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NARRATIVE

I am a Professor of Microbiology and Immunology at UCLA, PI of the Signaling Systems Laboratory, and Director of the Institute for Quantitative and Computational Biosciences (QC*Bio*), which comprises more than 40 faculty and supports educational and training programs at the undergraduate, graduate and postdoctoral levels. During a previous decade at UCSD, I rose through the professorial ranks and developed institutional infrastructures for interdisciplinary Computational and Systems Biology research and education.

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 virology, immunology, and cancer research. 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 that control innate and adaptive immune responses. A central theme is that the precise dynamics of these networks determine functional specificity. Within the field of Signaling I first articulated the notion of a “Temporal Code”. This has now been addressed in a variety of signaling systems.

We now understand how stimulus-specific Signaling Dynamics are generated, or “encoded”, i.e. via numerous feedback and other regulatory motifs. We have shown that the Dynamics are altered in disease contexts, and how rational drug targeting strategies may be applied to correct misregulation. Signaling Dynamics are decoded by gene regulatory networks to control stimulus-specific gene expression, cell fate decisions, and hence immune cell population dynamics. We aim to understand the emergent properties of intra-cellular molecular networks and how they give rise to cell population-scale physiological functions.

I aim to advance interdisciplinary biosciences research and education that harnesses the opportunities of technology, computation, and the quantitative sciences. I have pursued this goal at several levels: (i) by developing Systems Biology approaches in my laboratory focusing on the signal and gene regulatory networks controlling immunity, (ii) by promoting Systems Biology via 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, and educational programs (iii) by establishing and/or transforming graduate training 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) and Biomedical Big Data Training Program (2015).

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 student services, faculty hiring practices, and institutional responses to crises. 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.

EDUCATION

1988 B.A., Physics and Zoology
Cambridge University, England

1995 Ph.D., TFIID and cloning of TBP and TAFs
Adviser: Robert G. Roeder
The Rockefeller University, NY

Post-doctoral

1995-1998 HIV gene regulation
Advisor: David Baltimore
Massachusetts Institute of Technology, MA

1998-2003 NFκB/IκB specificity and dynamics of function
Advisor: 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 - Professor of Microbiology, Immunology, and Molecular Genetics, UCLA
2014 - Director of the Institute for Quantitative and Computational Biosciences (QCB)

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 - 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 conference: The NFκB 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 - Steering Committee, National Institute for Mathematical and Biological Synthesis
2015 - Editorial Board, Molecular Systems Biology
2015 - Director, Bruins-in-Genomics (BIG) Summer Undergraduate Research Program
2016 - Editorial Board, BMC Systems Biology

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
2007 - 2008 Hellman Fellow
2009 The Wedding Keynote Speaker, UCR
2012 Keynote Speaker, Systems Biology and Medicine, St. Petersburg, Russia
2013 Keynote Speaker, Harvard Digestive Diseases Center Symposium
2014 - 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

RESEARCH PROJECTS

CURRENT

NSF REU (PI Coller/Hoffmann) 03/01/2019 – 02/28/2022
"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.

R01AI127867 (PI Hoffmann), NIAID 04/03/2018 – 03/31/2022
"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).

R01AI132731 (PI Hoffmann), NIAID 02/01/2018 – 01/31/2023
"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.

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.

P01AI120944 (PI Kupiec-Weglinski), NIAID 08/01/2017 – 07/31/2022
"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.

R01AI132835 (PI Hoffmann), NIAID 06/20/2017 – 05/31/2022
"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 – 10/31/2021
"NFκB Signaling in Macrophages"
The goal of this project is to understand how NFκB signaling leads to healthy inflammatory responses and immune activation, or disease-associated inflammatory phenotypes and epigenome alterations.

