
Alexander Hoffmann

University of California, Los Angeles

Department of Microbiology, Immunology, and Molecular Genetics

Institute for Quantitative and Computational Biosciences

Boyer Hall, Charles Young Dr., Los Angeles, CA 90095

ahoffmann@ucla.edu

NARRATIVE

I am a Distinguished Professor of Microbiology and Immunology at UCLA, PI of the Signaling Systems Laboratory, and, since 2013, Director of the Institute for Quantitative and Computational Biosciences (QCBio), which comprises more than 50 faculty and supports educational and training programs at the undergraduate, graduate and postdoctoral levels.

I hold undergraduate degrees in Physics and Zoology (Cambridge University), and owe my PhD training to Robert Roeder (Rockefeller University) in Biochemistry and Molecular Biology, and my postdoctoral training to David Baltimore (MIT and Caltech) in immune signaling and systems immunology. I developed computational biology expertise as a postdoc and with my many computational trainees and colleagues at Caltech, UCSD and UCLA.

The research of my laboratory focuses on the molecular and cellular mechanisms that control innate and adaptive immune responses. A central theme is that the dynamics of these networks determine functional specificity. I first articulated the notion of a “Temporal Code”, which has had broad impact within the signaling field, including a dedicated conference. My laboratory revealed how immune response Signaling Dynamics are “encoded” *via* numerous feedback and other regulatory motifs, and “decoded” by gene regulatory networks to control stimulus-specific gene expression and cell fate decisions. We have shown that the dynamics are altered in disease contexts, and that they may be drug targeted. Current research foci leverage our single-cell Systems Biology expertise to address 1) the stimulus-specificity and context-dependence of macrophage functions; 2) mechanisms of innate immune training, 3) personalizing vaccination *via* a multi-scale understanding of B-cell fate decisions, 4) inflammatory dysregulation of hematopoiesis.

I aim to advance interdisciplinary research and education to harness the opportunities of technology, computation, and the quantitative sciences. To this end I established new institutes such as UCSD’s BioCircuits Institute (2009) and the San Diego Center for Systems Biology (2010), and the Institute for Quantitative and Computational Biosciences (QCB) at UCLA (2014) involving extensive faculty hiring, space renovation, center and program grants. I transformed or established graduate training programs such as UCSD’s Bioinformatics and Systems Biology (2009), Molecular Biophysics, and Cellular and Systems Biochemistry Programs (2010), and UCLA’s Bioinformatics Graduate Program (2014), the Biomedical Big Data T32 (2015), the Medical Informatics Home area (2019, and the Systems Biology Home Area (2024).

I am committed to promoting diversity, equity and a climate of inclusion as a mentor and contributor to outreach activities, and in various administrative capacities such as chair of departmental diversity committee (2009-2012), of the Academic Senate Committee for Diversity and Equity (2005-2011), and of the Chancellor’s Diversity Council (2011-2013), which impacted student services, faculty hiring practices, and institutional responses to crises. On the Anti-Racism task force (2021) I co-authored a blueprint for institutional change, advised the VC Research, and formulated faculty evaluation criteria. Currently, I direct the NIH- and NSF-funded Bruins-in-Genomics (B.I.G.) Summer Undergraduate Research Program to diversify applicant pools to graduate programs in Bioinformatics, Genomics, Systems Biology, and authored education papers to evaluate and optimize their effectiveness. I chair Faculty diversity initiatives, and support student-led diversity and outreach initiatives.

EDUCATION

- 1985 British A/S levels in Maths (A1), Further Maths (A), Physics (A2), History (B)
- 1988 B.A./M.A., Physics and Molecular Cell Biology
Cambridge University, England
- 1995 Ph.D., Molecular Characterization of General Transcription Factor TFIID
Adviser: Robert G. Roeder
The Rockefeller University, NY

Post-doctoral

- 1995-1998 Control of HIV reactivation
Adviser: David Baltimore
Massachusetts Institute of Technology, MA
- 1998-2003 NF κ B/I κ B specificity and dynamics of function
Adviser: David Baltimore
California Institute of Technology, CA

EMPLOYMENT

- 2003 - 2008 Assistant Professor, University of California, San Diego
- 2008 - 2010 Associate Professor, University of California, San Diego
- 2008 - 2011 Associate Director of the Bioinformatics and Systems Biology Graduate Program
- 2009 - 2013 Associate Director of the BioCircuits Institute (BCI), UCSD
- 2010 - 2013 Professor, University of California, San Diego
- 2010 - 2013 Director of the San Diego Center for Systems Biology (SDCSB)
- 2011 - 2013 Director of the Bioinformatics and Systems Biology Graduate Program, UCSD
- 2013 - 2015 Adjunct Professor, University of California, San Diego
- 2013 - 2024 Professor of Microbiology, Immunology, and Molecular Genetics, UCLA
- 2014 - Director of the Institute for Quantitative and Computational Biosciences (QCB)
- 2024 - Distinguished Professor of Microbiology, Immunology, and Molecular Genetics

PROFESSIONAL SERVICE

- 1999 - 2002 Co-Director, Young Engineering and Science Scholars Program at Caltech
- 2002 - 2003 Associate Director, Freshman Summer Institute (FSI) at Caltech
- 2004 - 2006 Organizer of Fall Biochemistry Seminar Series
- 2005 Undergraduate Research Award Committee, UCSD Chemistry and Biochemistry
- 2005 - 2006 Graduate Admissions Committee, UCSD Chemistry and Biochemistry
- 2005 - 2007 Diversity Officer, UCSD Chemistry and Biochemistry
- 2005 - 2007 UCSD Oversight Committee, California Institute for Regenerative Medicine
- 2006 - 2009 Associate Director, San Diego Consortium for Systems Biology (SDCSB)
- 2006 - 2013 Steering Committee, San Diego Consortium/Center for System Biology (SDCSB)
- 2006 - 2007 Chair, Kamen Prize Committee
- 2007 - 2008 Organizer of Departmental Retreat, UCSD Chemistry and Biochemistry
- 2007 - 2013 Steering Committee, Bioinformatics Graduate Training Program
- 2007 - 2011 UCSD Senate Committee on Diversity and Equity (CDE)
- 2008 - 2009 UCSD Representative, UC Committee for Affirmative Action and Diversity
- 2008 - 2010 Program Committee, q-Bio national conference

2008 - 2013	Chair, Graduate Admissions in Chemistry and Biochemistry, UCSD
2009 - 2014	Steering Committee, MIT's Cell Decision Process (CDP) Center
2009 - 2017	Steering Committee, UCI's Center for Complex Biological Systems (CCBS)
2011 - 2013	UCSD Council for Graduate Affairs
2011 - 2012	Organizer of "Systems Biology" area of ASBMB Annual Meeting
2011 - 2014	Chair of External Advisory Board of UCSD's Center for Chronobiology (CCB)
2011 - 2013	UCSD Inter-departmental qBio Initiative
2011 - 2013	Chair of Chancellor's Diversity Council, UCSD
2011 - 2013	UCSD Research Council
2012 - 2014	Organizer of Keystone meeting "The NF κ B System in Health and Disease"
2013 - 2014	UCLA DGSOM task force: Human Genetics
2013 - 2014	UCLA DGSOM task force co-chair: Biomath and Biomedical Informatics
2012 -	Editorial Board, Cell Research
2015 - 2020	Steering Committee, National Institute for Mathematical and Biological Synthesis
2014 -	Editorial Board, Molecular Systems Biology
2015 -	Director, Bruins-in-Genomics (BIG) Summer Undergraduate Research Program
2016 - 2020	Editorial Board, BMC Systems Biology
2020 - 2022	Editorial Board, Frontiers in Systems Immunology
2021 -	UCLA Limited Submissions committee
2024 -	Steering Committee, Chan Zuckerberg Biohub New York
2024 - 2029	Organizer of Cold Spring Harbor meeting "Systems Immunology"
2024 - 2026	Organizer Keystone meeting: "From Systems Immunology to Immunoengineering"

HONORS AND AWARDS

1987	Johns Hopkins Summer Research Award (Laboratory of William C Earnshaw)
1998	Institut Jacques Monod Research Award (Laboratory of Marcel Mechali)
1990 - 1992	Boehringer Ingelheim doctoral Fellowship
1992 - 1994	Arnold and Mabel Beckman graduate fellowship
1996 - 1998	Jane Coffin Childs Foundation post-doctoral fellow
1999 - 2000	Gordon Ross Medical Foundation post-doctoral fellow
2005 - 2009	The Ellison Medical Foundation New Scholar in Aging Research
2007	Keynote Speaker, Foundations of Systems Biology and Engineering (FOSBE)
2007 - 2008	Hellman Fellow
2009	The Wedding Keynote Speaker, UC Riverside
2012	Keynote Speaker, Systems Biology and Medicine, St. Petersburg, Russia
2013	Keynote Speaker, Harvard Digestive Diseases Center Symposium
2014 -	Endowed chair: Thomas M. Asher Professor of Microbiology
2017	Chancellor's Seminar, University of Tennessee Health Sciences Campus
2017	President's Speakership, National Institute for Immunology, Delhi
2018	Keynote Speaker, International Conference on Intelligent Biology and Medicine
2019	Keynote Speaker, Foundations of Systems Biology and Engineering (FOSBE)
2023	UCLA Undergraduate Research Mentor Award
2024	Keynote Speaker in Computational and Systems Biology, U Pittsburgh
2024	Keynote Speaker, FASEB Meeting: "Dynamics and Encoding in Cell Signaling"
2024	Keynote Speaker, European NF κ B Symposium
2024	Keynote Speaker, Systems Biology Meeting, Federal University Brazil, Rio

FUNDED PROJECTS

CURRENT

R01AI185026 (PI Hoffmann, co-I Alber), NIAID 01/01/2025 – 12/31/2029

“The IRF regulatory network in innate immune training of macrophages”

This project dissects which IRF transcription factor is responsible for the establishment of enhancers during innate immune training in macrophages and how combinatorial action determines stimulus specificity.

U19AI172713 (PI Yeaman, co-I Hoffmann Project 3), NIAID 08/01/2023 – 07/31/2028

“Systems Epigenomics of persistent bloodstream infection”

Project 3 elucidates epigenomic correlates of macrophage functions that are altered in response to exposure to pathogen-associated molecular patterns and immune cytokines, thereby generating a predictive model that can be used to interpret clinical datasets.

R01AI173214 (PI Hoffmann, co-Is Deeds, Wollman), NIAID 06/01/2023 – 05/31/2028

“Characterizing functional states of macrophages via their stimulus-responses”

This project characterizes how dynamics of signaling and gene expression response enable macrophages to generate stimulus-specific responses to a variety of immune threats in a manner that is modulated by polarization state.

P01AI120944 (PI Kupiec-Weglinski, co-I Hoffmann), NIAID 08/01/2017 – 07/31/2027

“Innate-Adaptive Immunoregulation in Liver Transplant Ischemia/Reperfusion Injury”

This program project seeks to identify and characterize the immunoregulatory mechanisms that contribute or diminish ischemia/reperfusion injury during liver transplantation.

R01ES032827 (PI Vogel, UCD, co-I Hoffmann), NIEHS 12/01/2021 – 11/30/2026

“The impact of Aryl hydrocarbon receptor signaling on Toll like receptor-mediated inflammation”

The goal of this project is to delineate how environmental toxicant activation of the aryl hydrocarbon receptor (AhR) alters the function of innate immune cells, leading to altered inflammatory processes.

R25DE030117 (MPI Wong/Papp/Hoffmann) NIDR 01/15/2021 – 12/31/2025

“Bruins in Genomics: Dental, Oral & Craniofacial Research Training Program (BIG DOC)”

The goal of this project is to recruit and support undergraduate trainees conducting computational biology research within a summer program.

COMPLETED**NSF REU (MPI Collier/Hoffmann), NSF 03/01/2019 – 02/28/2025 (NCE)**

“REU site: Computational Biosciences Research Experience for Undergraduates”

The goal of this project is to run a summer undergraduate research program that trains students in the skills of genomics and epigenomics analysis and systems biology.

R01AI132731 (PI Hoffmann), NIAID 02/01/2018 – 01/31/2025 (NCE)

“Cell decisions underlying B-cell immune responses”

The goal of this project is to understand how the intra-cellular molecular network of B-cells controls B-cell proliferation, death, and differentiation decisions to produce an antibody response.

R01AI127867 (PI Hoffmann), NIAID 04/03/2018 – 03/31/2024

“The NFκB System in Dendritic Cells”

The goal of the project is to study how the multi-component NFκB signaling system assembles into cell type-specific steady states during DC differentiation, and misregulation of these processes contribute to acute myeloid leukemia (AML) and Langerhans Cell Histiocytosis (LCH).

U01CA232216 (PI Lee, City of Hope), NCI subaward 09/01/2021 – 08/31/2023

"Experimental-Computational Synthesis of Altered Immune Signaling in Breast Cancer"

The goal of the subaward is to apply a recently developed technology to profile the health of macrophages derived from cancer patients undergoing immuno-therapy.

R01AI132835 (PI Hoffmann), NIAID**06/20/2017 – 05/31/2023****"Coordinated dynamic regulation and function of IRF transcription factors"**

The goal of this project is to understand how the three IRF transcription factors IRF3, ISGF3, IRF7 are regulated in response to pathogen recognition, and what their overlapping or specific functions are in infected and bystander cells in the tissue.

R01AI127864 (PI Hoffmann), NIAID**11/17/2016 – 10/31/2022****"NF κ B Signaling in Macrophages"**

The goal of this project is to understand how NF κ B signaling leads to healthy inflammatory responses and immune activation, or disease-associated inflammatory phenotypes and epigenome alterations.

U19 AI128913 (PI Reed), NIAID**09/01/2017 – 07/31/2022****"Mapping Immune Responses to CMV in Renal Transplant Recipients"**

The Center grant leverages clinical and animal studies to develop a predictive understanding of how existing or newly acquired CMV viremia affect immune regulation and the success of kidney transplantation.

P01DK046763 (PI Targan), NIDDK**09/02/2016 – 07/31/2021****"IBD: Role of Genetic and Immunopathologic Mechanisms"**

This program project leverages a unique clinical samples, patient cohorts, and animal models to identify and characterize immunopathologic mechanisms of inflammatory bowel disease.

U01AI124319 (PI Yeaman), NIAID**03/21/2016 – 03/20/2021****"Systems Immunobiology of antibiotic-persistent MRSA Infection"**

As leader of the Modeling Core, we aim to identify biomarkers and elucidate causal mechanisms that determine treatment responses in MRSA infections.

T32CA201160 (PI Pellegrini/Hoffmann/Bui) NCI**05/01/2015 – 04/30/2020****"Biomedical Big Data Training Grant"**

The major goal of this project is to provide graduate training in the area of biomedical big data and biomedical informatics to Bioinformatics PhD students and others at UCLA.

R01GM117134 (PI Hoffmann/Wollman), NIGMS**02/15/2016 – 01/31/2020****"Understanding dynamical coding by NF κ B"**

The major goal is to understand the extent and molecular mechanisms of dynamical coding within the canonical NF κ B pathway, especially how dynamics are encoded.

R21AI128646 (PI Hoffmann), NIAID**12/01/2016 – 11/30/2018****"Role of RelB in Tuning Inflammatory and Innate Immune Responses"**

The role of this project is to understand how the NF κ B RelB protein functions to limit auto-inflammation and auto-immunity.

U01HG007912 (PI Hoffmann/Black) NHGRI**12/01/2014 – 11/30/2018****"Ribonomics of Gene Regulation to predict Innate Immune Responses."**

The major goal of this project is to develop a predictive model for post-initiation gene expression events during the macrophage response to pathogens.

R25EB022364-01 (PI Hoffmann/Papp) NIGMS**09/30/2015 – 06/30/2018**

"NGS Data Analysis Skills for the Biosciences Pipeline"

The goals of this project is to run a summer undergraduate research program that trains students in the skills of genomics and epigenomics analysis.

