Curriculum Vitae
Natalie G. Ahn

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I. ACADEMICS

EDUCATION

Postdoctoral Fellow, 1988-1990, Department of Pharmacology, Univ. of Washington, Seattle
Research advisor: Edwin G. Krebs

Postdoctoral Fellow, 1985-1987, Department of Medicine, Univ of Washington, Seattle
Research advisor: Christoph de Haën

Ph.D.,1985, Department of Chemistry University of California, Berkeley
Thesis advisor: Judith P. Klinman
1979-1981 Teaching Assistant, undergraduate chemistry, Dept. of Chemistry
1981-1985 Research Assistant, Dept. of Chemistry

B.S., 1979, Department of Chemistry, University of Washington, Seattle
Undergraduate senior thesis advisor: Lyle H. Jensen, Department of Biological Structure
Undergraduate research advisor: David C. Teller, Department of Biochemistry

APPOINTMENTS

2018-present	Distinguished Professor, University of Colorado
2003-present	Associate Director, BioFrontiers Institute, Univ. Colorado, Boulder
1994-2014	Investigator, Howard Hughes Medical Institute (1994-2002 Assistant Investigator; 2003-2004 Associate Investigator; 2005-2014 Investigator)
1993-present	Member, UCHSC Cancer Center, Univ. Colorado Health Sciences Center, Denver
1992-2018	Professor, Department of Chemistry and Biochemistry, Univ. Colorado, Boulder (1992-1998 Assistant Professor; 1998-2003 Associate Professor; 2003-present Professor)
1990-1992	Research Assistant Professor, Department of Biochemistry, Univ. Washington, Seattle

II. HONORS

2020	Fellow, American Society of Biochemistry and Molecular Biology
2018	Distinguished Professor, University of Colorado
2018	Member, National Academy of Sciences
2018	Member, American Academy of Arts and Sciences
2016-2018	President, American Society of Biochemistry and Molecular Biology
2012	Professor of Distinction, College of Arts & Sciences, U. Colorado, Boulder
2012-2014	President, U.S. Human Proteome Organization (US-HUPO)
2004	"Proteomics Pioneer", ProteoMonitor
1997	Teaching Excellence Award, Mortar Board Society
1994-1995	Eli Lilly Biochemistry Academic Award
1993-1996	Searle Scholarship Award
1988-1991	Merck Fellowship Award
1985-1988	Individual National Research Service Award (Postdoctoral), NIH
1979	Phi Beta Kappa

III. SERVICE

NATIONAL & INTERNATIONAL SERVICE

2024	NIH ORIP Strategic Planning Advisory Group
2023-present	ASBMB CEO/Executive Director Search Committee
2023	Site Visit Reviewer for the NCI Center for Structural Biology and Cancer Innovation Laboratory
2022-present	Coaching Mentor, ASBMB MOSAIC Program
2022-present	Member, NIGMS Council
2022	Evaluation Panel, Academia Sinica Institutional Review of the Life Sciences Division, Academia Sinica, Taipei, Taiwan
2019-2022	Awards Committee, American Association for Cancer Research
2018-2019	Past-president, American Society of Biochemistry and Molecular Biology
2016-2018	President, American Society of Biochemistry and Molecular Biology
2016-2020	National Institutes of Health Grant Review Panel (TCB, regular member)
2017	External Review Committee, Dept. Biochemistry & Molecular Biology, U. Massachusetts, Amherst
2015-2016	President-elect, American Society of Biochemistry and Molecular Biology
2015	National Institutes of Health Grant Review Panel (TCB, ad hoc)
2015	National Institutes of Health Grant Review Panel (ZRG1 F05, ad hoc)
2015	National Institutes of Health Grant Review Panel (TCB, ad hoc)
2015	National Institutes of Health CSR Pilot Study, Cell Biology
2014-2016	Past-president, U.S. Human Proteome Organization (US-HUPO)
2014	NCI Intramural Review Panel, Laboratory of Cell Developmental Signaling
2014	National Institutes of Health Grant Review Panel (F32, ZRG1_F05, ad hoc)
2012-2015	Council Member, American Society of Biochemistry and Molecular Biology
2012-2014	President, U.S. Human Proteome Organization (US-HUPO)

