Aaron S. Meyer

ameyer@ucla.edu 310-794-4821 http://asmlab.org 4121G Engineering V Los Angeles, CA 90095

Education

Ph.D., Biological Engineering

April 2014

Massachusetts Institute of Technology, Cambridge, MA

Thesis: Quantitative approaches to understanding signaling regulation of 3D cell migration

B.S., Bioengineering, magna cum laude University of California, Los Angeles, CA

June 2009

Professional Experience

Assistant Professor 2017 – Present

Bioengineering Department, University of California, Los Angeles Bioinformatics Interdepartmental Graduate Program, University of California, Los Angeles Computational & Systems Biology Interdepartmental Program, University of California, Los Angeles

Principal Investigator & Research Fellow Koch Cancer Institute, MIT, Cambridge, MA 2014 - 2017

Graduate Researcher in the labs of Douglas Lauffenburger & Frank Gertler

Department of Biological Engineering & Koch Cancer Institute, MIT, Cambridge, MA

2009 - 2014

Undergraduate Researcher in the lab of Daniel Kamei

2006 - 2009

Department of Bioengineering, University of California, Los Angeles, CA

Refereed Publications

Tan, Z.C., and **A.S. Meyer**. "A general model of multivalent ligand binding with ligands of heterotypic subunits and multiple surface receptors." *bioRxiv*. 2021 Mar 11. *Submitted*.

Murphy, M., S.D. Taylor, and **A.S. Meyer**. "Structured decomposition improves systems serology prediction and interpretation." *bioRxiv*. 2021 Jan 22. *Submitted*.

Tan, Z.C., B. Orcutt-Jahns, and **A.S. Meyer**. "A quantitative view of strategies to engineer cell-selective ligand binding." *bioRxiv.* 2020 Dec 1. *Submitted.*

Majumder, A., S. Hosseinian, M. Stroud, E. Adhikari, J. Saller, M.A. Smith, G. Zhang, S. Agarwal, F. Kinose, K. Browers, B. Fang, P. Stewart, E.A. Welsh, T.A. Boyle, **A.S. Meyer**, J.M. Koomen, and E.B. Haura. "Proteomic Characterization of AXL Kinase Inhibitors and Signaling Pathways." *Submitted*.

Farhat, A.M., A.C. Weiner, C. Posner, Z.S. Kim, B. Orcutt-Jahns, S.M. Carlson, and **A.S. Meyer**. "Modeling Cell-Specific Dynamics and Regulation of the Common Gamma Chain Cytokines." *Cell Reports*. 2021 Mar 1. *Accepted*.