1P50AR063020 (PI Modlin), NIAMS \$100,000 **08/01/2015 – 07/31/2017**

"Immunobiology of Leprosy"

The goals of Project 2 is to develop a predictive model of the mechanisms that control gene expression of macrophages exposed to mLeprae.

2P01 GM071862 (PI Komives) NIH/NIGMS \$250,000 **03/01/2012 – 02/28/2017**

"I κ B/NF κ B Recognition in Silico, In Vitro, and In Vivo"

The major goals of the Program Project is develop a predictive understanding of how biophysical characteristic of the NF κ B and I κ B proteins result in the dynamical properties of the NF κ B Signaling System, including the cell type-specific generation of NF κ B dimers and their stimulus-specific activation. Role: Project 5 leader

3R01CA166450-02S1 (PI Rao/Hoffmann) NCI \$100,000 **12/01/2014 – 11/30/2016**

Single cell analysis supplement for "Characterizing tumor suppressive functions of microRNAs in B-cell neoplasia" The major goal of this project is to undertake single cell microscopy tracking and RNAseq analysis to characterize the B-cell proliferation phenotype of miR146a knockouts.

1R01 ES024996 (PI Xing/Hoffmann) NIEHS \$50,000 **09/05/2014 – 08/31/2016**

"Epigenomic control of mRNA splicing"

The major goals of this collaborative project (also with Jason Ernst) is to examine correlations within the NIH Epigenome Roadmap data between chromatin marks (Ernst) and splice patterns (Xing) and to develop hypotheses about potential mechanistic links (Hoffmann).

3T32 GM008806 (MPI Hoffmann/Pevzner/Subramaniam) **07/01/2011 – 06/30/2016**

NIH/NIGMS

\$360,000

"Training Grant for Bioinformatics"

This goal of this grant is to support the training of Graduate Students in the Bioinformatics and Systems Biology Graduate Program.

P50 GM085764 (PI: Hoffmann)

09/15/2010 – 08/31/2015

NIH/NIGMS

\$2,000,000

"Center for Systems Biology of Cellular Stress Responses"

The major goals of this project are to establish a Center of Excellence for Systems Biology at UCSD that is devoted to the study of dynamical cellular regulatory events that control responses to stresses and pathogens.

P01 AI090935-01 (PI: Young)

08/01/2010 – 07/31/2015

NIAID

\$2,500,000

"Global innate immune responses to HIV-1 infection"

Project 6 (Hoffmann): "Mathematically modeling the regulation of innate immune responses to HIV infection"

The major goals of this project are to leverage the experimental data in other projects to construct an experimentally valuated mathematical model that captures the dynamic control of innate immune responses to HIV and their impact on viral replication.

R01 AI083453 (PI Hoffmann)

12/15/2009 – 11/30/2014

NIH/NIAID

\$250,000

The NF κ B Signaling System as a regulator in B-cell activation

The major goals of the proposal is to develop a multi-scale mathematical model of the multi-dimeric NF κ B signaling system and its regulation of cell survival and division in B-cells. We will then explore NF κ B's role in B-cell activation and expansion at the population level, and its misregulation in B-cell cancers.

R01 CA141722 (MPI with Ghosh)**06/01/2009 – 05/30/2014**

NIH/NCI

\$360,000 (Hoffmann: \$180,000)

IKK: Biophysical basis of dynamic regulation

This project combines biophysical and structural studies with kinetic modeling and cell biological approaches to examine the dynamic regulation of the IKK activation, inactivation, regeneration cycle.

R01 GM085490 (Ghosh)**07/01/2009 – 06/30/2013**

NIH/NIGMS

\$200,000 (Hoffmann: \$50,000)

Investigation of Gene Regulation by NF-kappaB Transcription Factors

This project focuses on the ability of NF κ B dimers to recruit coactivators to activate gene expression. Biophysical and structural studies are complemented by genetic, and genome-wide transcription studies to understand the mechanism and function of RelA interactions with CBP, and p50/p52 interaction with Bcl3.

R01 GM089976 (MPI with Tsimring, Hasty)**04/01/2010 – 03/31/2014**

NIH/NIGMS

\$330,000 (Hoffmann: \$130,000)

“Delays and Variability in single cell NF κ B signaling”

The major goals of this project are to examine the extent and possible functional role of cell-to-cell variability in the dynamic regulation of NF κ B. Live cell reporters and microfluidic devices will be used to probe and produce dynamic conditions.

R01 GM071573 (Hoffmann)**04/01/2010 – 03/31/2014**

NIH/NIGMS

\$188,000

“TLR signaling to NF κ B”

The major goals of this project are to investigate the signaling network that TLRs engage to activate NF κ B. Activation of NF κ B involves numerous feedback and crosstalk mechanisms including autocrine cytokine signaling by TNF and IFN.

2R01 GM072024 (Levchenko)**08/01/2010 – 07/31/2014**

NIH/NIGMS

\$250,000 (Hoffmann: \$70,000)

“NF κ B and MAPK Signaling”

The goal of this project is to understand the coordinated regulation and crosstalk between NF κ B and MAPK Signaling System during inflammatory cytokine and TLR stimulation.

R01 GM085325 (Ponomarenko)**08/01/2008 – 07/31/2012**

NIH/NIGMS

\$200,000 (Hoffmann: \$100,000)

Transcription Factor DNA Interaction: Structural Classifications and Predictions

This project focuses on developing and validating mathematical models of transcription factor interactions with their in vivo cognate binding sites.

R01 GM069811 (Hasty)**08/01/2008 – 07/31/2012**

NIH/NIGMS

\$370,000 (Hoffmann: \$50,000)

Development and Validation of Models for Gene Regulation

This project focuses on developing synthetic circuits and mathematical models to examine the dynamic and stochastic regulation of gene regulation.

P01 GM071862 (Komives)**04/01/2006 - 03/31/2011**

NIH/NIGMS \$850,000 (Hoffmann: \$165,000)
 I κ B/NF- κ B Recognition *in silico*, *in vitro*, and *in vivo*
 Hoffmann Project: *In vivo* signal transduction control by the I κ B family members
 This project focuses on the regulation of NF κ B activity by I κ B proteins.

R01 GM071573 (Hoffmann)**04/01/2005 – 03/31/2010**

NIH/NIGMS \$160,000
 Regulation of Signaling via the I κ B/NF κ B interaction
 This project focuses on the regulation of I κ B degradation pathways.

PUBLICATIONS

H-index: 81. I10-index: >150, citations: >28,000.
<http://scholar.google.com/citations?user=Vj55OEUA AAAJ&hl=en>

RESEARCH PAPERS

RESEARCH PAPERS (PEER REVIEWED)

1. **Hoffmann, A.**, Heck, M.M.S., Bordwell, B.J., Rothfield, N.F., Earnshaw, W.C. 1989. Human autoantibody to topoisomerase II. *Exp. Cell Res.* **180**, pp. 409-418.
2. **Hoffmann, A.**, Horikoshi, M., Wang, C. K., Schroeder, S., Weil, P.A., Roeder, R.G. 1990. Cloning of the *Schizosaccharomyces pombe* TFIID gene reveals a strong conservation of functional domains present in *Saccharomyces cerevisiae* TFIID. *Genes & Development* **4**, pp. 1141-1148.
3. **Hoffmann, A.**, Sinn, E., Yamamoto, T., Wang, J., Roy, A., Horikoshi, M., Roeder, R.G. 1990. Highly conserved core domain and unique N-terminus with presumptive regulatory motifs in a human TATA factor (TFIID). *Nature* **346**, No.6282, pp.387-390.
4. Gasch, A., **Hoffmann, A.**, Horikoshi, M., Roeder, R.G., Chua, N.H. 1990. Arabidopsis thaliana contains two genes for TFIID. *Nature* **346**, No.6282, pp.390-394.
5. Tamura, T., Sumita, K., Fujino, I., Aoyama, A., Horikoshi, M., **Hoffmann, A.**, Roeder, R.G., Mikoshiba, K. 1991. Striking homology of the 'variable' N-terminal as well as the 'conserved core' domains of the mouse and human TATA-factors (TFIID). *Nucleic Acids Research* **19**, No.14, pp. 3861-3865.
6. **Hoffmann, A.** and Roeder, R.G. 1991. Purification of his-tagged proteins in non-denaturing conditions suggests a convenient method for protein interaction studies. *Nucleic Acids Research* **19**, No.22, pp. 6337-6338.
7. Ohkuma, Y., Sumimoto, H., **Hoffmann, A.**, Shimazaki, S., Horikoshi, M., Roeder, R.G. 1991. Structural motifs and potential homologies in the large subunit of human general transcription factor TFIIE. *Nature* **354**, pp. 398-401.
8. Nikolov, D.B., Hu, S.-H., Lin, J., Gasch, A., **Hoffmann, A.**, Horikoshi, M., Chua, N.-H., Roeder, R.G., Burley, S.K. 1992. Crystal structure of TFIID TATA-box binding protein.

Nature **360**, pp. 40-46.

9. Takada, R., Nakatani, Y., **Hoffmann, A.**, Kokubo, T., Hasegawa, S., Roeder, R.G., Horikoshi, M. 1992. Identification of human TFIID components and direct interaction between a 250-kDa polypeptide and the TATA box-binding protein (TFIIDt). *Proc. Natl. Acad. Sci. USA* **89**, pp. 11809-11813.
10. Chiang, C.-M., Ge, H., Wang, Z., **Hoffmann, A.**, Roeder, R.G. 1993. Unique TATA-binding protein-containing complexes and cofactors involved in transcription by RNA polymerases II and III. *EMBO J.* **12**, pp. 2749-2762.
11. Xie, X.-L., Kokubo, T., Cohen, S., Mirza, U.A., **Hoffmann, A.**, Chait, B.T., Roeder, R.G., Nakatani, Y., Burley, S.K. 1996 Structural similarity between TAFs and the heterotetrameric core of the histone octamer. *Nature* **380**, No.6572, pp. 316-322.
12. **Hoffmann, A.**, Chiang, C.-M., Oelgeschläger, T., Burley, S.K., Nakatani, Y., Roeder, R.G. 1996 A histone octamer-like structure within TFIID. *Nature* **380**, No.6572, pp. 356-359.
13. Nikolov, D.B., Chen, H., Halay, E.D., **Hoffmann, A.**, Roeder, R.G., Burley, S.K. 1996. Crystal structure of a human TATA box-binding protein/TATA element complex. *Proc. Natl. Acad. Sci. USA* **93**, pp. 4862-4867.
14. **Hoffmann, A.** and Roeder, R.G. 1996 Cloning and characterization of human TAF20/15: multiple interactions suggest a central role in TFIID complex formation. *J. Biol. Chem.* **271**, pp. 18194-18202.
15. Segil, N., Guermah, M., **Hoffmann, A.**, Roeder, R.G., Heintz, N. 1996 Mitotic regulation of TFIID: Inhibition of activator-dependent transcription and changes in sub-cellular localization. *Genes & Development* **10**, pp. 2389-2400.
16. Sachdev, S., **Hoffmann, A.**, Hannink, M. 1998 Nuclear localization of I κ B α is mediated by the second ankyrin repeat: The I κ B α ankyrin repeats define a novel class of cis-acting nuclear import sequences. *Mol. Cell. Biol.* **18**, pp. 2524-2534.
17. Lin, K.-I., DiDonato, J.A., **Hoffmann, A.**, Hardwick, J.M., Ratan, R.R. 1998 Suppression of steady-state, but not stimulus-induced NF- κ B activity inhibits alphavirus-induced apoptosis. *J. Cell Biol.* **141**, pp. 1479-1487.
18. Kinoshita, K., Kaneda, Y., Sato, M., Saeki, Y., Wataya-Kaneda, M., **Hoffmann, A.**, Kaneda, Y. 1998 LBP-p40 binds DNA tightly through associations with histones H2A, H2B, and H4. *Biophys. Biochem. Res. Commun.* **253**, pp. 277-282.
19. Sanjabi, S., **Hoffmann, A.**, Liou, H.C., Baltimore, D., Smale, S.T. 2000 Selective requirement for c-Rel during IL-12 P40 gene induction in macrophages. *Proc. Natl. Acad. Sci. USA* **97**, pp. 12705-12710.
20. Georganas, C., Liu, H., Perlman, H., **Hoffmann, A.**, Thimmapaya, B., Pope, R.M. 2000 Regulation of IL-6 and IL-8 expression in rheumatoid arthritis synovial fibroblasts: the dominant role for NF- κ B but not C/EBP or c-Jun. *J. Immunol.* **165**, pp. 7199-7206
21. Weinmann, A.S., Mitchell, D.M., Sanjabi, S., Bradley, M.N., **Hoffmann, A.**, Liou, H.C., Smale, S.T. 2001 Nucleosome remodeling at the IL-12 p40 promoter is a TLR-dependent, Rel-independent event. *Nat. Immunol.* **2**, pp. 51-57.

22. Dragneva, Y., Anuradha, C.D., Valeva, A., **Hoffmann, A.**, Bhakdi, S., Husmann, M. 2001 Subcytotoxic attack by staphylococcal alpha-toxin activates NF- κ B and induces interleukin-8 production. *Infect. Immun.* **69**, pp.2630-2635.
23. Dadgostar, H., Zanegar, B., **Hoffmann, A.**, Qin, X-F., Truong, U., Rao, G., Baltimore, D., Cheng, G. 2002 Cooperation of multiple signaling pathways in CD-40-regulated gene expression in B lymphocytes. *PNAS* **99**, pp.1497-1502.
24. **Hoffmann, A.**, Levchenko, A., Scott, M., Baltimore, D. 2002 The NF- κ B/I κ B signaling module: temporal control and selective gene activation *Science* **298**, pp.1241-1245.
25. Zhao, M., Tang, D., Lechpammer, S., **Hoffmann, A.**, Asea, A., Stevenson, M.A., Calderwood, S.K. 2002 Double stranded RNA-dependent protein kinase (pkr) is essential for thermotolerance, accumulation of HSP70 and stabilization of ARE containing HSP70 mRNA during stress. *J. Biol. Chem.*, **277**, pp. 44539-47.
26. **Hoffmann, A.**, Leung, T.H., Baltimore, D. 2003 Genetic analysis of NF- κ B/Rel transcription factors reveals molecular specificities. *EMBO J.*, vol.22, pp.5530-5539.
27. Kato, T., Delhase, M., Hoffmann, A., Karin, M. 2003 CK2 is a C-terminal I κ B kinase responsible for NF- κ B activation during the UV response. *Mol. Cell*, **12**, pp.829-839.
28. Zanegar, B., He, J., Oganessian, G., **Hoffmann, A.**, Baltimore, D., Cheng, G. Unique CD40-mediated biological program in B cell activation requires both type 1 and type 2 NF- κ B activation pathways *Proc. Natl. Acad. Sci. USA*, **101**: 8108-8113
29. Leung, T.H., **Hoffmann, A.**, Baltimore, D. 2004 One nucleotide in a κ B site can determine cofactor specificity for NF- κ B dimers. *Cell*, **118**: 453-464.
30. Barken, D, Wang, C.J., Kearns, J., Cheong, R., **Hoffmann, A.**, Levchenko, A. 2005 Comment on "Oscillations in NF- κ B Signaling Control of Dynamics of Gene Expression" *Science* **308**: 52a.
31. Shapira, S., Harb, O.S., Margarit, J., Matrajt, M., Han, J., **Hoffmann, A.**, Freedman, B., May, M.J., Roos, D.S., Hunter, C.A. 2005 Initiation and termination of NF- κ B signaling by the intracellular protozoan parasite *Toxoplasma gondii*. *J. Cell Sci.* **118**: 3501-3508.
32. Pei, L., Castrillo, A., Chen, M., **Hoffmann, A.**, Tontonoz, P. 2005 Induction of NR4A orphan nuclear receptor expression in macrophages in response to inflammatory stimuli. *J. Biol. Chem.*, **280**: 29256-62.
33. Ogawa, S., Lozach, J., Benner, C., Pascual, G., Tangirala, R.K., Westin, S., **Hoffmann, A.**, Subramaniam, S., David, M., Rosenfeld, M.G., Glass, C.K. 2005 Molecular determinants of crosstalk between nuclear receptors and Toll-like Receptors. *Cell*, **122**: 707-21.
34. Beisner, D.R., Ch'en, I.L., Kolla, R.V., **Hoffmann, A.**, Hedrick, S.M. 2005 Cutting Edge: Innate immunity conferred by B cells is regulated by caspase-8. *J. Immunol.* **175**: 3469-73.
35. Sanjabi, S., Williams, K.J., Sacconi, S., Zhou, L., **Hoffmann, A.**, Ghosh, G., Gerondakis, S., Natoli, G., Smale, S.T. 2005 A c-Rel subdomain responsible for enhanced DNA binding affinity and selective gene activation. *Genes Dev*, **19**: 2138-51.