2012	Grant Review Panel, U.S.-Israel Binational Science Foundation
2010-2011	President-Elect, U.S. Human Proteome Organization (US-HUPO)
2008	External Advisory Board, Moffitt Cancer Center NCDDG Grant
2007-2011	National Institutes of Health Grant Review Panel, Regular Member, BRT-B
2006	National Institutes of Health Grant Review Panel (K99, ad hoc)
2005	National Institutes of Health Grant Review Panel (Roadmap, ad hoc)
2004	External Advisory Board, Institute for Molecular Sciences, Richmond, CA
2004	External Review Committee, Van Andel Institute, Grand Rapids, MI
2003	National Institutes of Health Grant Review Panel (NCRR, ad hoc)
2002-2004	External Advisory Board, North Dakota Biomedical Research Infrastructure Network
1999-2003	National Institutes of Health Grant Review Panel, Regular Member, CDF3
1995-1996	National Institutes of Health Grant Review Panel (ad hoc)
1994-1995	National Science Foundation Grant Review Panel (ad hoc)
1994	US Army Breast Cancer Grant Review Panel

EDITORIAL BOARDS

2021-present	Editorial Board, *Proc. Natl. Acad. Sci. USA*
2001-present	Editorial Board, *Molecular and Cellular Proteomics*
2012-2015	Board of Editors, *Journal of Molecular Biology*
2010-2015	Editorial Board, *Cancer Research*
2009-2013	Editorial Advisory Board, *Journal of Proteome Research*
2000-2018	Editorial Advisory Board, *Biochemistry*
1998-2003	Editorial Board, *Journal of Biological Chemistry*

MEETING ORGANIZATION

2017 Co-chair, Annual Meeting of the American Society of Biochemistry and Molecular Biology
2010 Chair, 6th Annual Meeting of the U.S.-Human Proteome Organization (US-HUPO)
2007 Session Organizer, Annual Meeting of the Association of Biomolecular Resource Facilities
2006 Chair, Gordon Research Conference in Phosphorylation and G protein Signaling Networks
2006 Session Organizer, Annual Meeting of the American Society of Mass Spectrometry
2006 Program Planning Committee, 100th Annual Meeting of the ASBMB
2003 Session Organizer, Annual Meeting of the Association of Biomolecular Resource Facilities
2003 Program Planning Committee, Annual Meeting of the ASBMB
2002 Chair, Keystone Symposium on Phosphorylation and Cellular Regulation

FACULTY/STUDENT VISITORS (HOST FOR SABBATICALS, RESEARCH PROJECTS)

Dr. Miwako Homma, Assoc. Prof., Dept. of Biomolecular Science, Fukushima Medical University, Fukushima Japan (July-Nov 2014)
Dr. Ho-jeong Kwon, Prof., Dept. of Biotechnology, Yonsei University, Seoul Korea (June 2012)
Dr. John Shabb, Assoc. Prof., Dept. of Biochemistry, Univ. North Dakota, Grand Forks, ND (July 2005-June 2006, November 2006, March 2007, June 2008)
Dr. Kee-hong Kim, Center for Prostate Cancer Research, Bethesda, MD (2 weeks in 2005)
Dr. Peter Wilden, Prof, Dept. Pharmacology, Univ. Missouri, Columbia (2 weeks in 2002)
Dr. Paul Laybourn, Assoc. Prof., Dept. Biochemistry, Colorado State Univ. (Nov 2002)

Ms. Olayinka Oyeyemi, Ph.D. Student, Lab of Judith Klinman, Dept. Chemistry, U. California, Berkeley (Oct-Nov 2002, July-Aug 2005, Jan-May 2006)
Dr. Liang Zhao, Postdoctoral Fellow, Lab of Judith Klinman, Dept. Chemistry, U. California, Berkeley (Oct-Nov 2002, Mar-May 2003)
Dr. Kun-Liang Guan, Prof., Dept of Biol. Sciences, Univ. of Michigan (Jan-June 2002)
Dr. Mark Winey, Assoc. Prof., Dept. of MCDB, Univ. Colorado Boulder, CO (Nov 1999-May 2000)
Dr. Craig Thulin, Asst. Prof., Dept. of Chemistry, Brigham Young Univ. (2-6 wks each in 2000, 2001, and 2002)
Dr. Robert Rice, Prof., Dept. of Toxicology, Univ. California, Davis, CA (Oct-Nov 1999)
Dr. Judith Jaehning, Prof. Dept. of Biochemistry and Molecular Biology, Univ. Colorado Health Sciences Center, Denver, CO (July-Oct 1999)
Dr. Kwang Chul Kim, Assoc. Prof. Dept. of Pharmacy, Univ. Maryland, Baltimore MD (March-April 1998)

