Park, C. G., Steinman, R. M.  
2009; 106 (5): 1524-1529
  - **Cutting edge: Langerin/CD207 receptor on dendritic cells mediates efficient antigen presentation on MHC I and II products in vivo** *JOURNAL OF IMMUNOLOGY*  
Idoyaga, J., Cheong, C., Suda, K., Suda, N., Kim, J. Y., Lee, H., Park, C. G.  
2008; 180 (6): 3647-3650
  - **The Nontoxic Cholera B Subunit Is a Potent Adjuvant for Intradermal DC-Targeted Vaccination** *FRONTIERS IN IMMUNOLOGY*  
Antonio-Herrera, L., Badillo-Godinez, O., Medina-Contreras, O., Tepale-Segura, A., Garcia-Lozano, A., Gutierrez-Xicotencatl, L., Soldevila, G., Esquivel-Guadarrama, F. R., Idoyaga, J., Bonifaz, L. C.  
2018; 9
  - **Vaccination-induced skin-resident memory CD8(+) T cells mediate strong protection against cutaneous melanoma** *ONCOIMMUNOLOGY*  
Galvez-Cancino, F., Lopez, E., Menares, E., Diaz, X., Flores, C., Caceres, P., Hidalgo, S., Chovar, O., Alcantara-Hernandez, M., Borgna, V., Varas-Godoy, M., Salazar-Onfray, F., Idoyaga, et al  
2018; 7 (7): e1442163
  - **Ebola virus infection kinetics in chimeric mice reveal a key role of T cells as barriers for virus dissemination.** *Scientific reports*  
Lüdtke, A., Ruibal, P., Wozniak, D. M., Pallasch, E., Wurr, S., Bockholt, S., Gómez-Medina, S., Qiu, X., Kobinger, G. P., Rodríguez, E., Günther, S., Krasemann, S., Idoyaga, et al  
2017; 7: 43776-?
  - **Pseudogenization of the Secreted Effector Gene sseI Confers Rapid Systemic Dissemination of S. Typhimurium ST313 within Migratory Dendritic Cells.** *Cell host & microbe*  
Carden, S. E., Walker, G. T., Honeycutt, J., Lugo, K., Pham, T., Jacobson, A., Bouley, D., Idoyaga, J., Tsolis, R. M., Monack, D.  
2017; 21 (2): 182-194
  - **T-cell immunodominance.** *European journal of immunology*  
Cruz, J. L., Pérez-Girón, J. V., Lüdtke, A., Gómez-Medina, S., Ruibal, P., Idoyaga, J., Muñoz-Fontela, C.