36. Werner, S.L., Barken, D., **Hoffmann, A.** 2005 Stimulus specificity of gene expression programs determined by temporal control of IKK activity. *Science*, 309: 1857-61.
37. Park, J.M., Greten, F.L., Wong, A., Westrick, R.J., Arthur, J.S.C., Otsu, K., **Hoffmann, A.**, Montminy, M., Karin, M. 2005 Signaling Pathways and Genes that inhibit pathogen-induced macrophage apoptosis – CREB and NF- κ B as Key Regulators. *Immunity*, 23: 319-29.
38. Gapuzan, M.-E.R., Schmeh, O., Pollock, A.D., **Hoffmann, A.**, Gilmore, T. 2005 Immortalized Fibroblasts from NF- κ B Rel knockout mice show phenotypic heterogeneity and maintain increased sensitivity to tumor necrosis factor- α after transformation by v-Ras. *Oncogene*, 24: 6574-83.
39. Lo, J.C., Basak, S., James, E.S., Quiambao, R., Kinsella, M.C., Alegre, M.-L., Weih, F., Franzoso, G., **Hoffmann, A.**, Fu, Y.-X. 2006 Coordination between NF- κ B family members p50 and p52 is essential for mediating LT β R signals in the development and organization of secondary lymphoid tissues. *Blood*, 107: 1048-55.
40. Cheong, R., Bergmann, A., Werner, S.L. Regal, J., **Hoffmann, A.**, Levchenko, A. 2006 Transient IKB Kinase activity mediates temporal NF- κ B dynamics in response to a wide range of tumor necrosis factor- α doses. *J. Biol. Chem.*, 281: 2945-50.
41. Kearns, J.D., Basak, S., Werner, S.L., Huang, C.S., **Hoffmann, A.** 2006 I κ B ϵ provides negative feedback to control NF- κ B oscillations, signaling dynamics, and inflammatory gene expression. *J. Cell Biol.*, 173: 659-664.
42. Basak, S., Kim, H., Kearns, J.D., Tergaonkar, V., O'Dea, E., Werner, S.L., Benedict, C.A., Ware, C.F., Ghosh, G., Verma, I.M., **Hoffmann, A.** 2007. A fourth I κ B protein within the NF- κ B Signaling Module. *Cell*, 128: 369-381.
43. O'Dea, E.L., Barken, D., Peralta, R.Q., Tran K.T., Werner, S.L., Kearns, J.D., Levchenko, A., **Hoffmann, A.** 2007. A homeostatic model of I κ B metabolism to control constitutive NF- κ B activity. *Molecular Systems Biology*, 3, 111.
44. Mathes, E., O'Dea, E.L., **Hoffmann, A.**, Ghosh, G. 2008. NF- κ B dictates the degradation pathway of I κ B. *EMBO J.* **27**, pp1357-67.
45. Basak, S., Shih, V.F.-S., **Hoffmann, A.** 2008. Generation and activation of multiple dimeric transcription factors within the NF- κ B signaling system. *Molec. Cell. Biol.*, 28, pp.3139-3150.
46. Fusco, A.J., Savinova, O.V., Talwar, R., Kearns, J.D., **Hoffmann, A.**, Ghosh, G. 2008. Stabilization of RelB requires multidomain interactions with p100/p52. *J. Biol. Chem.*, 283, pp.12324-12332.
47. Kato, T. Jr., Gotoh, Y., **Hoffmann, A.**, Ono, Y. 2008. Negative regulation of constitutive NF- κ B and JNK signaling by PKN1-mediated phosphorylation of TRAF1. *Genes to Cells*, 13, pp.509-520.
48. O'Dea, E.L., Kearns, J.D., **Hoffmann, A.** 2008. UV as an amplifier rather than inducer of NF- κ B activity. *Molecular Cell*, 30, pp.632-641.
49. Werner, S.L., Kearns, J.D., Zadorozhnaya, V., Lynch, C., O'Dea, E., Boldin, M.P., Ma,

- A., Baltimore, D., **Hoffmann, A.** 2008. Encoding NF- κ B temporal control in response to TNF: distinct roles for the negative regulators I κ Ba and A20. *Genes Dev.*, 22. pp.2093-2101.
50. Ch'en, I.L., Beisner, D.R., Degterev, A., Lynch, C., Yuan, J., **Hoffmann, A.**, Hedrick, S.M. 2008. Antigen-mediated T cell expansion regulated by parallel pathways of death. *PNAS*, 105, pp.17463-17468.
 51. Savinova, O.V., **Hoffmann, A.**, Ghosh, G. 2009. The Nfkb1 and NF- κ B2 proteins p105 and p100 function as the core of high-molecular weight heterogeneous complexes. *Mol Cell*, 34, pp.591-602.
 52. Shih, V.F.-S., Kearns, J.D., Basak, S., Savinova, O.V., Ghosh, G., **Hoffmann, A.**, 2009, Kinetic control of negative feedback regulators of NF- κ B/RelA determines their pathogen- and cytokine-receptor signaling specificity. *PNAS*, 106, pp.9619-9624.
 53. Ramirez-Carrozzi, V.R., Braas, D., Bhatt, D.M., Cheng, C.S., Hong, C., Doty, K.R., Black, J.C., **Hoffmann, A.**, Carey, M., Smale, S.T. 2009 A Unifying model for the selective regulation of inducible transcription by CpG islands and nucleosome remodeling. *Cell*, 138, pp.114–128. PMID: 19596239 PMCID: PMC2712736
 54. Longo, D.M., **Hoffmann, A.**, Tsimring, L.S., Hasty, J. 2010 Coherent activation of a synthetic mammalian gene network. *Systems and Synthetic Biology*, 4, pp.15-23.
 55. Bergqvist, S., Alverdi, V., Mengel, B., **Hoffmann, A.**, Ghosh, G., Komives, E.A. 2009 Kinetic enhancement of NF- κ B-DNA dissociation by IB. *PNAS*, 106, pp.19328-19333.
 56. Takeda, N., O'Dea, E.L., Doedens, A., Kim, J., Weidemann, A., Stockmann, C., Asagiri, M., Simon, M. C., **Hoffmann, A.**, Johnson, R.S. 2010 Differential activation and antagonistic function of HIF- α isoforms in macrophages are essential for NO homeostasis *Genes Dev*, 24, pp.491-501.
 57. von Vietinghoff, S., Asagiri, M., Azar, D., **Hoffmann, A.**, Ley, K. 2010 Defective regulation of CXCR2 facilitates neutrophil release from bone marrow causing spontaneous inflammation in severely NF- κ B-deficient mice. *J Immunol.* 185, pp.670-8.
 58. Rao, P., Hayden, M.S., Long, M., Scott, M.S., West, A.P., Zhang, D., Oeckinghaus, A., Lynch, C., **Hoffmann, A.**, Baltimore, D., Ghosh, S. 2010. IB acts to both inhibit and activate gene expression during the inflammatory response. *Nature*, 466, pp.1115-9.
 59. Ho, J. Q., Asagiri, M., **Hoffmann, A.**, Ghosh, G. 2011 NF- κ B potentiates caspase independent hydrogen peroxide induced death. *PLoS One*, 6(2):e16815
 60. Cheng, C.S., Feldman, K. E., Lee, J., Verma, S., Huang, D.-B., Huynh, K., Chang, M., Ponomarenko, J. V., Sun, S.-C., Benedict, C.A., Ghosh, G., **Hoffmann, A.** 2011. The specificity of innate immune responses is enforced by repression of interferon-regulatory elements by NFB p50 . *Science Signaling*, 4(161):ra11.
 61. Wuerzberger-Davis, S.M, Chen, Y., Yang, D.T., Kearns, J.D., Bates, P.W., Lynch, C., Ladell, N.C., Yu, M., Podd, A., Zeng, H., Huang, T.T., Wen, R., **Hoffmann, A.**, Wang, D., Miyamoto, S. 2011 Nuclear export of the NF κ B inhibitor I κ B is required for proper B-cell and secondary lymphoid tissue formation. *Immunity*, 34(2):188-200.

62. Escoubet-Lozach, L., Benner, C., Kaikkonen, M.U., Lozach, J., Heinz, S., Spann, N.J., Crotti, A., Stender, J., Ghisletti, S., Reichart, D., Cheng, C.S., Luna, R., Ludka, C., Sasik, R., Garcia-Bassets, I., **Hoffmann, A.**, Subramaniam, S., Hardiman, G., Rosenfeld, M.G., Glass, C.K. 2011 Mechanisms Establishing TLR4-Responsive Activation States of Inflammatory Response Genes. *PLoS Genetics*, 7: e1002401.
63. Murray, S.E., Polesso, F., Rowe, A.M., Basak, S., Koguchi, Y., Gardner Toren, K., **Hoffmann, A.**, Parker, D.C. 2011 NF- κ B-inducing kinase plays an essential T cell-intrinsic role in graft-versus-host disease and lethal autoimmunity in mice. *J. Clin. Invest.*, 121, pp. 4775-4786.
64. Tam, A. B., Mercado, E., **Hoffmann, A.**, Niwa, M. 2012. ER stress activates NFB by integrating functions of basal IKK activity, IRE1 and PERK. *PLOS ONE*, 7(10):e45078. Epub 2012 Oct 26. PMID: 23110043, PMCID: PMC3482226.
65. Loriaux, P.M., **Hoffmann, A.** 2012. A framework for modeling the relationship between cellular steady-state and stimulus-responsiveness. *Methods in Cell Biology*, Methods Cell Biol. 2012;110:81-109
66. Busino, L., Millman, S.E., Scotto, L., Kyratsous, C.A., Basrur, V., O'Connor, O., **Hoffmann, A.**, Elenitoba-Johnson, K.S., Pagano, M. 2012 Fbxw7 α - and GSK3-mediated degradation of p100 is a pro-survival mechanism in multiple myeloma. *Nat Cell Biol.* 14, pp.375-85.
67. Jiao, B., Ma, H., Shokhirev, M. N., Drung, A., Yang, Q., Shin, J., Lu, S., Byron, M., Kalantry, S., Mercurio, A.M., Lawrence, J.B., **Hoffmann, A.**, Bach, I. 2012 Paternal RLIM/Rnf12 is a survival factor for milk-producing alveolar cells, *Cell*, 149, pp.630-641.
68. Schröfelbauer, B., Polley, S., Behar, M., Ghosh, G., **Hoffmann, A.** 2012. NEMO ensures signaling specificity of the pleiotropic IKK β by directing its kinase activity towards I κ B α . *Molecular Cell*, 47, pp.111-21. PMID: 22633953, PMCID: PMC3398199.
69. Wang, V.Y.-F., Huang, W., Asagiri, M., Spann, N., **Hoffmann, A.**, Glass, C., Ghosh, G. 2012. Transcriptional specificity of NF- κ B dimers is coded within the κ B DNA response elements. *Cell Reports*, 2(4):824-39. PMID: 23063365
70. Shih, V.F.-S., Davis-Turak, J., Macal, M., Huang, J., Ponomarenko, J., Kearns, J.D., Yu, T., Fagerlund, R., Asagiri, M., Zuniga, E.I., **Hoffmann, A.** 2012. Control of RelB during dendritic cell activation integrates canonical and non-canonical NF κ B pathways. *Nature Immunology*, 13(12):1162-70. PMID: 230864447, PMCID: PMC3634611.
71. Shokhirev, M.N., **Hoffmann, A.** 2013. FlowMax: a computational tool for maximum likelihood deconvolution of CFSE time courses. *PLOS ONE*, 8, e67620. PMID:2382639, PMC3694893
72. Feldman, K., E., Loriaux, P.M., Saito, M., Tuero, I., Villaverde, H., Siva, T., Gotuzzo, E., Gilman, R.H., Vinetz, J.M., **Hoffmann, A.** 2013 *Ex Vivo* Innate Immune Cytokine Signature of Enhanced Risk of Relapsing Brucellosis. *PLOS Neglected Tropical Diseases*, 7:e2424. PMID: 24040434, PMC3764229
73. Polley, S., Huang, D.-B., Hauenstein, A.V., Fusco, A.J., Zhong, X., Vu, D., Schroefelbauer, B., Kim, Y., **Hoffmann, A.**, Verma, I.M., Ghosh, G., Huxford, T. 2013 A structural basis for I κ B Kinase 2 Activation via oligomerization-dependent trans auto-

phosphorylation. *PLOS Biology*, **11**, e1001581. PMID:23776406. PMC3678999

74. Longo, D., Selimkhanov, J., Kearns, J.D., Hasty, J., **Hoffmann, A.**, Tsimring, L. 2013 Dual delayed feedback provides sensitivity and robustness to the NF κ B signaling module. *PLOS Computational Biology*, **9**, e1003112. PMID: 23825938, PMC3694842
75. Loriaux, P., Tesler, G., **Hoffmann, A.** 2013. Characterizing the Relationship Between Steady State and Response Using Analytical Expressions for the Steady States of Mass Action Models. *PLOS Computational Biology*, Feb;9(2):e1002901. PMID: 23509437, PMC3585464
76. Loriaux, P., **Hoffmann, A.** 2013. A protein turnover signaling motif controls the stimulus-sensitivity of stress response pathways. *PLOS Computational Biology*, Feb;9(2):e1002932. PMID: 23468615, PMC3585401
77. Behar, M., **Hoffmann, A.** 2013. Tunable signal processing through a kinase control cycle: the IKK signaling node. *J. Biophys.* **105**, pp.231-241. PMID:23823243, PMC3699752
78. Mulero, M.C., Ferres-Marco, D., Islam, A., Margalef, P., Pecoraro, M., Toll, A., Drechsel, N., Charneco, C., Davis, S., Bellora, N., Gallardo, F., Lopez-Arribillaga, E., Asensio, E., Rodilla, V., Gonzalez, J., Iglesias, M., Shoh, V., Alba, M., Dr Croce, L., **Hoffmann, A.**, Miyamoto, S., Villa-Feixa, J., Lopez-Bigas, N., Keyes, W.M., Dominguez, M., Bigas, A., Espinosa, L. 2013 Chromatin-bound I κ B α regulates a subset of p53-target genes in differentiation and cancer. *Cancer Cell*, **24**, pp.151-66. PMID: 23850221, PMC3962677
79. Mukherjee, S.P., Behar, M., Birnbaum, H.A, **Hoffmann, A.**, Wright, P.E., Ghosh, G. 2013 Analysis of the RelA:CBP/p300 interaction reveals its involvement in NF κ B-driven transcription. *PLOS Biology*, **11**:e1001647. PMID: 24019758, PMC3760798
80. Behar, M., Barken, D., Werner, S.L., **Hoffmann, A.** 2013 The Dynamics of Signaling as a Pharmacological Target. *Cell*, **155**, pp.448-461. PMID: 24120141, PMC3856316
81. Vogel, C.F.A, Kahn, E.M., Leung, P.S.C., Gershwin, M.E., Chang, W.L.W., Wu, D., Haarmann-Sternmann, T., **Hoffmann, A.**, Denison, M.S. 2014 Crosstalk-between Aryl Hydrocarbon Receptor and the inflammatory responses: a role for NF κ B. *J. Biological Chemistry*, **289**, pp.1866-1875. PMID: 24302727, PMC3894361
82. Alves, B.N., Tsui, R., Almaden, J., Shokhirev, M.N., Davis-Turak, J., Fujimoto, J., Birnbaum, H., Ponomarenko, J., **Hoffmann, A.** 2014 I κ B ϵ is a key regulator of B-cell expansion by providing negative feedback on cRel and RelA in a stimulus-specific manner. *J. Immunol.*, **192**, pp.3121-32. PMID: 24591377, PMC3965642
83. Shinohara, H.* , Behar, M.* , Inoue, K., Hiroshima, M., Yasuda, T., Nagashima, T., Kmura, S., Sanjo, H., Maeda, S., Yumoto, N., Ki, S., Sako, Y., **Hoffmann , A.***, Kurosaki, T.* , Okada-Hatakeyama, M.* 2014 Positive feedback within a kinase signaling complex functions as a switch mechanism for NF- κ B activation. *Science*, **344**, pp.760-764. PMID: 24833394
84. Caldwell, A.B., Cheng, Z., Vargas, J.D., Birnbaum, H.A., **Hoffmann, A.** 2014 Network dynamics determine the autocrine and paracrine signaling functions of TNF, *Genes Dev.*, **28**, pp.2120-33. PMID. 25274725, PMC4180974