- Bae, S.Y., N. Guan, R. Yan, K. Warner, S.D. Taylor, and **A.S. Meyer**. "Measurement and models accounting for cell death capture hidden variation in compound response." *Cell Death & Disease*., 2020 Apr 20; 255(11).
- Lee, C.-H., T. H. Kang, O. Godon, M. Watanabe, G. Delidakis, C.M. Gillis, D. Sterlin, D. Hardy, M. Cogné, L.E. Macdonald, A.J. Murphy, N. Tu, J. Lee, J.R. McDaniel, E. Makowski, Peter M. Tessier, **A.S. Meyer**, P. Bruhns, and G. Georgiou. "An engineered human Fc domain that behaves like a pH-toggle switch for ultra-long circulation persistence." *Nature Communications.*, 2019 Nov 6; 10(1):5031.
- **Meyer, A.S.**, L.M. Heiser. "Systems biology approaches to measure and model phenotypic heterogeneity in cancer." *Current Opinion in Systems Biology.* 2019 Oct 4; 17: 35–40.
- Situ, K., B.A. Chua, S.Y. Bae, **A.S. Meyer**, K. Morizono. "Versatile targeting system for lentiviral vectors involving biotinylated targeting molecules." *Virology.* 2018 Oct 2; 525: 170–181.
- Robinett, R.A., N. Guan, A. Lux, M. Biburger, F. Nimmerjahn, **A.S. Meyer**. "Dissecting FcγR Regulation Through a Multivalent Binding Model." *Cell Systems*. 2018 Jul 25; 6(7): 1–8.
- Claas, A.M., L. Atta, S. Gordonov, **A.S. Meyer**, D.A. Lauffenburger. "Systems Modeling Identifies Divergent Receptor Tyrosine Kinase Reprogramming to MAPK Pathway Inhibition." *Cellular and Molecular Bioengineering* 2018 Jul 26; 1–19.
- Muffat, J., Y. Li, A. Omer, A. Durbin, I. Bosch, G. Bakiasi, E. Richards, **A.S. Meyer**, L. Gehrke, R. Jaenisch. "Human iPS-derived Glial Cells and Neural Progenitors Display Divergent Responses to Zika and Dengue Infections." *Proc. Natl. Acad. Sci. U.S.A.* 2018 Jun 18; 201719266.
- Schwartz, A.D., L.E. Barney, L.E. Jansen, T.V. Nguyen, C.L. Hall, **A.S. Meyer**, S.R. Peyton. "A Biomaterial Screening Approach to Reveal Microenvironmental Mechanisms of Drug Resistance." *Integrative Biology.* 2017 Nov 14; 9: 912–924.
- Zweemer, A.J.M., C.B. French, J. Mesfin, S. Gordonov, **A.S. Meyer**, D.A. Lauffenburger. "Apoptotic Cell Bodies Elicit Gas6-Mediated Migration Of AXL-Expressing Tumor Cells." *Molecular Cancer Research*. 2017 Sept 18.
- Archer, T.C., E.J. Fertig, S.J.C. Gosline, M. Hafner, S.K. Hughes, B.A. Joughin, **A.S. Meyer**¹, S.P. Piccolo, A. Shajahan-Haq. "Systems Approaches to Cancer Biology." *Cancer Research.* 2016 Nov 18; 76 (23); 1–4.
- Manole, S., E.J. Richards, **A.S. Meyer**. "JNK pathway activation modulates acquired resistance to EGFR/HER2 targeted therapies." *Cancer Research*. 2016 Sept 15; 76 (18): 5219–5228.
- McConnell, R.E., J.E. Van Veen, M. Vidaki, A.V. Kwiatkowski, **A.S. Meyer**, D.A. Lauffenburger, F.B. Gertler. "A Requirement for Filopodia Extension Towards Slit During Robo-Mediated Axon Repulsion." *Journal of Cell Biology.* 2016 Apr 18; 213 (2): 261.
- Miller, M.A., M.J. Oudin, R.J. Sullivan, D.T. Frederick, **A.S. Meyer**, S. Wang, H. Im, J. Tadros, L.G. Griffith, H. Lee, R. Weissleder, K.T. Flaherty, F.B. Gertler, D.A. Lauffenburger. "Reduced proteolytic shedding of receptor tyrosine kinases is a post-translational mechanism of kinase inhibitor resistance." *Cancer Discovery.* 2016 Apr; 6:331-333.

¹Corresponding author.