2017; 47 (2): 345-352

- **Monocyte-derived dendritic cells enhance protection against secondary influenza challenge by controlling the switch in CD8(+) T-cell immunodominance** *EUROPEAN JOURNAL OF IMMUNOLOGY*  
Cruz, J. L., Perez-Giron, J., Luedtke, A., Gomez-Medina, S., Ruibal, P., Idoyaga, J., Munoz-Fontela, C.  
2017; 47 (2): 345-352
- **Ebola Virus Disease Is Characterized by Poor Activation and Reduced Levels of Circulating CD16+ Monocytes.** *journal of infectious diseases*  
Lüdtke, A., Ruibal, P., Becker-Ziaja, B., Rottstege, M., Wozniak, D. M., Cabeza-Cabrerizo, M., Thorenz, A., Weller, R., Kerber, R., Idoyaga, J., Magassouba, N., Gabriel, M., Günther, et al  
2016; 214: S275-S280
- **Reply to: "Subverting misconceptions about radiation therapy".** *Nature immunology*  
Price, J. G., Idoyaga, J., Merad, M.  
2016; 17 (4): 345-346
- **ESAT-6 Targeting to DEC205+ Antigen Presenting Cells Induces Specific-T Cell Responses against ESAT-6 and Reduces Pulmonary Infection with Virulent Mycobacterium tuberculosis.** *PLoS one*  
Silva-Sánchez, A., Meza-Pérez, S., Flores-Langarica, A., Donis-Maturano, L., Estrada-García, I., Calderón-Amador, J., Hernández-Pando, R., Idoyaga, J., Steinman, R. M., Flores-Romo, L.  
2015; 10 (4)
- **Activation of Toll-like Receptor-2 by Endogenous Matrix Metalloproteinase-2 Modulates Dendritic-Cell-Mediated Inflammatory Responses** *CELL REPORTS*  
Godefroy, E., Gallois, A., Idoyaga, J., Merad, M., Tung, N., Monu, N., Saenger, Y., Fu, Y., Ravindran, R., Pulendran, B., Jotereau, F., Trombetta, S., Bhardwaj, et al  
2014; 9 (5): 1856-1870
- **Murine Langerin(+) dermal dendritic cells prime CD8(+) T cells while Langerhans cells induce cross-tolerance** *EMBO MOLECULAR MEDICINE*  
Flacher, V., Tripp, C. H., Mairhofer, D. G., Steinman, R. M., Stoitzner, P., Idoyaga, J., Romani, N.  
2014; 6 (9): 1191-1204
- **BRAF-V600E expression in precursor versus differentiated dendritic cells defines clinically distinct LCH risk groups** *JOURNAL OF EXPERIMENTAL MEDICINE*  
Berres, M., Lim, K. P., Peters, T., Price, J., Takizawa, H., Salmon, H., Idoyaga, J., Ruzo, A., Lupo, P. J., Hicks, M. J., Shih, A., Simko, S. J., Abhyankar, et al  
2014; 211 (4): 669-683
- **Streamlined Expressed Protein Ligation Using Split Inteins** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Vila-Perello, M., Liu, Z., Shah, N. H., Willis, J. A., Idoyaga, J., Muir, T. W.  
2013; 135 (1): 286-292
- **Targeting Leishmania major Antigens to Dendritic Cells In Vivo Induces Protective Immunity.** *PLoS one*  
Matos, I., Mizenina, O., Lubkin, A., Steinman, R. M., Idoyaga, J.  
2013; 8 (6): e67453
- **Consortium biology in immunology: the perspective from the Immunological Genome Project** *NATURE REVIEWS IMMUNOLOGY*  
Benoist, C., Lanier, L., Merad, M., Mathis, D.  
2012; 12 (10): 734-740
- **Zinc finger transcription factor zDC is a negative regulator required to prevent activation of classical dendritic cells in the steady state** *JOURNAL OF EXPERIMENTAL MEDICINE*  
Meredith, M. M., Liu, K., Kamphorst, A. O., Idoyaga, J., Yamane, A., Guermonprez, P., Rihn, S., Yao, K., Silva, I. T., Oliveira, T. Y., Skokos, D., Casellas, R., Nussenzweig, et al  
2012; 209 (9): 1583-1593
- **Expression of the zinc finger transcription factor zDC (Zbtb46, Btbd4) defines the classical dendritic cell lineage** *JOURNAL OF EXPERIMENTAL MEDICINE*  
Meredith, M. M., Liu, K., Darrasse-Jeze, G., Kamphorst, A. O., Schreiber, H. A., Guermonprez, P., Idoyaga, J., Cheong, C., Yao, K., Niec, R. E., Nussenzweig, M. C.  
2012; 209 (6): 1153-1165