85. Selimkhanov, S.*, Taylor, B.*, Yao, J., Pilko, A., Albeck, J., **Hoffmann, A.**, Tsimring, L., Wollman, R. 2014 Accurate information transmission through dynamic biochemical signaling networks. *Science*, **346**, pp.1270-3. PMID: 25504722
86. Almaden, J., Tsui, J., Liu, Y.C., Birnbaum, H., Shokhirev, M.N., Ngo, K.A., Davis-Turak, J., Otero, D., Basak, S., Rickert, R., **Hoffmann, A.**, 2014 A pathway switch directs BAFF signaling to distinct NF κ B transcription factors in maturing and proliferating B cells. *Cell Reports*, **9**, pp.2098-111. PMID: 25497099, PMC4889572
87. Davis-Turak, J., Allison, K., Shokhirev, M.N., Ponomarenko, P., Tsimring, L., Glass, C.K., Johnson, T.L., **Hoffmann, A.** 2015 Considering the kinetics of mRNA synthesis in the analysis of the genome and epigenome reveals determinants of co-transcriptional splicing. *Nucleic Acids Res.*, **43**, pp.699-707. PMID: 25541195
88. Jiang, M., Osterlund, P., Fagerlund, R., Rios, D.N., **Hoffmann, A.**, Poranen, M.M., Bamford, D.H., Julkunen, I. 2015 MAP kinase p38 α regulates type III interferon (IFN- λ) gene expression in human monocyte-derived dendritic cells in response to RNA stimulation. *J. Leukocyte Biol.* **97**, pp.307-320. PMID: 25473098.
89. Shokhirev, M.N., Almaden, J., Davis-Turak, J., Birnbaum, H.A., Russell, T.M., Vargas, J.A., **Hoffmann, A.** 2015 A multi-scale approach reveals that NF κ B cRel enforces a B-cell decision to divide. *Molecular Systems Biology*, **11**, pp.783-96. PMID: 25680807, PMC4358656
90. Lee, D.-J., Du, F., Chen, S.-W., Nakasako, M., Rana, I., Shih, V. F.-S., **Hoffmann, A.**, Jamora, C. 2015. Regulation and Function of the Caspase-1 in an Inflammatory Microenvironment. *J. Investigative Dermatology*, **135**, pp.2012-20. PMID: 25815426
91. Tsui, R., Kearns, J.D., Lynch, C., Vu, D., Ngo, K., Basak, S., Ghosh, G., **Hoffmann, A.** 2015 I κ B β enhances the generation of the low-affinity NF κ B/RelA homodimers. *Nature Communications*, **6**, 7068. PMID: 25946967
92. Ourthiaque, D.N., Birnbaum H., Ortenl f, N., Vargas, J.D., Wollman, R., **Hoffmann, A.** 2015 Limited specificity of IRF3 and ISGF3 in the transcriptional innate –immune response to double –stranded RNA. *Journal of Leukocyte Biology*, **98**, pp.119-28. PMID: 25896227, PMC4467169
93. Cheng, Z., Taylor, B., Ourthiaque, D.N., **Hoffmann, A.** 2015 Distinct Single Cell Signaling Characteristics Conferred by the MyD88 and TRIF Pathways in TLR4 Activation. *Science Signaling*, **8**, ra69. PMID: 26175492
94. Fortmann, K.T., Lewis, R.D., Ngo, K.A., Fagerlund, R., **Hoffmann, A.** 2015 A regulated, ubiquitin-independent degron in I κ B α . *J. Molecular Biology*, **427**, pp.2748-2756. PMID: 26191773, [PMC4685248](#)
95. Fagerlund, R., Behar, M., Fortmann, K., Vargas, J., **Hoffmann, A.** 2015 Anatomy of a negative feedback loop: the case of I κ B α , *Royal Society Interfaces*, **12**, 0262. PMID: 26311312, PMC4614452
96. Suryawanshi G.W., **Hoffmann A.** 2015. A multi-scale mathematical modeling framework to investigate anti-viral therapeutic opportunities in targeting HIV-1 accessory proteins. *J Theor Biol.* **386**, pp.89-104. PMID: 26385832, PMC4685255

97. Almaden J.V., Liu Y.C., Yang E., Otero D., Birnbaum H., Davis-Turak J., Asagiri M., David M., Goldrath A.W., **Hoffmann A.** 2016 B cell survival and development controlled by the coordination of NF κ B family members RelB and cRel. *Blood*, 127, pp.1276-86. PMID: 26773039, PMC4786837
98. Cheng, Z., **Hoffmann, A.** 2016 A stochastic spatio-temporal (SS) model to study cell-to-cell variability in HIV-1 infection, *J Theore Biol*, 395, pp. 87-96. PMID: 26860658
99. Junkin M., Kaestli A.J., Cheng Z., Jordi C., Albayrak C., **Hoffmann A.**, Tay S. 2016 High Content Quantification of Single-Cell Immune Dynamics. *Cell Rep.* 15, pp. 411-22. PMID: 27050527, PMC4835544
100. Xu, J., Zhou, L., Ji, L., Chen, F., Fortmann, K., Zhang, K., Liu, Q., Li, K., Wang, W., Wang, H., Xie, W., Wang, Q., Liu, J., Zheng, B., Zhang, P., Huang, S., Shi, T., Zhang, B., Dang, Y., Chen, J., O'Malley, B.W., Moses, R.E., Wang, P., Li, L., Xiao, J., **Hoffmann, A.***, Li, X.* 2016 The Reg-gamma-proteasome forms a regulatory circuit with I κ B ϵ and NF κ B in experimental colitis. *Nature Commun.* 7, 10761 PMID: 268993980.
101. Liu, W.H., Kang, S.G., Huang, Z., Wu, C.J., Jin, H.Y., Maine, C.J., Liu, Y., Shepherd, J., Sabouri-Ghomi, M., Gonzalez-Martin, A., Xu, S., **Hoffmann, A.**, Zheng, Y., Lu, L.F., Xiao, N., Fu., G., Xiao, C. 2016 A miR-155-Peli1-cRel pathway controls the generation and function of T follicular helper cells. *J. Ex. Med.* 213, pp.1901-19. PMID: 27481129
102. Inoue, K., Shinohara, H., Behar, M., Yumoto, N., Tanaka, G., **Hoffmann, A.**, Aihara, K., Okada-Hatakeyama, M. 2016 Oscillation dynamics underlie functional switching of NF κ B for B-cell activation. *Systems Biology and Applications*, 2, 16024. PMID: 28725478, PMC5516862
103. Sosa, R., Zarrinpar, A., Rossetti, M., Lassman, C., Naini, B., Datta, N., Rao, P., Harre, N., Zheng, Y., Spreafico, R., **Hoffmann, A.**, Busuttill, R., Gjertson, D., Zhai, Y., Kupiec-Weglinski, J.W., Reed., E. 2016 Early Cytokine Signatures of Ischemia Reperfusion Injury in Human Orthotopic Liver Transplantation. *Journal of Clinical Immunology Insight*, 1(20):e89679. PMID: 27942590, PMC5135282.
104. Dembinski, H.E., Wismer, K., Vargas, J.D., Suryawanshi, G.W., Kern, N., Koon, G.J.A., Dyson, H.J., **Hoffmann, A.**, Komives, E.A. 2017 Functional importance of stripping in NF κ B signaling revealed by a stripping-impaired mutant. *Proc. Natl. Acad. Sci. USA*, 114 (8), 1916-1921
105. Cheng, C.S., Behar, M.S., Suryawanshi, G.W., Feldman K.E., Spreafico, R., **Hoffmann, A.** 2017 Iterative modeling reveals sequential transcriptional control mechanisms, *Cell Systems*, 4 (3), 330-343. PMID: 28237795, PMCID: PMC5434763
106. Mognol, G.P., Spreafico, R., Wong, V., Scott-Browne, J., Togher, S., **Hoffmann, A.**, Hogan, P., Rao, A., Trifari S. 2017 Exhaustion-associated regulatory regions in CD8⁺ tumor-infiltrating T cells. *Proc. Natl. Acad. Sci. USA*, 114 (13), E2776-E2785
107. Roy, K., Shokhirev, M.N., Mitchell, S., **Hoffmann, A.** 2018 Deriving Quantitative Cell Biological Information from Dye-Dilution Lymphocyte Proliferation Experiments. *Methods Mol Biol.* 1707:81-94. PMID: 29388101, PMC8363314
108. Mitchell, S., Roy, K., Zangle, T.A., **Hoffmann, A.** 2018 Nongenetic origins of cell-to-cell variability in B lymphocyte proliferation. *Proc. Natl. Acad. Sci. USA*, 115(12): E2888-

E2897. PMID: 29514960, PMC5866559

109. Davis-Turak, J., Johnson, T.L., **Hoffmann, A.** 2018 Mathematical modeling identifies potential gene structure determinants of co-transcriptional control of alternative pre-mRNA splicing. *Nucleic Acids Res.* PMID:30272246
110. Yeom, K.-H., Mitchell, S., Anthony J Linares, A.J., Zheng, S., Lin, C.-H., Wang, Xi.-J., **Hoffmann, A.**, Black, D.L. 2018 Polypyrimidine Tract Binding Protein blocks microRNA-124 biogenesis to enforce its neuronal specific expression in mouse. *Proc. Natl. Acad. Sci. USA*, 115(47):E11061-E11070, PMID: 30401736, PMC6255174
111. Cheng, Q., Behzadi, F., Sen, S., Ohta, S., Spreafico, R., Teles, R., Modlin, R., **Hoffmann, A.** 2019 Sequential conditioning-stimulation reveals distinct gene- and stimulus-specific effects of type I and II IFN on human macrophage functions. *Scientific Reports*, 8, pp.5288, PMID: 30918279, PMC6437173
112. Roy, K., Mitchell, S., Liu, Y., Ohta, S., Lin, Y.-S., Oliver Metzger, M., Nutt, S.L., **Hoffmann, A.** 2019 A regulatory circuit controlling the Dynamics of NF κ B cRel transitions B-cells from proliferation to plasma cell differentiation, *Immunity*, 50, pp. 616–628, PMID: 30850343, PMC6955201
113. Mitchell, S., **Hoffmann, A.** 2019 Substrate complex competition is a regulatory motif that allows NF κ B RelA to license but not amplify NF κ B RelB, *Proc. Natl. Acad. Sci. USA*, 116(21):10592-10597, PMID: 31048505, PMC6535030.
114. Mikkaichi, T., Yeaman, M.R., **Hoffmann, A.** and the MRSA Consortium 2019 Identifying determinants of persistent MRSA bacteremia using mathematical modeling. *PLoS Computational Biology*, 15, e1007087. PMID: 31295255, PMC6622483.
115. Mitchell, S., Mercado, E.L., Adelaja A., Ho, J., Cheng, Q.J., Ghosh, G., **Hoffmann, A.** 2019 An NF κ B activity calculator to delineate signaling crosstalk: Type I and II interferons enhance NF κ B via distinct mechanisms. *Frontiers in Immunology*, 10, pp.1425. PMID: 31293585, PMC6604663.
116. Ngo, K.A., Kishimoto, K., Davis-Turak, J., Pimplaskar, A., Cheng, Z., Spreafico, R., Chen, E.Y.H., Tam, A., Ghosh, G, Mitchell, S., **Hoffmann, A.** 2020 Dissecting the regulatory strategies of NF κ B RelA target genes in the inflammatory response reveals differential transactivation logics. *Cell Reports*, 30, pp.2758-2775. PMID:32101750, PMC7061728
117. Sen S., Cheng, Z., Sheu, K., Chen, E.Y.H., **Hoffmann, A.** 2020 Gene Regulatory Strategies that Decode the Duration of NF κ B Dynamics Contribute to LPS- versus TNF-Specific Gene Expression. *Cell Systems*, 10, pp.169-182. PMID:31972132, PMC7047529
118. Lisiero, D.N., Cheng, Z., Tejera, M.B., Neldner, B.T., Warrick, J.W., Wuerzberger-Davis, S.M., **Hoffmann, A.**, Suresh, M., Miyamoto, S. 2020 I κ B α Nuclear Export Enables 4-1BB–Induced cRel Activation and IL-2 Production to Promote CD8 T Cell Immunity. *J. Immunology*, 205, pp.1540-1553. PMID: 32817348, PMC7484350
119. Oliver Metzger, M., Tang, Y., Mitchell, S., Taylor, B., Foreman, R., Wollman, R., **Hoffmann, A.** 2020, An incoherent feedforward loop interprets NF κ B/RelA dynamics to determine TNF-induced necroptosis decisions. *Molecular Systems Biology* 16, e9677. PMID: 33314666, PMC7734648