- Miller, M.A., M. Moss, G. Powell, R. Petrovich, L. Edwards, **A.S. Meyer**, L.G. Griffith, D.A. Lauffenburger. "Targeting autocrine HB-EGF signaling with specific ADAM12 inhibition using recombinant ADAM12 prodomain." *Scientific Reports.* 2015 Oct 19; 5:15150.
- **Meyer**², **A.S.**, A.J.M. Zweemer, D.A. Lauffenburger². "The AXL receptor is a sensor of ligand spatial heterogeneity." *Cell Systems*. 2015 Nov 29; 1(1):25-36.
- Riquelme, D.N., **A.S. Meyer**, M. Barzik, A. Keating, F.B. Gertler. "Selectivity in subunit composition of Ena/VASP tetramers." *Biosci. Rep.* 2015 Jul 28;35(5). pii: e00246.
- **Meyer, A.S.**, M.A. Miller, F.B. Gertler, D.A. Lauffenburger. "The receptor AXL diversifies EGFR signaling and limits the response to EGFR-targeted inhibitors in triple-negative breast cancer cells." *Science Signaling*. 2013 Aug 6; 6(287):ra66.
- Miller³, M.A., **A.S. Meyer**³, M. Beste, Z. Lasisi, S. Reddy, K. Jeng, C.-H. Chen, J. Han, K. Isaacson, L.G. Griffith, D.A. Lauffenburger. "ADAM-10 and -17 regulate endometriotic cell migration via concerted ligand and receptor shedding feedback on kinase signaling." *Proc. Natl. Acad. Sci. U.S.A.* 2013 May 28; 110(22):E2074-83.
- **Meyer, A.S.**, S.K. Hughes-Alford, J.E. Kay, A. Castillo, A. Wells, F.B. Gertler, D.A. Lauffenburger. "2D protrusion but not motility predicts growth factor-induced cancer cell migration in 3D collagen." *Journal of Cell Biology.* 2012 Jun 11; 197(6):721-9.
- Kim, H.D., **A.S. Meyer**, J.P. Wagner, S.K. Alford, A. Wells, F.B. Gertler, D.A. Lauffenburger. "Signaling network state predicts Twist-mediated effects on breast cell migration across diverse growth factor contexts." *Mol. Cell. Proteomics*. 2011 Nov;10(11):M111.008433.
- **Meyer, A.S.**, R.G. Condon, G. Keil, N. Jhaveri, Z. Liu, Y.-S. Tsao. "Fluorinert, an oxygen carrier, improves cell culture performance in deep square 96-well plates by facilitating oxygen transfer." *Biotechnol. Prog.* 2012 Jan; 28(1):171-8.
- Mashayekhi, F., **A.S. Meyer**, S.A. Shiigi, V. Nguyen, D.T. Kamei. "Concentration of mammalian genomic DNA using two-phase aqueous micellar systems." *Biotechnol. Bioeng.* 2009 Apr 15; 102(6):1613-23.

Research Support & Awards

Northrop Grumman Excellence in Teaching Award	2021
American Cancer Society, Research Scholar Grant (co-I) "Tissue-engineered models of glioblastoma for evaluating treatment responses"	2020 – 2023
NIH NIAID, U01-AI148119 "Mapping the effector response space of antibody combinations"	2019 – 2024
UCLA Faculty Career Development Award	2019 – 2020
UCLA Hellman Fellow "Engineering anti-tumor antibody combinations for more effective and less toxic therapie	2019 – 2020 s"
Visterra, Inc. Research Agreement	2019 – 2021

²Co-corresponding authors.

³Equally contributing authors.

"IL-2 Receptor Binding Engineering"	
Administrative Supplement to U01-CA215709 "Cell lineage analysis to quantify heterogeneous cell cycle responses of cancer cells"	2018 – 2019
NCI Cancer Systems Biology Consortium, U01-CA215709 "Precision Lung Cancer Therapy Design through Multiplexed Adapter Measurement"	2017 – 2022
Fellowship Grant Terri Brodeur Breast Cancer Foundation "Decoding the Role of TAM Receptors In Vivo Using More Specific and Potent Inhibite	2017 – 2019 ors"
Ten to Watch, Amgen Scholars Foundation	2016
AMIGOS Program Award Jayne Koskinas Ted Giovanis Foundation and Breast Cancer Research Foundation "Understanding the Role of Cell Plasticity in Mediating Drug Resistance"	2016 – 2020
GPU Grant NVIDIA Corporation "Parameterizing Stochastic Cell Signaling Pathways Through Variability Fitting"	2016
Frontier Research Program Initiator Award Koch Institute for Integrative Cancer Research "Multiplexed Tools for Probing Chemokine Receptor Activation State in Breast Cancer	2015 r"
NIH Director's Early Independence Award, DP5-OD019815 "Adapter-Layer RTK Signaling: Basic Understanding & Targeted Drug Resistance" Highlighted by the NIH director's office.	2014 – 2019
Siebel Scholar, Class of 2014	2013
Whitaker Fellowship Massachusetts Institute of Technology	2013
Repligen Fellowship in Cancer Research Koch Institute for Integrative Cancer Research	2012
Frontier Research Program Initiator Award Koch Institute for Integrative Cancer Research "Global Growth Factor Reprogramming and Invasion By AXL Expression And Sheddi Carcinoma"	2011 ng In Breast
Breast Cancer Research Predoctoral Fellowship Department of Defense, W81XWH-11-1-0088 "Molecular Regulatory Network Dysregulation in Breast Cancer Cell Migration & Inva-	2010 - 2014 sion"
Graduate Research Fellowship National Science Foundation	2009 – 2014
Momenta Presidential Fellowship Massachusetts Institute of Technology	2009