UNIVERSITY SERVICE

Institutional

2023-2024	Chair, Search Committee, Staff Scientist for the Central Analytical Facility for Mass Spectrometry and Proteomics
2023	Search Committee, Director for the Colorado Diversity Initiative
2022	U. Colorado Skaggs School of Pharmacy Orbitrap Scientific Advisory Committee
2021-present	U. Colorado Cancer Center Shared Resource Oversight Committee
2021	Faculty Post-tenure Review Committee
2018-present	Mentoring Committee for BioFrontiers junior faculty member
2017-2018	Internal Review Committee, Dept. of Mechanical Engineering, U. Colorado Boulder
2014-2017	Chair, Supercomputer Allocations Committee, BioFrontiers Institute
2012-2013	Chair, Faculty Search Committee, BioFrontiers Institute
2011	Member, Operations Planning Committee, Jennie Smoly Caruthers Biotechnology Building
2010-2011	Member, Chemical Biology Faculty Search Committee, BioFrontiers Institute
2009-present	Faculty Supervisor, Central Analytical Core Facility (Mass Spectrometry and Proteomics)
2008-present	Co-Director, CO-Pilot Grant Program, Colorado Clinical and Translational Sciences Institute (CCTSI)
2008-2009	Member, Computational Biology and Bioinformatics Faculty Search Committee, BioFrontiers Institute
2007-2008	Chair, Computational Biology and Bioinformatics Faculty Search Committee, BioFrontiers Institute
2007-2008	Member, Experimental Biophysics Faculty Search Committee, BioFrontiers Institute
2007	Organizing Committee, 2007 Butcher Symposium
2006-2007	Planning Committee, Program Plan for Systems Biotechnology Building
2004-2005	Chair, Molecular Biotechnology Faculty Search Committee, BioFrontiers Institute
2003-2004	Chair, Bioinformatics Faculty Search Committee, BioFrontiers Institute
2003-2017	CU-Boulder liaison, Univ. Colorado Cancer Center
2003-present	Associate Director, BioFrontiers Institute
2002-2005	President's Taskforce on Genomics and Biotechnology
2001-present	Steering Committee, Alliances for Graduate Education and the Professoriate (AGEP)

1999-present Director, Graduate Training Program in Signaling and Cellular Regulation (T32)
1997-2017 Steering Committee member, Medical Scientists Training Program (MD/PhD)
1996-2001 Institutional Biosafety Committee (Chair 1998-2001)

Departmental

2023-present Associate Director for Undergraduate Affairs
2022-2023 Member, Diversity Equity and Inclusion Committee
2022-present Member, Department of Biochemistry Executive Committee
2021-2023 Member, Graduate Orals Exam Committee
2020 Search Committee for Director of Chemical Education
2018-present Mentoring Committee for Biochemistry junior faculty member
2017-2018 Chair, Subcommittee for junior faculty promotion
2015-2016 Departmental Governance Subcommittee
2014-2016 Biochemistry Division Oversight Subcommittee
2012-2013 Chair, Subcommittee for senior faculty promotion
2011 Departmental Budget Reconciliation Committee
2010-2011 Chair, Subcommittee for senior faculty promotion
2010-2011 Member, Subcommittee for junior faculty promotion
2007-2008 Chair, Subcommittee for junior faculty promotion
2007-2008 Member, Subcommittee for junior faculty reappointment
2006-2007 Member, Organic Chemistry Faculty Search Committee
2005-2006 Faculty Retention Committee
2004-2006 Chair, Subcommittees for promotion of two junior faculty
2004-2005 Member, Subcommittee for promotion of one junior faculty
2002-2004 Carnegie Initiative for the Doctorate committee
2002-2003 Biochemistry Faculty Search Committee
2001-2003 Departmental Executive Committee
2000 Merit Evaluation Committee
1999-2000 Biochemistry Faculty Search Committee
1997-1999 Staff Retention Committee
1995-2000 Graduate Scholastic Committee
1995-2001 Tissue Culture Facility Supervisor
1995-1998 Graduate Advisor, Biochemistry Division
1994-1995 Diversity Committee
1994-1998 Cristol Building Renovations
1994-1995 Biochemistry Faculty Search Committee
1993-1994 Biochemistry Faculty Search Committee
1997-1998 Biochemistry Faculty Search Committee