120. Son, M., Wang, A.G., Oliver Metzger, M., Patel, P., Husain, K., Lin, J., Murugan, A., **Hoffmann, A.**, Tay, S. 2021. NFκB responds to absolute differences in cytokine concentrations. *Science Signaling*, 14 (666):eaaz4382. PMID: 34211635, PMC8244746
121. Tang, Y., Adelaja, A., Ye, X, Deeds, E., Wollman, R., **Hoffmann, A.** 2021. Quantifying information accumulation encoded in the dynamics of biochemical signaling. *Nature Communications* 12, pp.1272. PMID: 33627672, PMC7904837
122. Chang, Y.L., Rossetti, M., Gjertson, D.W., Rubbi, L., Thompson, M., Montoya, D.J., Morselli, M., Ruffin, F., **Hoffmann, A.**, Pellegrini, M., Fowler, V.G., Yeaman, M.R., Reed, E.R. 2021. Human DNA methylation signatures differentiate persistent from resolving MRSA bacteremia. *Proc. Natl. Acad. Sci. USA*, 118 (10):e2000663118, pp. PMID: 33649198, PMC7958259
123. Kishimoto, K., Wilder, C., Buchanan, J., Nguyen, M., Okeke, C., **Hoffmann, A.**, Cheng, Q.J. 2021. High dose IFN- γ activates GAF to enhance expression of ISGF3 target genes in MLE12 epithelial cells. *Frontiers in Immunology*, 12:651254. PMID: 33897699. PMC8062733
124. Adelaja, A., Taylor, B., Sheu, K.M., Liu, Y., Luecke, S., **Hoffmann, A.** 2021 Six distinct NFκB signaling codons convey discrete information to distinguish stimuli and enable appropriate macrophage responses. *Immunity*, 54, pp.916-930.e7. PMID: 33979588, PMC8184127
125. Kim, Y.J., Sheu, K.M., Tsoi, J., Abril-Rodriguez, G., Grasso, C., **Hoffmann, A.**, Ribas, A. 2021. Interferon-gamma-induced melanoma plasticity and response to PD-1 blockade therapy. *J Clinical Investigation* 131(12):e145859, PMID: 33914706, PMC8203459
126. Cheng, Q.J., Ohta, S., Sheu, K.M., Spreafico, R., Adelaja, A., Taylor, B., **Hoffmann, A.** 2021 NFκB dynamics determine the stimulus-specificity of epigenomic reprogramming in macrophages. *Science*, 372, pp.1349-1353; PMID: 34140389, PMC8489855.
127. Wang, N., Lefaudeux, D., Mazumber, A., Li, J., **Hoffmann, A.** 2021 Identifying the combinatorial control of signal-dependent transcription factors. *PloS Computational Biology*, 17(6): e1009095. PMID: 34166361, PMC8263068
128. Pickering, H., Sen, S., Arakawa-Hoyt, J, Ishiyama, K., Sun Y., Parma, R., Anh, R.A., Sunga, G., Llamas, M., **Hoffmann, A.**, Deng, M., Bunnapradist, S., Schaeenman, J.M., Gjertson, D.W., Rosetti, M., Lainer, L.L., Reed, E.F., CMV Systems Immunobiology Group. 2021 NK and CD8⁺ T cell phenotypes predict onset and control of CMV viremia after kidney transplant. *JCI Insight*. 2021 6(21): e153175. PMID: 34609965, PMC8663544
129. Ahn, R.A., Schaeenman, J., Qian, Z., Pickering, H., Groysberg, V., Rossetti, M, Llamas, M., **Hoffmann, A.**, Gjertson, D., Deng, M., Bunnapradist, S., Reed, E.F., CMV Systems Immunobiology Group. 2021 Acute and chronic changes in gene expression after CMV DNAemia in kidney transplant recipients. *Front Immunol* 12, e750659, PMID: 34867983, PMC8634678
130. Ando, M., Magi, S., Seki, M., Suzuki, Y., Kasukawa, T, Lefaudeux, D., **Hoffmann, A.***, Okada, M.* 2021 IκBα is required for full transcriptional induction of some NFκB regulated genes in response to TNF in MCF-7 cells. *NPJ Systems Biology and Applications*, 7, 42, pp.1-15, PMID: 34853340, PMC8636565

131. Wang, Y., Guo, L., Yin, X., McCarthy, E.C., Cheng, M.I., Hoang, A.T., Chen, H.-C., Patel, A.Y., Allard Trout, D., Xu, E., Yakobian, N, Hugo, W., Howard Jr, J.F., Sheu, K.M., **Hoffmann, A.**, Lechner, M.G., Su, M.A. 2022 *Proc. Natl. Acad. Sci. USA* 119, e2114406119, PMID: 35058362, PMC8795502
132. Kim, J.*, Sheu, K.M.*, Cheng, Q.J., **Hoffmann, A.***, Enciso G.* 2022 Stochastic models of nucleosome dynamics reveal regulatory rules of stimulus-induced epigenome remodeling. *Cell Reports*, 40, 111076, PMID: 35830792, PMC10074953
133. Lefaudeux, D., Singh, S., Jiang, K., **Hoffmann, A.**, and the UCLA Ribonomics Group. 2022, Kinetics of mRNA nuclear export regulate innate immune response gene expression. *Nature Communications*, 13, pp.7197, PMID: 36424375, PMC9691726
134. Sheu, K.M., Guru, A., **Hoffmann, A.** 2023 Quantifying Stimulus-Response Specificity reveals the functional health of macrophages. *Cell Systems*, 14, pp.180-195, PMID: 36657439, PMC10023480
135. Ildelfonso, G.V., Oliver-Metzig, M., **Hoffmann, A.**, Harris, L.A.* , Lopez, C.F.* 2023 A biochemical necroptosis model explain cell type-specific responses and variability to cell death cues. *Biophys J.*, 122 (5), pp.817-834. PMID: 36710493; PMID: 36929731, PMC10027451.
136. Sharfe, N., Dalai, I., Naghdi, Z., Lefaudeux, D., Vong, L., Dadi, H., Navarro, H., Tasher, D., Ovadia, A., Zangen, T., Ater, D., Ngan, B., **Hoffmann, A.**, Roifman, C.M. 2023 NFκB pathway dysregulation due to reduced RelB expression leads to severe autoimmune disorders and declining immunity. *J. Autoimmunity*, 137, pp.102946; PMID: 36402602
137. Wilder, C.L., Lefaudeux, D., Mathenge, R., Kishimoto, K., Munoz, A.Z., Meyer, A.S., Cheng, Q.C., **Hoffmann, A.** 2023 A stimulus-contingent positive feedback loop enables IFNβ-dose-dependent activation of pro-inflammatory genes. *Molecular Systems Biology*, e11294. PMID: 36929731, PMC10167482
138. Luecke, S., Adelaja, A., Guo, X., Sen, S., Spreafico, R., Singh, A., Liu, Y., Taylor, B., Diaz, J., Cheng, Q., **Hoffmann, A.** 2023 Tonic TNF conditioning of macrophages safeguards stimulus-stimulus inflammatory responses. *EMBO Reports*, e55986. PMID: 37212045, PMC10328066
139. Navarro, H.I., Liu, Y., Fraser, A., Lefaudeux, D., Chia J.C., Vong, L., Roifman, C.M., **Hoffmann, A.** 2023 NFκB RelB-loss results in pronounced interferon-stimulated gene expression, but genetic ablation of IFN-signaling in mice does not improve auto-inflammatory pathology. *J. Allergy and Clinical Immunology*, 152(5), pp.1261. PMID: 37460023, PMC10858800
140. Thaden, J.T., Rahn, R., Ruffin, F., Gjertson, D.W., **Hoffmann, A.**, Fowler, V.G., Yeaman, M.R., MRSA Systems Immunology Group, 2024 Use of Transcriptional signatures to differentiate pathogen- and treatment-specific host responses in patients with bacterial bloodstream infections. *Journal of Infectious Diseases*, 229 (5), pp.1535, PMID: 38001039, PMC11095544
141. Sosa R.A., Ahn, R., Li, F., Terry, A.Q., Qian, Z., Sen, S., Naini, B.V., Ito, T., Kaldas, F.M., **Hoffmann, A.**, Busuttil, R.W., Kupiec-Weglinski, J.W., Gjertson, D.W., Reed, E.F. 2024 Myeloid spatial and transcriptional molecular signature of ischemia-reperfusion injury in human liver transplantation. *Hepatology Communications* 8, e0330 PMID:

38206205, PMC10786592

142. Cheng, C.-T., Hsiao, J.-C., **Hoffmann, A.**, Tu, H.-L. 2024 TNFR1 mediates heterogeneity in single-cell NF κ B activation. *iScience*, 27(4): 109486. PMID: 38551009, PMC10973173
143. Rahman, S.M.T., Singh, A., Lowe, S., Aqdas, M., Joang, K., Vaidehi Narayanan, H., **Hoffmann, A.**, Sung, M.-H. 2024 Co-imaging of RelA and cRel reveals features of NF κ B signaling for ligand discrimination. *Cell Reports* 43, pp.113940. PMID: 38483906, PMC11015162
144. Chin J.L. Taz, Z.C. Chan, L.C., Ruffin, F., Parmar, R., Ahn, R., Taylor, S.D., Bayer, A.S. **Hoffmann, A.**, Fowler V.G. Jr, Reed, E.F., Yeaman, M.R., Meyer, A.S., with the MRSA Systems Immunobiology Group. 2024 Tensor modeling of MRSA bacteremia cytokine and transcriptional patterns reveals coordinated, outcome-associated immunological programs. *PNAS Nexus* PMID: 38779114, PMC11109816
145. Singh, A., Sen, S., Iter, M., Adelaja, A., Luecke, S., Guo, X., **Hoffmann, A.** 2024 Stimulus-response signaling dynamics characterize macrophage polarization states. *Cell Systems*. 15, pp.563-577. PMID: 38843840, PMC11226196
146. Parma R., Pickering H., Ahn, R., Rossetti, M., Gjertson, D.W., Ruffin, F., Chan, L.C., Fowler, V.G. Jr, Yeaman, M.R., Reed, E.F., MRSA Systems Immunology Group 2024 Integrated transcriptomic analysis reveals immune signatures distinguishing persistent versus resolving outcomes in MRSA bacteremia. *Front Immunol* 15:1373553. PMID: 38846955, PMC11153731
147. Luecke, S., Guo, X., Sheu, K., Singh, A., Lowe, S.C., Han, M., Diaz, J., Lopes, F., Wollman, R., **Hoffmann, A.** 2024 Dynamical and combinatorial coding by MAPK p38 and NF κ B in the inflammatory response of macrophages. *Molecular Systems Biology*, 9, pp.898-932. PMID: 38872050, PMC11297158
148. Vaidehi Narayanan, H., Xiang, M.Y., Chen, Y., Huang, H., Roy, S., Makkar, H., **Hoffmann, A.***, Roy, K.* 2024 Direct observation correlates NF κ B cRel in B-cells with activating and terminating their proliferative program. *Proc Natl Acad Sci, USA* 121:e2309686121, PMID: 39024115, PMC11287273
149. Zhang, J., Griffin, J., Roy, K., **Hoffmann, A.**, Zangle, T.A. 2024 Tracking of lineage mass via quantitative phase imaging and confinement in low refractive index microwells. *Lab Chip* 24, pp.4440-4449. PMID: 39190401, PMC11412070
150. Sheu, K.M., Pimplaskar, A., **Hoffmann, A.** 2024 Single-cell gene expression trajectories reveal the stimulus-specificities of dynamic responses by single macrophages. *Molecular Cell*, 12, pp.4095-4110. PMID: 39413794, PMC11560543
151. Chavez, C., Lin, K., Malveau, A., Gorin, A., Brizuela, S., Cheng, Q.J., **Hoffmann, A.** 2025 IRF1 cooperates with ISGF3 or GAF to form innate immune *de novo* enhancers. *Science Signaling*, 18, eado8860. PMID: 39772531
152. Navarro, H.I., Daly, Allison, E., Rodriguez, B., Wu, S., Ngo, K.A., Fraser, A., Schiffman, A., Liu, Y., Smale, S.T., Chia, J.J., **Hoffmann A.** 2025 NF- κ B RelB suppresses the inflammatory gene expression programs of dendritic cells by competing with RelA for binding to target gene promoters. *Cell Discovery*, 11, pp.13, PMID: 39929805, PMC11811218

153. Singh, A., Chia, J.J., Rao, D.S., **Hoffmann, A.** 2025 Population dynamics modeling reveals that myeloid bias involves both HSC differentiation and progenitor proliferation biases. *Blood*, in press
154. Wang, A., Son, M., Gorin, A., Kenna, E., Padhi, A., Keisham, B., Schauer, A., **Hoffmann, A.**, Tay, S. 2025 Macrophage memory emerges from coordinated transcription factor and chromatin dynamics. *Cell Systems*, in press
155. Guo, X, Adelaja, A, Apeksha, A., Wollman, R., **Hoffmann, A.** 2025 Modeling the heterogenous signaling dynamics of single-cell macrophages reveals principles of information transmission in stimulus responses. *Nature Communications*, in press

EDUCATION PAPERS

1. Erickson, O.A., **Hoffmann, A.**, Dolan, E.L. 2022 “How do we do this at a distance?!” A descriptive study of remote undergraduate research programs during COVID-19. *CBE Life Science Education* 21, ar1. PMID: 34978923, PMC9250374
2. Collier, H.A., Beggs, S., Andrews, S., Maloy, J., Chiu, A., Sankararaman, S., Pellegrini, M, Freimer, N., Johnson, T.J., Papp, J., Eskin, E., **Hoffmann, A.** 2022 Bruins-in-Genomics: Evaluation of the Impact of a UCLA Undergraduate Summer Program in Computational Biology on Participating Students. *PLoS ONE* 17(5): e0268861. PMID: 35622842, PMC9140266
3. Hess, R.A., **Hoffmann, A.**, Dolan, E.L. 2023. Virtually the same? Evaluating the effectiveness of remote undergraduate research experiences. *CBE – Life Sciences Education*, 22, ar25, PMID: 37058442, PMC10228262
4. Luecke, S., Schiffman, A., Singh, A., Huang, H., Shannon, B., Wilder, C.L. 2023. Four guiding principles for effective trainee-led STEM community engagement through high school outreach. *PLoS Comput Biol* 19(5): e1011072.

REVIEWS

1. **Hoffmann, A.**, Oelgeschläger, T., Roeder, R.G. 1997. Considerations of transcriptional control mechanisms: Do TFIID-core promoter complexes recapitulate nucleosome-like functions? *Proc. Natl. Acad. Sci. USA* **94**, pp. 8928-8935.
2. **Hoffmann, A.**, Baltimore, D. 2006. Circuitry of Nuclear Factor- κ B Signaling. *Immunological Reviews*, 210: 171-186.
3. **Hoffmann, A.**, Natoli, G., Ghosh, G. 2006. Transcriptional Regulation via the NF- κ B Signaling Module. *Oncogene Reviews*, 25: 6706-6716.
4. Basak, S., **Hoffmann, A.** 2008. Crosstalk via the NF- κ B Signaling System. *Cytokine and Growth Factor Reviews*, 19 pp.187-197.
5. **Hoffmann, A.**, Xia, Y., Verma, I.M. 2007. Inflammatory Tales of Liver Cancer. *Cancer Cell*, 11: 99-101.