COMPLETED

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 NFκB"
The major goal is to understand the extent and molecular mechanisms of dynamical coding within the canonical NFκB 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 NFκB 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**
"IκB/NFκB 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 NFκB and IκB proteins result in the dynamical properties of the NFκB Signaling System, including the cell type-specific generation of NFκB 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 NFκB 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 NFκB signaling system and its regulation of cell survival and division in B-cells. We will then explore NFκB'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□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 NFkB 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 NFκB. 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 NFκB"
The major goals of this project are to investigate the signaling network that TLRs engage to activate NFκB. Activation of NFκB 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)
"NFκB and MAPK Signaling"
The goal of this project is to understand the coordinated regulation and crosstalk between NFκB 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)
IκB/NF-κB Recognition *in silico*, *in vitro*, and *in vivo*
Hoffmann Project: *In vivo* signal transduction control by the IκB family members
This project focuses on the regulation of NFkB activity by IkB proteins.

R01 GM071573 (Hoffmann) **04/01/2005 – 03/31/2010**
NIH/NIGMS $160,000
Regulation of Signaling via the IkB/NFkB interaction
This project focuses on the regulation of IkB degradation pathways.

PUBLICATIONS

H-index: 76. I10-index:131, citations: >21,000.
http://scholar.google.com/citations?user=Vj55OEUAAAAJ&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 κBα is mediated by the second ankyrin repeat: The IκBα 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- κB 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-kB 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 Subcytocidal attack by staphylococcal alpha-toxin activates NF-kB 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-kB/IkB 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- κB/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 κB kinase responsible for NF- κB activation during the UV response. *Mol. Cell*, 12, pp.829-839.

28. Zarnegar, B., He, J., Oganesyan, G., **Hoffmann, A**., Baltimore, D., Cheng, G. Unique CD40-mediated biological program in B cell activation requires both type 1 and type 2 NF- κB activation pathways *Proc. Natl. Acad. Sci*. USA, 101: 8108-8113

29. Leung, T.H., **Hoffmann, A**., Baltimore, D. 2004 One nucleotide in a κB site can determine cofactor specificity for NF- κB 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- κB 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- κB 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 capsase-8. *J. Immunol*. 175: 3469-73.

35. Sanjabi, S., Williams. K.J., Saccani, 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- κB as Key Regulators. *Immunity*, 23: 319-29.

38. Gapuzan, M.-E.R., Schmah, O., Pollock, A.D., **Hoffmann, A**., Gilmore, T. 2005 Immortalized Fibroblasts from NF- κB 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-κB 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-κB dynamics in response to a wide range of tumor necrosis factor-α doses. *J. Biol. Chem*., 281: 2945-50.

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3. **Hoffmann, A**., Natoli, G., Ghosh, G. 2006 Transcriptional Regulation via the NF-κB Signaling Module. *Oncogene Reviews*, 25: 6706-6716.

4. Basak, S., **Hoffmann, A.** 2008. Crosstalk *via* the NF-κB 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-κB Signaling *via* Mathematical Modeling. *Molecular Systems Biology*, 4:192, pp.1-11.

8. Ch'en, I.L., Hedrick, S.M., **Hoffmann, A**. 2008. NF-κB as a determinant of distinct cell death pathways. *Methods in Enzymology*, 146, 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-κB signaling. *J. Biological Chemistry*, 284, pp.5439-43.

11. O'Dea, E., **Hoffmann, A**. 2009. NF-κB 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 NFκB Signaling System. In "NFκB", 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 IκB:NF-κB 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 NFκB 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 NFκB pathway. *Immunological Reviews*, 246, pp.221-38. PMID: 22435558 PMCID: PMC3343698

18. Mitchell, S., Tsui, R., **Hoffmann, A.** 2015 Studying NFκB Signaling with mathematical models. Methods in Molecular Biology, **1280**, pp.647-661. PMID: 25736777

19. Mitchell, S., Vargas, J.A.D., **Hoffmann, A.** 2016 NFκB Signaling, WIRES *Interdisciplinary Reviews in Systems Biology and Medicine*, **8**, pp.227-41. PMID: 26990581

20. **Hoffmann, A.** 2016 Immune Response Signaling: Combinatorial and Dynamic Control. Trends Immunol. **37, pp.**570-2. PMID: 27461000

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, PMC5879788

22. Adelaja, A., **Hoffmann, A.** 2019 Signaling crosstalk that fine-tunes pathogen-responsive NFκB. 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.