IV. PATENTS

Seger, R., Seger, D., Ahn, N.G., and Krebs, E.G. Human signal transduction MAPK kinase. Issued on Sept. 2 1997 in the USA, US patent 5,663,314. Serial number: 423399; Intl. Class CO7H 021/04; US Class 536/023.2.

V. PUBLICATIONS

179. Henen, M.A., McCall, D., Jones, D., Ahn, N.G. and Vögeli, B. (2025) From eNOE spectra to distances: a detailed protocol for converting assigned NOESY series peaks into exact distance restraints utilizing Matlab- or CYANA-eNORA. *STAR Protocols. In press.*

178. Vaisar, D. and **Ahn, N.G.** (2024) Latent allosteric control of protein interactions by ATP-competitive kinase inhibitors. *Curr. Op. Struct. Biol*. 89:102935.

177. Alderman, C., Anderson, R., Zhang, L., Hughes, C.J., Li, X., Ebmeier, C., Wagley, M.E., **Ahn, N.G.**, Ford, H.L. and Zhao, R. (2024) Biochemical characterization of the Eya and PP2A-B55α interaction. *J. Biol. Chem.* 300(7):107408. PMID: 38796066;

176. Anderson, J.W., Vaisar, D., Jones, D.N., Pegram, L.M., Vigers, G., Chen, H., Moffat, J.G. and **Ahn, N.G.** (2023) Conformation selection by ATP-competitive inhibitors and allosteric communication in ERK2. *eLife,* 12:RP91507. PMID: 38537148.

175. Miller, S.G., Hoh, M., Ebmeier, C.C., Tay, J.W. and **Ahn, N.G.** (2023) Cooperative polarization of MCAM/CD146 and ERM family proteins in melanoma. *Mol. Biol. of the Cell,* 35:ar31. PMID: 38117590.

174. Pegram, L.M., Riccardi, D. and **Ahn, N.G.** (2023) Activation loop plasticity and active site coupling in the MAP kinase, ERK2. *J. Mol. Biol.*, 435:168309. PMID: 37806554.

173. Lee, E., Redzic, J.S., Saviola, A.J., Li, X., Ebmeier, C.C., Kutateladze, T., Hansen, K.C., Zhao, R., **Ahn, N.,** Sluchanko, N.N., and Eisenmesser, E. (2023) Molecular insight into the specific interactions of the SARS-CoV-2 nucleocapsid with RNA and host protein. *Protein Sci.* 20:e4603. PMID: 36807437.

172. Kavran, A.J., Stuart, S.A., Hayashi, K.R., Basken, J.M., Brandhuber, B.J. and **Ahn, N.G.** (2022) Intermittent treatment of BRAF-V600E melanoma cells delays resistance by adaptive resensitization to drug rechallenge. *Proc. Natl. Acad. Sci. USA* 119:e2113535119. PMID: 35290123.

171. Pegram, L.M., Anderson, J.W. and **Ahn, N.G.** (2021) Dynamic equilibria in protein kinases. *Curr. Op. Struct. Biol.* 71:215-222. PMID: 34425481.

170. Iverson, D.B., Xiao, Y., Jones, D.N, Eisenmesser, E.Z. and **Ahn N.G.** (2020) Activation loop dynamics are coupled to core motions in extracellular signal-regulated kinase-2. *Biochemistry* 59:2698-2706. PMID: 32643366.