6. Cheng, C.S., Johnson, T.J., **Hoffmann, A.** 2008. Epigenetic control: slow and global, nimble and local. *Genes Dev.*, 22, pp.1110-1114.
7. Cheong, R., **Hoffmann, A.**, Levchenko, A. 2008. Understanding NF- κ B Signaling via Mathematical Modeling. *Molecular Systems Biology*, 4:192, pp.1-11.
8. Ch'en, I.L., Hedrick, S.M., **Hoffmann, A.** 2008. NF- κ B as a determinant of distinct cell death pathways. *Methods in Enzymology*, 446, pp.175-187.
9. Loriaux, P., **Hoffmann, A.** 2009. Of Elections and Cell Death Decisions. *Molec Cell*, 257, pp.257-8.
10. Kearns, J.D., **Hoffmann, A.** 2009. Integrating computational and biochemical studies to explore mechanisms in NF- κ B signaling. *J. Biological Chemistry*, 284, pp.5439-43.
11. O'Dea, E., **Hoffmann, A.** 2009. NF- κ B Signaling. *WIREs Interdisciplinary Reviews in Systems Biology and Medicine*, 1, pp.107-115.
12. O'Dea, E., **Hoffmann, A.** 2010. The Regulatory Logic of the NF κ B Signaling System. In "NF κ B", Cold Spring Harb Perspect Biol., 2, pp.a000216.
13. Behar, M., **Hoffmann, A.** 2010 Understanding the Temporal Codes of Intra-Cellular Signals. *Current Opinion in Genetics and Development*, 20, pp.684-693.
14. Huxford, T., **Hoffmann, A.**, Ghosh, G. 2011. Understanding the Logic of I κ B:NF- κ B Regulation in Structural Terms. *Current Topics in Microbiology and Immunology*, 349, pp.1-24
15. Shih, V. F.-S., Tsui, R., Caldwell, A., **Hoffmann, A.** 2011. A single NF κ B system for both canonical and non-canonical signaling. *Cell Research*, 21, pp.86-102.
16. Schröfelbauer, B., **Hoffmann, A.** 2011. How do pleiotropic kinase hubs mediate specific signaling by TNFR superfamily members? *Immunological Reviews*, 244, pp.29-43.
17. Basak, S., Behar, M., **Hoffmann, A.** 2012. Lessons from mathematically modeling the NF κ B pathway. *Immunological Reviews*, 246, pp.221-38. PMID: 22435558 PMCID: PMC3343698
18. Mitchell, S., Tsui, R., **Hoffmann, A.** 2015. Studying NF κ B Signaling with mathematical models. *Methods in Molecular Biology*, **1280**, pp.647-661. PMID: 25736777
19. Mitchell, S., Vargas, J.A.D., **Hoffmann, A.** 2016. NF κ B Signaling, *WIREs Interdisciplinary Reviews in Systems Biology and Medicine*, **8**, pp.227-41. PMID: 26990581, PMCID: PMC3363188
20. **Hoffmann, A.** 2016. Immune Response Signaling: Combinatorial and Dynamic Control. *Trends Immunol.* **37**, pp.570-2. PMID: 27461000, PMCID: PMC5003693
21. Mitchell, S., **Hoffmann, A.** 2018. Identifying Noise Sources governing cell-to-cell variability. *Current Opinion in Systems Biology*, **8**, pp.39-45. PMID: 29623300, PMCID: PMC5879788
22. Adelaja, A., **Hoffmann, A.** 2019. Signaling crosstalk that fine-tunes pathogen-responsive

- NF κ B. *Frontiers in Immunology*, 10, pp.433. PMID: 31312197, PMC6614373.
23. Sheu, K., Luecke, S., **Hoffmann, A.** 2019. Stimulus-specific gene expression of immune sentinel cells, *Current Opinion in Systems Biology*, **18**, pp.53-61. PMID: 32864512, PMC7450653
 24. Luecke, S., Sheu, K., **Hoffmann, A.** 2021. Stimulus-specific responses in innate immunity: multi-layered regulatory circuits, *Immunity*, **54**, pp.1915-1932. PMID: 34525335, PMC8452151.
 25. Oliver Metzger, M., **Hoffmann, A.** 2022. Controlling cancer cell death types to optimize anti-tumor immunity. *Biomedicines* **10**, pp.974. PubMed PMID: 35625711, PMC9138898
 26. Sheu, K., **Hoffmann, A.** 2022. Functional Hallmarks of healthy Macrophage Responses, *Annual Review in Immunology*, **40**:1, pp.295-321, PMID: 35471841, PMC10074967
 27. Vaihedi Narayanan, H., **Hoffmann, A.** 2022. From antibody repertoires to cell-cell interactions to molecular networks: bridging scales in the germinal center. *Frontiers in Immunology* **13**:898078. PMID: 35603162, PMC9114758
 28. Tang, Y., **Hoffmann, A.** 2022. Quantifying information of intracellular signaling: recent progress with machine-learning approaches. *Reports on Progress in Physics*, 85, 086602. PMID: 35724636, PMC9507437
 29. Mitchell, S., Tsui, R., Tan, Z.C., Pack, A., **Hoffmann, A.** 2023. The NF κ B multi-dimer system model: a knowledge base to explore diverse biological contexts. *Science Signaling*, 16, eabo2838. PMID: 36917644, PMC10195159
 30. **Hoffmann, A.** 2023. Designer Genes courtesy of Artificial Intelligence. *Genes and Development*, 37: 351-353. PMID: 37253615, PMC10270197
 31. Rodriguez, B.N., Huang, H., Chia, J.J., **Hoffmann, A.** 2024. The noncanonical NF κ B pathway: Regulatory mechanisms in health and disease. 2024 WIREs Mech Dis. e1646, PMID: 38634218

EDITORIALS

1. Hasty, J., **Hoffmann, A.**, Golden, S. 2010. Systems Biology of cellular rhythms: from cacophony to symphony. *Current Opinion in Genetics and Development*, 20, pp.571-3.
2. Spreafico, R., Mitchell, S., **Hoffmann, A.** 2015. Training the 21st Century Immunologist. *Trends in Immunology*, 1280, pp.647-61. PMID: 25736777.
3. Andrews, B.J. et al The Human Atlas Consortium 2016. Quantitative Human Cell Encyclopedia. *Science Signaling*, 9, 443
4. Mangul, S., Martin, L., **Hoffmann, A.**, Pellegrini, M., Eskin, E. 2017. Addressing the digital divide in contemporary biology: Lessons from teaching UNIX *Trends Biotechnol.* S0167-7799. PMID: 28720283
5. Krummel, M., ... **Hoffmann, A.**,2019. Universal Principled Review: A community-driven method to improve peer review. *Cell* 179, pp.1441-5.

OTHER WORK

1. **Hoffmann, A.** 1994. A molecular characterization of the general transcription factor IID. Ph.D. Thesis, The Rockefeller University.
2. Marshall, C.P., **Hoffmann, A.**, Errico, J.P., Marshall, P.B. Stabilized Proteins. awarded May 2, 2006. Patent number 7037894
3. Sheu, K.M. and **Hoffmann, A.** Quantifying the response specificity of mononuclear cells and therapeutic uses thereof. December 21, 2023, Patent number 20230408493.

INVITED PAPERS & PRESENTATIONS

SEMINAR PRESENTATIONS AT CONFERENCES (since July 1, 2003)

- FASEB Immunology Meeting: July 2, 2003
- La Jolla Immunology Meeting, Oct 10, 2003
- Keystone Meeting: NF- κ B from Bench to Bedside, Jan 14, 2004
- Cold Spring Harbor Meeting: Systems Biology, Apr 7, 2004
- 6th EMBL Meeting: Transcription Meeting, Aug 31, 2004
- Institute for Complex Adaptive Matter, ICAM, Kinase Workshop, July 12, 2005
- Annual Colloquium on the Biology of Aging, Aug 18-20, 2005
- Keystone Meeting: NF- κ B: 20 Years, Mar 26, 2006
- CTBP Workshop: Gene Regulatory Systems, UCSD, July 20, 2006
- IGERT Plant Systems Biology Workshop, UCSD, Nov 3, 2006
- 10th International Transcription Assembly Meeting, Kolkata, Dec 15, 2006
- 11th TNF Superfamily Conference, Asilomar, May 14, 2007
- FASEB Meeting on Immunology, July 10-12, 2007
- 4th q-bio Conference on Cellular Information Processing, Aug 3-7, 2007
- FOSBE (Foundations of Systems Biology in Engineering), Stuttgart Sept 9, 2007
- Biophysics Society Annual Meeting, Long Beach, CA, Feb 2, 2008
- Keystone Meeting: NFB, Feb 14, 2008
- Symposium for David Baltimore's 70th birthday, March 1, 2008
- American Society for Biochemistry and Molecular Biology, San Diego, CA, April 9, 2008
- European Science Foundation, Systems Biology Meeting, Barcelona, April 14, 2008
- Cold Spring Harbor Meeting on Immunology and Gene Expression, April 25, 2008
- 20th Symp, Inflammatory and Immune Responses, Penn State University, June 19, 2008
- International Conference of Biomedical Engineering, Singapore, Dec 5, 2008
- Mathematical Modeling of Regulatory Biology, Rice University, Houston, CA, Dec 7, 2008
- BIOINF Expo, UCSD, Feb 27, 2009
- Systems to Synthesis Symposium, Salk Institute, April 10, 2009
- 12th TNF Superfamily Conference (session chair), Madrid, April 27, 2009
- Systems Biology and Steroid Receptors in Human Disease Workshop, NCI, Sept 22, 2009
- NCI-Japan Cancer Systems Biology Workshop, Riken-Yokohama, Japan, Oct 28, 2009
- Boston area Immunology Workshop, Nov 13, 2009
- Keystone Meeting: NFB, Jan 6, 2010

- 2nd Systems Biology of Human Disease Meeting, Harvard, June 16, 2010
- Ellison Meeting on Aging, Woods Hole, Aug 13, 2010
- Sanford-Burnham Systems Biology Meeting, Sept 29, 2010
- SoCal Systems Biology Meeting, UCI, Jan 30, 2010
- NFB Meeting, Cincinnati, May 2, 2011
- Sanford-Burnham Systems Biology Meeting, June 6, 2011
- Annual Meeting, Center for Cell Decision Processes, June 21, 2011
- 7th qBio Meeting, Santa Fe, Aug 13, 2011
- Chromatin Regulation Workshop, Spetses, Sept 20, 2011
- Leukocyte Society Annual Meeting, Kansas City, Sept 23, 2011
- Annual Meeting, NY Systems Biology Center, Nov 12, 2011
- Keystone Meeting; NF κ B, Mar 19, 2012
- Cold Spring Harbor: Systems Biology of Gene Expression, Mar 23, 2012
- 4th Systems Biology of Human Disease Meeting, Heidelberg, May 4, 2012
- Systems Biology and Medicine, Keynote speaker, St Petersburg, Sept 14, 2012
- EMBL Graduate Program Symposium, Heidelberg, Oct 23, 2012
- Harvard Digestive Diseases Center Symposium, Keynote speaker, April 2, 2013
- Gordon Conference on Innate Immunity, June 10, 2013
- Computational Immunology Workshop, NIH, Aug 5, 2013
- CSHL Asia, Suzhou, Sep 3, 2013
- Japan Society for Biochemistry Annual Meeting, Sept 12, 2013
- Keystone Meeting: NF κ B Feb 26, 2014
- Systems Biology Conference, Beijing University, Sept 8, 2014
- La Jolla Immunology Conference, Sept 30, 2014
- Molecular Biology Retreat, UCLA, Apr 25, 2015
- International TNF Conference, May 22, 2015
- Switch Workshop, UCLA, June 3, 2015
- FASEB Meeting, Immunology, Aug 16, 2015
- Human Cells Dynamics Workshop, NIH, Dec 1, 2015
- Quantitative Immunology Workshop, UCSB, Feb 12, 2016
- Keystone meeting on NF κ B, MAPK, Ubiquitin, March 13, 2016
- 6th annual Systems Biology Conference, Munich, Germany, April 7, 2016
- American Mathematical Society, Salt Lake City, April 8, 2016
- Systems Biology of Human Disease, Broad Institute, June 2016
- Systems Biology of Human Disease, Heidelberg, July 2017
- Systems Immunology Conference, Cincinnati, Sept 21, 2017
- SignGene Conference, Israel, March 27, 2018
- International Conference on Intelligent Biology and Medicine, Los Angeles, June 11, 2018
- Annual Retreat, UCLA Infection, Inflammation, Immunity, Transplantation, June 12, 2018
- Symposium on Systems Immunology, University of Pennsylvania, Sept 19-20, 2018
- Conference on Multiscale Cell Fate Research, University of California, Irvine, Oct 1-2, 2018
- Computational Biology Conference, Singapore, Dec 10-12, 2018
- Symposium on Biological Signaling Networks, Tokyo, Feb 1-2, 2019
- Fluomics Symposium, San Diego, Feb 20, 2019
- Cold Spring Harbor, Systems Immunology Conference, Mar 13-16, 2019
- Systems Biology of Human Disease (SBHD), May 27-29, 2019
- Human Vaccines Workshop, UCLA, June 18, 2019
- Immune Summit, Skamania, Oregon, June 23-25, 2019
- Cold Spring Harbor Asia Conference on NF κ B, Suzhou, Oct 7-11, 2019
- Foundations of Systems Biology and Engineering, Valencia, Spain, Oct 18, 2019
- Center for Viral Systems Biology Symposium, Feb 24, 2020

- Insights in Signaling Dynamics and Encoding, Oct 10, 2020
- Cold Spring Harbor Immunology Meeting, Oct 14, 2020
- Osaka Systems Biology Symposium Oct 27, 2020
- Cancer Systems Biology Symposium, Cal State Northridge, Nov 5, 2020
- Cold Spring Harbor Systems Immunology Conference, April 22, 2021
- Tokyo Systems Biology Symposium, Nov 10, 2021
- Banff International Research Symposia, Adaptive Immunity, Feb, 15, 2022
- Beyond the Central Dogma Workshop, UCSB, March 24, 2022
- International Conference for Systems Biology, Berlin, Oct 11, 2022
- The 31st Hot Spring Harbor International Symposium, Kyushu, Nov 15, 2022
- Cold Spring Harbor, Systems Immunology Conference, April 19, 2023
- NIA Inflammation Workshop, Baltimore, May 2, 2023
- University Macao, China, 1th Anniversary of the Faculty Symposium June 15-17, 2023
- International ImmunoMicroTope Symposium, Erlangen, Germany, June 28-30, 2023
- Predictive Modeling in Biology and Medicine, UC Riverside, Nov 17-19, 2023
- Cold Spring Harbor, Signaling and Gene Expression in Immune System, April 16, 2024
- FASEB Meeting; Signaling Dynamics, Keynote Speaker July 7, 2024
- 6th NFkappaB European Conference, Marburg, Germany, Keynote Speaker Sept 2, 2024
- Mathematical Biology Conference, Rio de Janeiro, Brazil, Keynote Speaker, Oct 10, 2024
- 19th TNF Conference, Guangzhou, Nov 6, 2024

SEMINAR PRESENTATIONS AT UNIVERSITIES AND INSTITUTES (since July 1, 2003)

- University of Washington, Seattle, Nov 19, 2003
- Amgen, at Tularik Research facility, San Francisco, May 5, 2004
- UCSD Biochemistry Faculty Seminar, May 17, 2004
- UCSD Mammal Club, June 11, 2004
- UCSD Center for Theoretical Biological Physics, Oct 22, 2004
- UCSD Moore Cancer Center Lunch, July 6, 2005
- Harvard University Medical School, Department for Systems Biology, Aug 16, 2005
- University of Texas SouthWestern Medical School, Dallas, Sept 22, 2005
- University of Kentucky, Lexington, Nov 1, 2005
- Amersham/GE Healthcare, HTP screening research facility, Phoenix Nov 16, 2005
- Massachusetts General Hospital, Nov 21, 2005
- Max Delbrück Center, Berlin, June 21, 2006
- Max Planck Institute for Infection Biology, Berlin, June 22, 2006
- La Jolla Institute for Immunology and Allergy, Oct 17, 2006
- Laboratory of Genetics, Salk Institute, Nov 14, 2006
- Immune Signaling Laboratory, Burnham Institute, Dec 7, 2006
- Institute for Molecular and Cell Biology, Singapore, Dec 12, 2006
- Bioinformatics, Singapore, Dec 13, 2006
- Bose Institute, Kolkata, Dec 15, 2006
- UCLA, Immunology Forum, March 12, 2007
- Yale, Immunobiology, Sept 27, 2007
- Max Planck Institute for Genetics, Berlin, October 1, 2007
- University of Missouri, October 10, 2007
- Institute for Advanced Studies, Princeton, Nov 26, 2007
- Salk Institute, Gene Expression Laboratory, Dec 20, 2007
- University of Utah Medical Center, Sept 22, 2008
- NIH, Hormone Action and Oncogenesis Section, Oct 8, 2008