Teaching Experience

Advisor, Integrated and Interdisciplinary Undergraduate Research Program UCLA, Undergraduate Research Center

2019 - Present

· Advise program participants on developing research, presentation, and professional skills

Instructor, Machine Learning & Data-Driven Modeling in Bioengineering UCLA, Department of Bioengineering

2018 - Present

• Designed and lead project-based course tailored to the background of students in the program

Instructor, Bioengineering Laboratory

2018 - Present

UCLA, Department of Bioengineering

 Lead lab-based course introduction to laboratory work in bioengineering and basics of experimental design and analysis

Mentor, Bioengineering Capstone

2017 - Present

UCLA, Department of Bioengineering

- · Mentored three capstone teams for the bioengineering senior design course
- Poster competition winning team: 2018, 2019

Guest Speaker, Introduction to Bioengineering

2017, 2019, 2020

UCLA, Department of Bioengineering

· Guest speaker to discuss research program and opportunities in bioengineering

Faculty of the Citizen Science Program

July 2015 – January 2016

Bard College, Citizen Science Program, Annandale-on-Hudson, NY

· Led a short course introducing students to the natural sciences and scientific method

Teaching Assistant, Thermodynamics of Biomolecular Systems MIT, Department of Biological Engineering, Cambridge, MA

2010

Conference & Invited Presentations (Last Five Years)

CSHL Systems Immunology, Selected Oral Presentation

April 2021

"Developing a Mechanistic View of Mixed IgG Antibody Immune Effector Responses."

University of Massachusetts, Mol & Cell Biol Program, Invited Seminar

March 2021

"Mixture models of cell populations and signaling to understand heterogeneous drug response."

International Conference on Biomolecular Engineering, Selected Oral Presentation "Developing a Mechanistic View of Mixed IgG Antibody Immune Effector Responses."

January 2021

Vanderbilt University, QSBC Center, Invited Center Seminar

October 2020

"Mixture models of cell populations and signaling to understand heterogeneous drug response."

Buffalo Quantitative Systems Pharmacology Symposium, Invited Speaker

July 2020

"Deeply profiling pharmacodynamic response with single cell dynamics."

Postponed due to COVID-19.

Tufts University, Dept. of Bioengineering, Invited Dept. Seminar "Linking Statistical and Mechanistic Models for Drug Development."

March 2020

Postponed due to COVID-19.

Aaron S. Meyer Univ. of Calif., Los Angeles, Immunogenetics Center, Invited Speaker Jan 2020 "Using models with incomplete information to study and engineer antibody effector response." Biomedical Engineering Society Annual Meeting, Selected Oral Presentation October 2019 "A Binding Model Predicts In Vivo Effector Cell-Elicited Killing Across Multiple Disease Models." Xencor, Inc., Invited Oral Presentation July 2019 "Computational molecular models for immune engineering." Antibodies & Complement, Selected Oral Presentation May 2019 "A Multivalent Binding Model Predicts FcyR Regulation and Effector Cell-Elicited Killing." CSBC West Coast Meeting, Selected Oral Presentation May 2019 "Hidden Markov models on a tree as a general approach to single cell plasticity analysis." Oregon Health & Science Univ., Dept. of Biomedical Engineering, Invited Dept. Seminar March 2019 "Systems approaches to mapping and targeting immune system communication." Univ. of Calif., Los Angeles, MSTP Tutorial Series, Invited Speaker October 2018 "Systems approaches to mapping and targeting immune system communication." Univ. of Illinois at Urbana-Champaign, Dept. of Bioengineering, Invited Dept. Seminar Sept 2018 "High-dimensional analysis to map and manipulate immune receptor-ligand families." Systems Biology of Human Disease, Selected Oral Presentation June 2018 "Dissecting FcyR Regulation Through a Multivalent Binding Model." Univ. of Calif., Riverside, Department of Bioengineering, Invited Departmental Seminar April 2018 "Dissecting FcyR Regulation Through a Multivalent Binding Model." Univ. of Bergen, Centre for Cancer Biomarkers, Invited Speaker March 2018 "Engineering more precise and potent TAM-targeted therapies." Univ. of Calif., Los Angeles, Dept. of Bioengineering, Invited Departmental Seminar October 2017 "Dissecting FcyR Regulation Through a Multivalent Binding Model." Univ. of Calif., Los Angeles, Broad Stem Cell Research Center, Invited Speaker October 2017 "Engineering more precise and potent TAM-targeted therapies." Momenta Pharmaceuticals, Invited Oral Presentation April 2017 "Dissecting FcyR Regulation Through a Multivalent Binding Model."