24. Luecke, S., Sheu, K., **Hoffmann, A.** 2021. Immunity, in press.

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. 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

4. 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**. and Roeder, R.G. 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 7,037,894

3. **Hoffmann, A.** Response Specificity as a measure of innate immune health.

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-□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-□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; NFκB, 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: NFκB 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 NFκB, 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
- Cold Spring Harbor, Systems Immunology Conference, Mar 13-16, 2019
- Systems Biology of Human Disease, 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 NFκB, Suzhou, Oct 7-11, 2019

SEMINAR PRESENTATIONS AT UNIVERSITIES AND RESEARCH INSTITUTUTES (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 Biophsyics, 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

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
CS184:	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

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

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 -)
- Roberto Spreafico (2014 - 2016), Scientist at Synthetic Genomics
- Simon Mitchell (2014 - 2019), Lecturer in Cancer Biology, University of Bristol
- Koushik Roy (2014 -)
- Chen Seng Ng (2015 - 2019)
- Sho Ohta (2015 - 2018) Assistant Professor, Tokyo University
- Brooks Taylor (2015 - 2016), postdoc Stanford University
- Marie Oliver Metzig, MD (2015 -)
- Catera Wilder (2016 -)
- Diane Lefaudeux (2016 -)
- Anup Mazumder (2017 - 2019)
- Ying Tang (2018 -)
- Stefanie Luecke (2018 -)

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/Ourthiague (2009 - 2014)
- Max Shokhirev (2009 - 2014), Core Director at Salk
- Rachel Tsui (2010 - 2014)
- Karen Schuerenberg (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
- Eason Lin (2012 - 2019), postdoc at UCLA
- Adewunmi Adelaja, MD-PhD (2015 -)
- Quen Chen, MD, STAR fellow (2016 -)
- Katherine Sheu, MD-PhD (2018 -)
- Xiaofei Lin (2018 -)

RESEARCH INSTRUCTION: THESIS COMMITTEES

I am on a large number of 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 82 thesis committees for students not my own. Currently, I am a member of 13 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

RESEARCH INSTRUCTION: OTHER UNDERGRADUATE RESEARCHERS

There are 3-6 undergraduate volunteers in my laboratory at any one time. Over the past 10 years, > 30 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. By 2016, four extra-mural grants fund >36 students in this program.

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

EDITORIAL BOARD & REVIEWING ACTIVITIES

CONFERENCE ORGANIZER

SDCSB Workshops (3-5 per year) 2007-2013
SDCSB Annual S2S Symposia 2007-2013
So-Cal Systems Biology, UCI 2009-
MIA Workshop in Madison 2008
ASBMB: Systems Biology 2012
Keystone Conference 2018: NFκB – 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

EDITORIAL BOARD

- Cell Research 2010 –
- Molecular Systems Biology 2014 –
- Cell Systems 2016 –
- BMC Systems Biology 2016 –

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
- NIH – study section MABS
- NIH – Special Emphasis panel CSRS
- German Systems Medicine Centers 2013
- NIH Council ad hoc member 2016
- Canadian Special Emphasis Grants

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

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 50 students.

DEVELOPING COMPUTATIONAL MODELS AND TOOLS

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. We also provide a web-interface that allows computational novices to run model simulations. http://www.signalingsystems.ucla.edu/models-and-code/

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 transform an ailing Biomath PhD Program into a new Mathematical and Systems Biology Interdepartmental PhD Program.
6. I established an undergraduate summer research program (Bruins-in-Genomics) to promote the graduate applicant pool into quantitative biosciences programs.

PROMOTING DIVERISTY, EQUITY, and INCLUSION

1. As a postdoc at Caltech, 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 I helped establish a Black Resource Center, a diversity graduation requirement for all undergraduates, and the position of VC-DEI.
3. As chair of the chancellor's diversity council I impacted 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 92 students in summer 2021. These effort are funded by grants from the UC office of the president (UCOP), an NSF-REU, and four different NIH Institutes, as well as the Simons Foundation.