- UT South-Western, Dallas, Department of Biochemistry, Oct 10, 2008
- UCSD Bioinformatics, Oct 23, 2008
- UCSF Immunology Seminar Series, Nov 3, 2008
- UCSD Pharmacology Seminar Series, Jan 27, 2009
- Boston University, Systems Biology Seminars, Feb 12, 2009
- Merrimack Pharmaceuticals, Feb 13, 2009
- UCSD Rheumatology Seminar Series, Feb 24, 2009
- Regulus Pharmaceuticals, April 16, 2009
- The Wedding Keynote Speaker Biochem/Mol Bio Symposium UC Riverside, Sept 18, 2009
- UCSD Bioengineering Department, Oct 16, 2009
- UCSD Atherosclerosis and Vascular Biology seminar series, Nov 4, 2009
- Rockefeller University, Feb 16, 2010.
- UCI Computational Biology Seminar Series, April 12, 2010
- BioCircuits Institute Seminar Series, April 14, 2010
- SDCSB Seminar Series, Oct 19, 2010
- Cal State University San Marcus, Oct 6, 2011
- BIOCOM – Nov 09, 2011
- Memorial Sloan Kettering Cancer Center, Computational Biology, Dec 02, 2011
- UCLA Computational Biology Seminar Series, Feb 13, 2012
- SDCSB Seminar Series, April 04, 2012
- UCLA Invited Seminar, May 18, 2012
- qBio Summer School, La Jolla, Aug 02, 2012
- Gene Center, Ludwig Maximilian University, Munich, Sept 24, 2012
- Department of Biophysics, Humboldt University, Berlin, Oct 04, 2012
- Department of Biophysics, Humboldt University, Berlin, Oct 23, 2012
- Deutsches Krebsforschungszentrum, Heidelberg, Oct 30, 2012
- Institute for Theoretical Biophysics, Nov 2, 2012
- Cambridge University, Cambridge, Nov 15, 2012
- Max Delbruck Center, Nov 22, 2012
- Humboldt University, Biophysics, Nov 23, 2012
- Institut Louis Pasteur, Paris, Nov 25, 2012
- Max Planck Institut Dresden, Dec 4, 2012
- Center for Complex Biological Systems, Feb 13, 2013
- Kyoto University Sept 6, 2013
- Tokyo University Sept 10, 2013
- Tokyo Dental and Medical School, Sept 11, 2013
- San Diego Center for Systems Biology, Oct 2, 2013
- Harvard Theory Lunch Oct 4, 2013
- Molecular Biology Institute, UCLA, Oct 15, 2013
- Bioinformatics Seminars, UCLA, Oct 18, 2013
- Biomath Seminar Series, UCLA, Oct 24, 2013
- UCSF Biochemistry and Systems Biology, Apr 24, 2014
- Broad Stem Cell Center, UCLA, Apr 30, 2014
- Jonsson Cancer Center Seminar Series, UCLA, May 8, 2014
- ETH Systems Biology, Basel, Oct 28, 2014
- Broad Institute Seminar Series, Cambridge, Nov 3, 2014
- Quantitative and Computational Biosciences, UCLA, Jan 16, 2015
- Buck Institute for Aging Seminar Series, Mar 6, 2015
- Immunology Forum, UCLA, March 17, 2015
- Biobasic Seminars, UCLA, May 13, 2015
- Systems Biology, Georgia Tech, Oct 26, 2015

- Computational Biology, USC Feb 11, 2016
- Immunology Department Seminar, National Jewish, Denver, March 2, 2016
- Computational Biology Seminar, Sloan Kettering, NYC March 23, 2016
- Immunology Department, Columbia University, NYC Oct 20, 2016
- BioQuant, Heidelberg, Nov 8, 2016
- Infectious Disease Seminar, UCLA Harbor, Jan 26, 2017
- Immunology Seminar Series, UCSF, Feb 13, 2017
- Systems Biology, Caltech, April 5, 2017
- Center for Complex Systems, UC Irvine, June 2, 2017
- Cedars Sinai, Los Angeles, June 8, 2017
- Quantitative Systems Biology Center, Vanderbilt, Sept 20, 2017
- Department of Chemical & Petroleum Engineering, University of Pittsburgh, Oct 12, 2017
- Bioinformatics Seminar Series, UCLA, October 16, 2017
- Immunology Department, Stanford University, October 17, 2017
- UCLA CURE Digestive Disease Division, Nov 7, 2017
- Mathematical Biology Program, University of Tennessee, Memphis, Nov 30, 2017
- National Institute for Immunology, Delhi, Dec 13, 2017
- Indian Institute for Technology, Delhi, Dec 18, 2017
- National Institute for Immunology, Delhi, Dec 19, 2017
- Immunology Department, Weizmann Institute, March 29, 2018
- Quantitative Biology Center, University of California, Riverside, May 15, 2018
- Center for Complex Biological Systems, University of California, Irvine, May 17, 2018
- NIH Systems Biology Seminar Series, Nov 27, 2018
- Kanazawa Medical School, Japan, Jan 30, 2019
- Tokyo School of Dentistry, Japan, Feb 2, 2019
- Berlin Institute for Systems Biology, June 3, 2019
- University of California, Santa Barbara, August 15, 2019
- City of Hope, Graduate Program Retreat, August 23, 2019
- Texas A&M, Molecular and Computational Biology, Sept 16, 2019
- North Carolina State, Nov 17, 2019
- University of California, Irvine, Jan 22, 2020
- University of Pennsylvania, Jan 27, 2020
- University of Pittsburgh, Jan 29, 2020
- COVID Seminar series, UCLA, July 8, 2020
- Cardiovascular Biology Theme, UCLA, Oct 5, 2020
- Bioinformatics Seminars, UCLA, Oct 19, 2020
- Molecular Biology Institute, UCLA, Nov 17, 2020
- Molecular Biology Institute, UCLA, Feb 2, 2020
- Freiburg University Medical School, March 15, 2021
- Sugar Science Seminars, Aug 10, 2021
- Merck Systems Biology Seminars, Aug 31, 2021
- Jonsson Comprehensive Cancer Center, UCLA, Sept 30, 2021
- Institute for Basic Science, Seoul, Korea, Oct 6, 2021
- NIH Systems Biology Seminar Series, Nov 30, 2021
- International Multiscale Modeling Seminar Series, March 03, 2022
- UCSD Chemistry & Biochemistry Departmental Seminar, June 07, 2022
- UCSD Bioinformatics & Systems Biology Seminar Series, Jan 12, 2023
- USC Department of Biomedical Engineering, March 24, 2023
- University of Toronto, Systems Biology Seminar Series, April 16, 2023
- Chinese University of Hong Kong, Biochemistry Program, June 19, 2023
- Hong Kong University, Centre for Translational Stem Cell Biology, June 20, 2023

- King's College London, June 25, 2023
- Yale University, Computational and Systems Immunology, Oct 11, 2023
- UCLA Inflammation and Innate Immunity Group, February 2, 2024
- University of Pittsburgh, Dep Comp Sys Biology, 10th Ann Retreat, Keynote May 16, 2024
- UCLA MIMG Special Seminar, May 21, 2024
- UCLA JCCC Gene Regulation Theme, May 31, 2024
- UCLA QCBio 10th Anniversary Faculty Research Forum , Dec 10, 2024

TEACHING

UNDERGRADUATE COURSES

Freshman Summer Institute, Caltech: summer 2001

20 students

Freshman Summer Institute, Caltech: summer 2002

20 students

chem91: 4 Lectures, Spring 2004

86 students

chem114C: Synthesis of Macromolecules, Spring 2005

180 students

chem114C: Synthesis of Macromolecules, Spring 2006

180 students

chem114C: Synthesis of Macromolecules, Spring 2007

180 students

chem114C: Synthesis of Macromolecules, Spring 2008

180 students, 95% Rcmnd Instr

chem114C: Synthesis of Macromolecules, Spring 2009

201 students, 99% Rcmnd Instr

chem114C: Synthesis of Macromolecules, Spring 2010

201 students, 90% Rcmnd Instr

chem114C: Synthesis of Macromolecules, Spring 2011

196 students, 92% Rcmnd Instr

CS184: 3 lectures 2014/2015

24 students

MIMG 180A: Scientific Analysis and Communication, Spring 2015

16 students

MIMG 180B: Scientific Analysis and Communication, Fall 2015

16 students

CS184: 3 lectures 2015/2016

24 students

MIMG 180A: Scientific Analysis and Communication, Spring 2016

16 students

MIMG 180B: Scientific Analysis and Communication, Fall 2016

16 students

CS184: 3 lectures 2016/2017

24 students

MIMG 180A: Scientific Analysis and Communication, Spring 2017

16 students

MIMG 180B: Scientific Analysis and Communication, Fall 2017

16 students

CaSB184: 3 lectures 2017/2018

	24 students
MIMG 180A:	Scientific Analysis and Communication, Spring 2018
	16 students
MIMG 180B:	Scientific Analysis and Communication, Fall 2018
	16 students
CaSB184:	3 lectures 2018/2019
	60 students
CaSB184:	3 lectures 2019/2020
	60 students
CaSB184:	3 lectures 2020/2021
	60 students
CaSB/MIMG178	Fall 2021
	24 students
CaSB184:	3 lectures 2021/2022
	60 students
CaSB/MIMG178	Fall 2022
	48 students
CaSB/MIMG178	Fall 2023
	100 students
CaSB/MIMG178	Fall 2024
	150 students

GRADUATE COURSES

chem219A:	Selected Topics in Biochemistry; with P.Jennings, Fall 2004
chem219A:	Selected Topics in Biochemistry; with P.Jennings, Fall 2005
bggn230:	Signal Transduction, with M.David, Winter 2006
bms254:	Regulation of Transcription, with B.Ren, D.Cleveland, C.Glass, Spring 2006
chem219A:	Selected Topics in Biochemistry; with T.Nakagawa, Fall 2006
bggn220:	Molecular Biology core class (2 lectures), Fall 2006
chem221/bggn230:	Signal Transduction, with M.David, Winter 2007
bggn220:	Molecular Biology core class (2 lectures), Fall/Winter 2007/08
chem221/bggn230:	Signal Transduction, with M.David, Winter 2008
bms254:	Regulation of Transcription, with B.Ren, Spring 2008
bggn220:	Molecular Biology core class (2 lectures), Fall/Winter 2008/09
chem221/bggn230:	Signal Transduction, with M.David, Winter 2009
chem219C:	Applied Bioinformatics, with G. Ghosh, Winter 2009
bggn220:	Molecular Biology core class (2 lectures), Fall/Winter 2009/10
chem221/bggn230:	Signal Transduction, with M.David, Winter 2010
chem219C:	Applied Bioinformatics (2 weeks), Winter 2010
bggn220:	Molecular Biology core class (3 lectures), Fall/Winter 2010/11
chem221/bggn230:	Signal Transduction, with M.David, Winter 2011
bggn220:	Molecular Biology core class (3 lectures), Fall/Winter 2011/12
bnfo281:	Seminars in Bioinformatics, Winter 2012
chem280:	Applied Bioinformatics (2 weeks), Winter 2012
chem221/bggn230:	Signal Transduction, with M.David, Winter 2012
bnfo281:	Seminars in Bioinformatics, Spring 2012
chem280:	Applied Bioinformatics (2 weeks), Winter 2013
chem221/bggn230:	Signal Transduction, with M.David, Winter 2013
bnfo281:	Seminars in Bioinformatics, Winter 2013
bnfo281:	Seminars in Bioinformatics, Spring 2013

BIOINFO M202: Interdisciplinary Research Seminar
Path 222 Graduate Seminar in Immunology, Fall 2015
Path 222 Graduate Seminar in Immunology, Fall 2017
Path 222 Graduate Seminar in Immunology, Fall 2020

RESEARCH INSTRUCTION: POSTDOCTORAL FELLOWS

- Soumen Basak (2003-07), Faculty at National Institute of Immunology, Delhi, India
- Oliver Schmah (2004-06), physician-scientist in Freiburg, Germany
- Hana Kim (2004-07), Research Professor, KAIST, Seoul, Korea
- Marcelo Behar (2008 - 2014), Assistant Professor, UT Austin
- Bärbel Schröfelbauer (2009- 2013), Editor at Cell Press
- Zhang Cheng (2010 - 2017), Programmer/Analyst UCSD
- Riku Fagerlund (2009 - 2013), Scientist at University in Finland
- Bryce Alves (2010 - 2013), Scientist at Active Motif
- Gajendra Suryavanshi (2012 - 2015), Project Scientist UCLA
- Yi Liu (2011 - 2021), Scientist in Biotech
- Roberto Spreafico (2014 - 2016), Scientist at Synthetic Genomics
- Simon Mitchell (2014 - 2019), Lecturer in Cancer Biology, University of Bristol
- Koushik Roy (2014 - 2021), Assistant Professor, University of Utah
- Chen Seng Ng (2015 - 2019), Project Scientist, U Toronto
- Sho Ohta (2015 - 2018) Assistant Professor, Tokyo University
- Brooks Taylor (2015 - 2016), postdoc Stanford University
- Marie Oliver Metzger, MD (2015 - 2020), Assistant Professor, University of Mainz
- Catera Wilder (2016 - 2022), Assistant Professor, UCSF
- Diane Lefaudeux (2016 - 2021), Bioinformaticist, Biotech
- Anup Mazumder (2017 - 2019), National Institute of Biomedical Genomics, Kalyani, India
- Ying Tang (2018 - 2021), Assistant Professor, University of Chengdu, China
- Stefanie Luecke (2018 - 2023)
- Haripriya Narayanan (2020 -)
- Jennifer Chia (2021 -)
- Aleksandr Gorin (2022 -)
- Sohyeon Park (2024 -)

RESEARCH INSTRUCTION: GRADUATE STUDENTS

- Derren Barken (2004 – 07), founder and bioinformaticist at Prometheus Labs
- Shannon Werner (2004 – 09), Scientist at Merrimack Pharmaceuticals
- Jeffrey Kearns (2005 – 2009), Scientist at Merrimack Pharmaceuticals
- Ellen, O’Dea/Mercado (2005 – 2010), postdoc at UCSF
- Christine Cheng (2006 -2011), postdoc at Broad Institute, Assistant Professor at BU
- Vincent Shih (2006 - 2011). Postdoc at Genentech, Immunologist, Seattle Genetics
- Paul Loriaux (2007 - 2013), bioinformaticist
- Jon Almaden (2008 - 2014), scientist at Pfizer
- Kristyn Feldman (2008 - 2014), postdoc at UCSF
- Andrew Caldwell (2009 - 2014), postdoc at UCSD
- Diana Rios/Ourthague (2009 - 2014)
- Max Shokhirev (2009 - 2014), Core Director at Salk
- Rachel Tsui (2010 - 2014)

- Karen Schuereberg (2010 - 2014), postdoc at start-up
- Jeremy Davis-Turak (2010 - 2014), bioinformaticist at OnRamp
- Jenny Huang (2011 - 2013),
- Brooks Taylor (2012 - 2015), postdoc at Stanford
- Kim Ngo (2012 - 2019), postdoc at UCSD, Scientist in Biotech
- Eason Lin (2012 - 2019), postdoc at UCLA, Scientist in Biotech
- Adewunmi Adelaja, MD-PhD (2015 - 2020), MD Resident at Harvard/ MGH
- Quen Chen, MD, STAR fellow (2016 - 2020), Assistant Clinical Professor, UCLA
- Katherine Sheu, MD-PhD (2018 - 2021), MD Resident at Harvard/ MGH
- Xiaofei Lin (2018 - 2021), Senior Editor
- Héctor Navarro (2019 - 2023), Postdoc at TSRI
- Carolina Chavez (2020 - 2023)
- Apeksha Singh (2020 - 2024), MD Resident
- Benancio Rodriguez (2021 -)
- Allison Schiffman (2021 -)
- Helen Huang (2021 -)
- Mark Xiang (2021 -)
- Valentina Alonso (2022 -)
- Sarina Lowe, MD, STAR fellow (2022 -)
- Noa Harriett (2024 -)
- Noah Yan (2024 -)
- Patrick Yu (2025 -)

RESEARCH INSTRUCTION: THESIS COMMITTEES

I am on many student thesis committees, reflecting the interdisciplinary nature of my interests and my laboratory's research. Over the past four years, the students' home departments have been in Chemistry and Biochemistry, Bioinformatics and Systems Biology, Bioengineering, Molecular Biology/Immunology, Molecular Pathology, Biomedical Sciences, and Visual Arts. Over the course of my faculty career, I have been a member of >100 thesis committees for students not my own. Currently, I am a member of 12 student committees.