Univ. of Pennsylvania, Department of Bioengineering, Invited Departmental Speaker March 2017 "Engineering more precise and potent TAM-targeted therapies."

Univ. of Calif., Los Angeles, Department of Bioengineering, Invited Departmental Speaker March 2017 "Engineering more precise and potent TAM-targeted therapies."

Moffitt Cancer Center, Invited Speaker

January 2017

"Engineering more precise and potent TAM-targeted therapies."

Biomedical Engineering Society Annual Meeting, Selected Oral Presentation October 2016 "JNK pathway activation modulates acquired resistance to EGFR/HER2 targeted therapies."

MD Anderson Cancer Center, Dept. of Systems Biology, Invited Departmental Speaker Sept 2016 "Engineering more precise and potent TAM-targeted therapies."

2018 - 2020

2018 - 2020

2018 - 2020

2018 - 2020

2018 - 2019

2017 - 2019

2017 - 2019

2017 - 2019

2018

2018

MD Anderson Cancer Center, Future of Science Symposium, Invited Oral Presentation Sept 2016 "Toward precision therapy: Identifying molecular commonalities among RTK bypass resistance mechanisms."

FASEB Protein Kinase Signaling Network Regulation, Invited Oral Presentation

July 2016

"Engineering more precise and potent TAM-targeted therapies."

Univ. of Calif., Irvine, Center for Complex Biological Systems, Invited Departmental Speaker May 2016 "Data-driven design of targeted therapies and immunotherapies for cancer."

Research Supervision

Zoe Kim

· Micah Bryant

Alison Tran

· Willie Wu

· Robby Theisen

· Donya Khashayar

 Postdoctoral Fellows Catera Wilder, Ph.D. (Co-advised by Alexander Hoffman) Song Yi Bae, Ph.D. (Postdoctoral Fellow, U. Minnesota) Edward Richards, Ph.D. (American Cancer Society Postdoctoral Fellowship) Annelien Zweemer, Ph.D. (Asst. Prof., Leiden U.) 	2018 – Present 2016 – 2019 2015 – Present 2014 – 2017
 Ph.D. Students Jackson Chin Brian Orcutt-Jahns Cyrillus Tan Farnaz Mohammadi Marc Creixell 	2020 – Present 2019 – Present 2019 – Present 2018 – Present 2018 – Present
 Undergraduate Students Luka Karginov (NCI CSBC Summer Scholar) Madeleine Murphy Aditya Sivakumar Eli Snyder Vedant Sathye Amanda Tsao Shashank Venkat JC Lagarde Sumedha Kanthamneni Heather Carmen Mercieca (Amgen Scholar) 	2020 2020 - Present 2020 - Present 2020 - Present 2020 - Present 2019 - Present 2019 - Present 2019 - Present 2019 - Present 2019 - Present 2019
Linnet ChangStephen Lees	2018 - Present 2018 - Present

Katrina Warner (Amgen Scholar; Ph.D., Biomedical Sciences, Harvard)

• Adam Weiner (Internet Research Initiative Award; Ph.D., Tri-Institute CompBio)