- **Dll4-Notch signaling in Flt3-independent dendritic cell development and autoimmunity in mice** *JOURNAL OF EXPERIMENTAL MEDICINE*  
Billiard, F., Lobry, C., Darrasse-Jeze, G., Waite, J., Liu, X., Mouquet, H., Danave, A., Tait, M., Idoyaga, J., Leboeuf, M., Kyratsous, C. A., Burton, J., Kalter, et al  
2012; 209 (5): 1011-1028
- **Skin Langerin(+) Dendritic Cells Transport Intradermally Injected Anti-DEC-205 Antibodies but Are Not Essential for Subsequent Cytotoxic CD8(+) T Cell Responses** *JOURNAL OF IMMUNOLOGY*  
Flacher, V., Tripp, C. H., Haid, B., Kissenpfennig, A., Malissen, B., Stoitzner, P., Idoyaga, J., Romani, N.  
2012; 188 (5): 2146-2155
- **Trem14, an Ig Superfamily Member, Mediates Presentation of Several Antigens to T Cells In Vivo, Including Protective Immunity to HER2 Protein** *JOURNAL OF IMMUNOLOGY*  
Hemmi, H., Zaidi, N., Wang, B., Matos, I., Fiorese, C., Lubkin, A., Zbytnuik, L., Suda, K., Zhang, K., Noda, M., Kaisho, T., Steinman, R. M., Idoyaga, et al  
2012; 188 (3): 1147-1155
- **Dendritic cell-targeted protein vaccines: a novel approach to induce T-cell immunity** *JOURNAL OF INTERNAL MEDICINE*  
Trumpfheller, C., Longhi, M. P., Caskey, M., Idoyaga, J., Bozzacco, L., Keler, T., Schlesinger, S. J., Steinman, R. M.  
2012; 271 (2): 183-192
- **Microbial Stimulation Fully Differentiates Monocytes to DC-SIGN/CD209(+) Dendritic Cells for Immune T Cell Areas** *CELL*  
Cheong, C., Matos, I., Choi, J., Dandamudi, D. B., Shrestha, E., Longhi, M. P., Jeffrey, K. L., Anthony, R. M., Kluger, C., Nchinda, G., Koh, H., Rodriguez, A., Idoyaga, et al  
2010; 143 (3): 416-429
- **Targeting of antigens to skin dendritic cells: possibilities to enhance vaccine efficacy** *IMMUNOLOGY AND CELL BIOLOGY*  
Romani, N., Thurnher, M., Idoyaga, J., Steinman, R. M., Flacher, V.  
2010; 88 (4): 424-430
- **Epidermal Langerhans Cells Rapidly Capture and Present Antigens from C-Type Lectin-Targeting Antibodies Deposited in the Dermis** *JOURNAL OF INVESTIGATIVE DERMATOLOGY*  
Flacher, V., Tripp, C. H., Stoitzner, P., Haid, B., Ebner, S., Del Frari, B., Koch, F., Park, C. G., Steinman, R. M., Idoyaga, J., Romani, N.  
2010; 130 (3): 755-762
- **Acute in vivo exposure to interferon-gamma enables resident brain dendritic cells to become effective antigen presenting cells** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Gottfried-Blackmore, A., Kaunzner, U. W., Idoyaga, J., Felger, J. C., McEwen, B. S., Bulloch, K.  
2009; 106 (49): 20918-20923
- **Dendritic cells require a systemic type I interferon response to mature and induce CD4(+) Th1 immunity with poly IC as adjuvant** *JOURNAL OF EXPERIMENTAL MEDICINE*  
Longhi, M. P., Trumpfheller, C., Idoyaga, J., Caskey, M., Matos, I., Kluger, C., Salazar, A. M., Colonna, M., Steinman, R. M.  
2009; 206 (7): 1589-1602
- **A New Triggering Receptor Expressed on Myeloid Cells (Trem) Family Member, Trem-Like 4, Binds to Dead Cells and Is a DNAX Activation Protein 12-Linked Marker for Subsets of Mouse Macrophages and Dendritic Cells** *JOURNAL OF IMMUNOLOGY*  
Hemmi, H., Idoyaga, J., Suda, K., Suda, N., Kennedy, K., Noda, M., Aderem, A., Steinman, R. M.  
2009; 182 (3): 1278-1286
- **Generation and application of new rat monoclonal antibodies against synthetic FLAG and OLLAS tags for improved immunodetection** *JOURNAL OF IMMUNOLOGICAL METHODS*  
Park, S. H., Cheong, C., Idoyaga, J., Kim, J. Y., Choi, J., Do, Y., Lee, H., Jo, J. H., Oh, Y., Im, W., Steinman, R. M., Park, C. G.  
2008; 331 (1-2): 27-38
- **Tumor cells prevent mouse dendritic cell maturation induced by TLR ligands** *CANCER IMMUNOLOGY IMMUNOTHERAPY*  
Idoyaga, J., Moreno, J., Bonifaz, L.  
2007; 56 (8): 1237-1250
- **Production of monoclonal antibodies that recognize the extracellular domain of mouse Langerin/CD207** *JOURNAL OF IMMUNOLOGICAL METHODS*  
Cheong, C., Idoyaga, J., Do, Y., Pack, M., Park, S. H., Lee, H., Kang, Y., Choi, J., Kim, J. Y., Bonito, A., Inaba, K., Yamazaki, S., Steinman, et al  
2007; 324 (1-2): 48-62
- **Innate NKT lymphocytes confer superior adaptive immunity via tumor-capturing dendritic cells** *JOURNAL OF EXPERIMENTAL MEDICINE*

Liu, K., Idoyaga, J., Charalambous, A., Fujii, S., Bonito, A., Mordoh, J., Wainstok, R., Bai, X. F., Liu, Y., Steinman, R. M.  
2005; 202 (11): 1507-1516

- **Dendritic cells charged with apoptotic tumor cells induce long-lived protective CD4(+) and CD8(+) T cell immunity against B16 melanoma** *JOURNAL OF IMMUNOLOGY*

Goldszmid, R. S., Idoyaga, J., Bravo, A. I., Steinman, R., Mordoh, J., Wainstok, R.  
2003; 171 (11): 5940-5947