RESEARCH INSTRUCTION: UNDERGRADUATE RESEARCH CREDIT (199)

- Raechel Quiambao (Winter and Summer 2004; Raechel presented her work at the 17th annual UCSD Undergraduate Research Conference, May 15, 2004; graduate school UCI)
- Candace Lynch (Fall 2004, Winter 2005), Honors Thesis Defense 3/9/2005
- Joshua Regal (Winter and Spring 2005), Honors Thesis Defense 6/8/2005
- Christine Ng (Fall 2005, Winter 2006)
- Christine Huang (Fall 2004, Winter, Spring, Fall, 2005)
- Victoria Zadorozhnaya (Fall 2005, Winter, Spring 2006; Victoria presented her work at the 19th annual UCSD Undergraduate Research Conference, May 20, 2006)
- Breena Fraga (Summer 2006 STARS student)
- Rebecca Delker (Summer, Fall 2006, Winter, Spring 2007)
- David Zhang (Spring, Summer 2007)
- Duc Nguyen (Summer, Fall 2007, Winter, Spring, Summer, Fall 2008; Duc presented his work at the 21st annual UCSD Undergraduate Research Conference, May 2008)
- Tania Riveros (Summer STARS student, Fall 2008)
- Daniel Roach (Spring, Fall 2008)
- John Chen (Winter and Spring 2009)

- Joy Jiang (Fall 2009)
- Tony Yu (Fall 2010, Winter, Spring 2011)
- Tenaya Siva (Fall 2010, Winter, Spring, Fall 2011)
- Zachary Hann (Fall 2011, Winter 2012)
- Rusty Lewis (Winter, Spring, Fall 2012) Amgen Scholar
- Douglas Meyer (Fall 2015, Winter, Spring, Fall 2016, Winter 2017)
- Alyssa Pizarro (Fall 2015, Winter, Spring 2016)
- Faraz Behzadi (Summer, Fall 2015, Winter, Spring, Summer, Fall 2016, Winter, Spring, Summer, Fall 2017, Winter Spring 2018)
- Amy Tam (Summer, Fall 2016, Winter, Spring, Summer, Fall 2017, Winter, Spring, Summer 2018)
- Justin Buchanan (Winter, Spring, Summer, Fall 2017, Winter, Spring 2018)
- Kensei Kishimoto (Summer 2017 to Spring 2020); Kensei presented at CSHL Systems Immunology 2019. Now MD-PhD at U Mass Worcester.
- Jayesh Menon (Summer 2019 to Spring 2020)
- Michelle La Joie (Fall 2017 to Winter 2020)
- Aiswarya Atmakuri (Spring 2019 to Fall 2020)
- Aditya Guru (Fall 2018 to Winter 2020)
- Minh Nguyen (Summer 2018 to Winter 2020) -
- Aditya Pimplaskar (Fall 2018 to Summer 2021) – PhD Program at UCLA
- Alma Zuniga Munoz (Summer 2018 to Spring 2021) – PhD Program at USC
- Raisa Mathenge (Summer 2018 to Spring 2021) – post-bac Program UCSF
- Jessica Diaz (Summer 2018 to Spring 2021) – post-bac Program Cornell
- Connor Razma (Fall 2018 to Spring 2022) – Bioinformatician
- Zachary Qian (Fall 2018 to Spring 2022) – Bioinformatician
- Kevin Jiang (Fall 2019 to Spring 2022) – MD-PhD Program at U Mass
- Anna Fraser (Summer 2021 to Spring 2022) – PhD Program at UCLA
- Alexis Malveaux (Summer 2021 to Spring 2023)
- Kelly Lin (Winter 2020, Fall 2021 to Spring 2023)
- Jay Fenn (Fall 2021 to Summer 2022)
- Yijia Chen (Fall 2021 to Spring 2024) – PhD Program MIT/Harvard
- Minhao Han (Winter 2022 to Spring 2023)
- Chris Carmichael (Summer 2022 to Winter 2023)
- Felicia Wei (Fall 2022 to Spring 2024) – Pharm-PhD UCSF
- David Mastro (Fall 2022 -)
- Noa Popko (Fall 2022 to Spring 2024) – PhD Program UCSD
- Michael Iter (Summer 2023 to Fall 2023) – PhD Program at UCSD
- Jlanche Liu (Summer 2023 -)
- Mitchell Stevens (Fall 2023 to Fall 2024)
- Chengyuan Li (Fall 2023 -)
- Vaibhava Kesarwani (Fall 2023 -)
- Caitlin Chheda (Winter, Spring 2024)
- Madelaine Leitman (Fall 2024 -)

RESEARCH INSTRUCTION: OTHER UNDERGRADUATE RESEARCHERS

There are 4-8 undergraduate researchers in my laboratory at any one time. Over the past 20 years, > 50 undergraduates have found research training in my laboratory.

In 2015, I initiated the Bruins-in-Genomics (BIG) Summer undergraduate research program, which combines class-room-based skills development in bioinformatics methods for the analysis of Next Gen Sequencing datasets, and laboratory research experience. In summer 2021, multiple extra-mural grants have funded 90 students for remote research. In summer 2024, 69 students will participate on-site.

OTHER TEACHING: HIGH SCHOOL STUDENT INSTRUCTION

- Young Engineering Science Scholars (YESS) Program (30 students), Caltech, Summers 1998 – 2002
- July 13, 2004: Guest Seminar for the Caltech YESS Program
- HHMI funded program: High school Juniors (3), Summer projects in my laboratory, June-Sept 2008
- Jasmine Dibazar, Summer 2012
- Hunter Stadelmann, Summer 2017, Summer 2018
- Finnley Doolittle, Summer 2022
- Arthur Garnier, Summer 2022

EDITORIAL BOARD & REVIEWING ACTIVITIES

CONFERENCE ORGANIZER

SDCSB Workshops (3-5 per year) 2007-2013
 SDCSB Annual S2S Symposia 2007-2013
 So-Cal Systems Biology, 2009- at UCI, UCR, UCSD, City of Hope, UCLA
 MIA Workshop in Madison 2008
 ASBMB: Systems Biology 2012
 Keystone Conference 2018: NF κ B – from bench to bedside
 Immunology LA Meeting 2015, 2016, 2017
 QCBio Retreats and Symposia, 2015, 2016, 2018, 2018
 Systems Biology of Human Disease, 2018, 2020, 2021
 International Conference for Systems Biology, 2022
 Cold Spring Harbor Conference: Systems Immunology, 2025, 2027, 2029
 Keystone Conference, Immune Signaling Systems, 2026

EDITORIAL BOARD

- Cell Research 2010 –
- Molecular Systems Biology 2014 –
- Cell Systems 2016 –
- BMC Systems Biology 2016 – 2024
- Frontiers in Immunology, Systems Immunology section, 2021 – 2023

REVIEWER FOR SCIENTIFIC JOURNALS

- Cell and Cell-affiliated journals
- Science and Science Signaling
- Nature and Nature-affiliated journals

- PLOS journals
- Proceedings of the National Academy of Sciences (PNAS)
- Molecular Systems Biology (MSB)
- Molecular and Cellular Biology (MCB)
- Journal of Biological Chemistry (JBC)
- Journal of Immunology (JI)
- Cell Research
- plus many others

REVIEWER FOR GRANT APPLICATIONS

- Biotechnology and Biological Sciences Research Council, UK: Systems Approaches 2007
- NIH – study section Nuclear Dynamics and Transport 2007/8
- Austrian Science Foundation 2008
- NIH, Multiscale predictive modeling of the Physiome 2009
- NIH, Program Projects in Immunology/Oncology 2009
- NIH, K01/K99 awards 2012
- NIH Pioneer Awards 2011/12
- German Systems Medicine Centers 2013
- NIH – study section MABS 2014
- NIH – Special Emphasis panel CSRS 2015
- NIH Council ad hoc member 2016
- Canadian Special Emphasis Grants
- NIH F30/F32/F33 proposals 2021
- NIH – Special Emphasis panel CSRS 2022
- Canada Excellence Research Chairs (CERC) competition 2022
- NIH MABS Study Section 2024

OTHER PROFESSIONAL ACTIVITIES

REVIEWER FOR ACADEMIC PERSONNEL ADVANCEMENT DECISIONS

- LIAI (Assistant Professor) 2008
- UCI (Associate Professor with tenure) 2009
- UCR (Full Professor) 2009
- U Mass (Associate Professor) 2010
- Mt Sinai (Associate Professor with tenure) 2012
- UCLA (Professor) 2013
- UC Davis (Professor) 2013
- Stanford (Professor) 2014
- U Mass (Professor) 2014
- Chicago (Associate Professor) 2014
- UC Berkeley (Associate Professor) 2015
- UCLA (Assistant Professor) 2015
- Yale (Associate Professor) 2016, 2018
- UCI (Associate Prof) 2016
- UCI (Associate Prof) 2017
- Stanford (Associate Professor) 2018
- U Pittsburgh (Associate Prof) 2020
- UCSD (Associate Prof) 2021
- U Penn (Associate Prof) 2021

- U Texas (Professor) 2022
- U Arizona (Associate Professor) 2023
- Yale (Full Professor) 2023
- Yale 2024

CORPORATE AND OTHER PROFESSIONAL ACTIVITIES

- Consultant, Investment Bank/Venture Capital: Robinson Stephens, Atlas Ventures, 1998
- Chief Academic Consultant, Biology Students Web Resource “Talksaver” (1998-2000)
- Founder and CSO of Avatar Biotechnologies Ltd (1998-2001)
- Board Member, Avatar Biotechnologies Ltd (2002-2004)
- Consultant, Ariad Pharmaceuticals (2007)

PROFESSIONAL AFFILIATIONS

- 1994 - AAAS
- 2004 - ASBMB
- 2004 - Biophysical Society
- 2010 - Leukocyte Society
- 2010 - The American Association of Immunologists (AAI)

BROADER IMPACT ACTIVITIES

PROMOTING QUANTITATIVE AND COMPUTATIONAL BIOSCIENCES

I aim to help transform biosciences research and education to harness the opportunities of genome-scale measurements, biomedical big data, and both data-driven and knowledge-based computational modeling. I have pursued this goal by

1. developing Systems Biology approaches, methodologies and models in my laboratory that have impacted the field.
2. establishing institutional structures that foster quantitative and computational biology research and collaboration such as UCSD’s BioCircuits Institute (2009), the San Diego Center for Systems Biology (2010), the qBio Initiative (2011), and UCLA’s Institute for Quantitative and Computational Biosciences (QCBio) (2014).
3. recruiting faculty into life sciences departments who help transform biology research and education; since 2014 I have recruited 6 faculty to UCLA
4. assisting in the recruitment faculty into a variety of non-life sciences departments; since 2014, I have helped recruit 11 faculty to UCLA outside life-sciences.
5. transforming graduate training such as UCSD’s Bioinformatics and Systems Biology, Molecular Biophysics, and Cellular and Systems Biochemistry Programs and UCLA’s Bioinformatics Graduate Program.
6. establishing graduate Training Programs such Medical Informatics Graduate Program, and the Mathematical and Systems Biology Graduate Program.
7. helping transform undergraduate educational programs such as UCLA’s math education for freshmen who are life-science pre-majors, and the Computational and Systems Biology Major.
8. developing an Undergraduate Summer Research Program in computational biosciences at UCLA, called Bruins-in-Genomics; since 2016 it had been funded by a set of UCOP, NIH and NSF grants to support up to 90 students per year.

DEVELOPING THE FIELD OF SYSTEMS IMMUNOLOGY

Systems Immunology is gaining increasing recognition and is an expanding field. It combines high throughput and measurements with the development of predictive models. I have promoted this field from its nascent beginning through my research in the late 90's as well as programmatic initiatives such as training programs and conferences.

1. Computational models and tools for Immune signaling and cell fate decisions. A major focus of the research efforts in my laboratory is the development of experimentally tested computational models that represent the current knowledge of molecular networks that control biological function. The resulting computational models are research tools that are available to the community via our website. <http://www.signalingsystems.ucla.edu/models-and-code/>
2. I have promoted Systems immunology as organizers of a variety of Cold Spring Harbor, Keystone, and FASEB conferences. I will lead the InSide FASEB conference in 2024, co-organize the Cold Spring Harbor Systems Immunology Conference in 2025, and lead organize the Keystone Conference in Systems Signaling in Immune Responses in 2026.

PROMOTING GRADUATE EDUCATION

I have aimed to transform graduate education to enable students to grasp the opportunities of 21st century biosciences, that are inevitably more data-rich and quantitative.

1. At UCSD I expanded the scope and size of the Bioinformatics & Systems Biology Graduate Program, serving as its director and PI of the T32.
2. As chair of admissions I transformed the departmental Chemistry & Biochemistry Program to adopt a track structure to better serve students and community.
3. At UCLA, I helped expand size and scope of the Bioinformatics graduate program and provided with institutional structures.
4. I helped develop a Medical Informatics PhD Program, by first obtaining a T32 in Biomedical BIG Data Training, then develop it as a track in Bioinformatics, to then establish it as a PhD Program.
5. I am working to establish a new Systems Biology Home Area within the Bioinformatics IDP.
6. I established an undergraduate summer research program (Bruins-in-Genomics) to promote the graduate applicant pool into quantitative biosciences programs.

PROMOTING DIVERSITY, EQUITY, and INCLUSION

1. As a postdoc at Caltech (1998-2003), I organized and taught Saturday Academy for high school students, directed the Young Engineering Summer Scholar (YESS) Program, and co-directed the Freshman Summer Institute (FSI).
2. On UCSD's academic senate's committee for diversity and equity (2005-2010) I helped establish a 1) Black Resource Center, 2) a diversity graduation requirement for all undergraduates, and 3) the position of VC-DEI.
3. As chair of the chancellor's diversity council (2010-2012) I improved student access, recruitment and admissions, pay equity for faculty, and developed criteria for evaluating contributions to diversity.
4. As director of the San Diego Center for Systems Biology (SDCSB), I established a summer research program for incoming transfer students at UCSD.
5. At UCLA, I established in 2015 the Bruins-in-Genomics Undergraduate Research Summer Program to provide cutting edge research skills and experiences in computational biology. Thanks to partnerships to recruit students from California State Universities and Community Colleges, as well as the HBCUs Fisk, Spelman, Howard U, Morehouse, and Florida A&M Universities, the program has steadily expanded to

comprise 90 students in summer 2021 involving 44 laboratories. These efforts are funded by grants from the UC office of the president (UCOP), an NSF-REU, R25 grants from four different NIH Institutes, as well as the Simons Foundation.

6. In 2020-21, I served on the Life Sciences Division's Anti-Racism Taskforce, hosted townhalls, developed EDI websites, and established the QBio-EDGE (Quantitative Biology: Empowering Diversity and Growth in Education) initiative for lab trainee-driven outreach to local middle and high schools. I also served on the VCR Wakimoto's Diversity Council.

PROMOTING LOCAL COMMUNITY OUTREACH

1. As director of the QCBio Institute I regularly host webinars "Lets talk Science" for the public on a variety of scientific topics. Recent webinars included: "Digital Immune Twins: The future of healthcare?", "Mapping the Brain: With 100 billion cells, an impossible Task", and "Age – just a number?".
2. I actively and financially support student-initiated local outreach activities, such as those by the graduate student organization AMEBA (Association for Multi-Ethnic Bioscientists' Advancement), or the QBio-EDGE (Quantitative Biology, Empowering Diversity and Growth in Education), which has developed a network of collaborations with local science teachers at minority serving high schools in Los Angeles. Under my guidance, their activities also resulted in a publication describing guiding principles for outreach: PLoS Comput Biol (2023)19(5):e1011072. <https://qcb.ucla.edu/qbio-edge/>