• Rui Yan (Cathy Bank Scholarship; Ph.D., ICME, Stanford)

Ali Farhat (Rose Hills Foundation Scholar; M.D./Ph.D., U Illinois)

 Ning Guan (Ph.D., Systems Biology, Harvard) Ryan Robinett (NSF GRFP; Ph.D., Comp. Sci., U. Chicago) 	2015 – 2017 2015 – 2017
Service to the Profession	
Session Co-Chair, Biomedical Engineering Society Annual Meeting	2020
Ad Hoc Reviewer, Science Signaling	2020
Ad Hoc Reviewer (2x), Science Advances	2020
Panelist, Amgen Scholars Summer Science Series	2020
Ad Hoc Reviewer, PLOS Biology	2020, 2021
Ad Hoc Reviewer, Cancer Research	2020
External Reviewer, Ming Hsieh Institute, USC	2020
Ad Hoc Reviewer, Cell Systems	2020
Ad Hoc Reviewer, APL Bioengineering	2020
Ad Hoc Reviewer, Integrative Biology	2019
Ad Hoc Reviewer, Scientific Reports	2019
Ad Hoc Reviewer, PNAS	2019
Ad Hoc Reviewer, Current Opinion in Systems Biology	2019
Co-Chair, Association of Early Career Cancer Systems Biologists	2017 - Present
Ad Hoc Reviewer, PLOS Computational Biology	2018
Interviewee, Prescriber Magazine	2017
Ad Hoc Reviewer, WIREs Systems Biology and Medicine	2017
Ad Hoc Remote Reviewer, Irish Research Council	2017
Ad Hoc Reviewer, Cell Reports	2017
Graduate Research Fellowship Program Review Panelist, National Science Foundation	n 2016 – 2017
Meeting Organizer & Member, Association of Early Career Cancer Systems Biologists	2015 – 2016
Ad Hoc Reviewer, Biomedical Engineering Society Annual Meeting	2016
Ad Hoc Reviewer, Drug Discovery Today	2016
Ad Hoc Reviewer, Molecular Cell	2015
Member, Biomedical Engineering Society	2010 - Present
Coordinator, MIT Biological Engineering Graduate Student Board	2010 – 2013
Ad Hoc Reviewer, Oncogene	2013
Ad Hoc Reviewer, Nature	2013

Patents/Disclosures

Member, Publicity Committee

A.S. Meyer. "Altering cytokine specificity through binding valency." Disclosure filed, 2019.

2017 - 2018

Bae, S.Y., **A.S. Meyer**. "Small Molecule Competitive Inhibitors Of Phosphatidylserine-TAMR Ligand Interaction." Disclosure filed, 2018.

Richards, E.J., S. Manole, **A.S. Meyer**. "Modulating JNK activation to impede lung & breast cancer RTK inhibitor bypass resistance." Disclosure filed, 2016.

Miller, M.A., M.J. Oudin, **A.S. Meyer**, L.G. Griffith, F.B. Gertler, D.A. Lauffenburger. "Methods of Reducing Kinase Inhibitor Resistance." US patent application 14/690,001, 2015.

Thesis Committee Membership

Daniel Bradbury, Bioengineering

Advisor: Daniel Kamei

Giovanni Valdez, Bioengineering

Advisor: Grace Xiao

Hiromi Miwa, Bioengineering

Advisor: Dino Di Carlo

Mark van Zee, Bioengineering

Advisor: Dino Di Carlo

Rob Dimatteo, Bioengineering

Advisor: Dino Di Carlo

Alexander Wickstrom, Bioengineering (M.S.)

Advisor: Jonathan Kao

Hector E Muñoz, Bioengineering

Advisor: Dino Di Carlo

Wei-Chia Elizabeth Luo, Bioengineering

Advisor: Gerard Wong

Mohammadali Alidoost, Bioengineering

Advisor: X. Sharon Qi

Cameron S. Movassaghi, Chemistry

Advisor: Anne M. Andrews

Felis Doyeon Koo, Bioengineering

Advisor: Dino Di Carlo