169. Zhang, J., Balsbaugh, J.L, Gao, S., **Ahn, N.G.** and Klinman, J.P. (2020) Hydrogen deuterium exchange defines catalytically linked regions of protein flexibility in the catechol O-methyltransferase reaction. *Proc. Natl. Acad. Sci. USA* 117:10797-10805. PMID: 32371482.

168. Lopez, E.D., Burastero, O., Arcon, J.P., Defilipe, L/A., **Ahn, N.G.**, Marti, M.A. and Turjanski, A.G. (2020) Kinase activation by small conformational changes. *J. Chem. Inf. Model.* 60:821-832. PMID: 31714778.

167. Pegram, L.M., Liddle, J.C., Xiao, Y., Hoh, M., Rudolph, J., Iverson, D., Vigers, G.P., Smith, D., Zhang, H., Wang, W., Moffatt, J.G. and **Ahn, N.G.** (2019) Activation loop dynamics are controlled by conformation selective inhibitors of ERK2. *Proc. Natl. Acad. Sci. USA* 116:15463-15468. PMID: 31311868

166. Masson, G.R., Burke, J.E., **Ahn, N.G.,** et al. (2019) Recommendations for performing, interpreting and reporting hydrogen deuterium exchange mass spectrometry (HDX-MS) experiments. *Nat. Methods* 16:595-602. PMID: 31249422

165. Basken, J., Stuart, S.A., Kavran, A.J., Lee, T., Ebmeier, C.C., Old, W.M. and **Ahn, N.G.** (2018) Specificity of phosphorylation responses to MAP kinase pathway inhibitors in melanoma cells. *Mol. Cell. Proteomics,*17(4):550-564. PMID:29255136

164. Mattiroli, F., Bhattacharyya, S., Dyer, P.N., White, A.E., Sandman, K., Burkhart, B.W., Byrne, K.R., Lee, T., **Ahn, N.G.**, Santangelo, T.J., Reeve, J.N. and Luger, K. (2017) Structure of histone based chromatin in Archaea. *Science*, 357(6351):609-661. PMID:28798133.

163. Connacher M.K., Tay, J.W. and Ahn, N.G. (2017) Rear-polarized Wnt5a-receptor-actin-myosin-polarity (WRAMP) structures promote the speed and persistence of directional cell migration. *Mol. Biol. Cell.* 28(14):1924-1936. PMID: 28592632.

162. Mattiroli, F., Gu, Y., Balsbaugh, J.L, Ahn, N.G. and Luger, K. (2017) The Cac2 subunit is essential for productive histone binding and nucleosome assembly in CAF-1. *Sci. Rep.* 7:46274. PMID:28418026.

161. Mattiroli F, Gu Y, Yadav T, Balsbaugh JL, Harris MR, Findlay ES, Liu Y, Radebaugh CA, Stargell LA, **Ahn NG**, Whitehouse I, Luger K. (2017) DNA-mediated association of two histone-bound CAF-1 complexes drives tetrasome assembly in the wake of DNA replication. Elife. 6:e22799. PMID:28315523.

160. Liu W.H., Roemer, S.C., Zhou, Y., Shen, Z.J., Dennehey, B.K., Balsbaugh, J.L, Liddle, J.C., Nemkov, T. Ahn, N.G., Hansen, K.C., Tyler, J.K. and Churchill, M.E. (2016) The Cac1 subunit of histone chaperon CAF-1 organizes CAF-1-H3/H4 architecture and tetramerizes histones. *Elife.* 5:e18023. PMID:27690308.

159. Goshen-Lago, T., Goldberg-Carp, A., Melamed, D., Darlyuk-Saadon, I., Bai, C., Ahn, N.G., Admon, A. and Engelberg, D. (2016) Variants of the yeast MAPK Mpk1 are fully functional independently of activation loop phosphorylation. *Mol. Biol. Cell.* 27(17):2771-2783. PMID:27413009.

158. Beenstock, j., Melamed, D., Mooshayef, N., Mordechay, D., Garfinkel, B.P., Ahn, N.G., Admon, A. and Engelberg, D. (2016) p38b mitogen activated protein kinase modulates its own basal activity by autophosphorylation of the activating residue Thr180 and the inhibitory residues Thr241 and Thr261. *Mol. Cell Biol.* 36(10):1540-1554. PMID:26976637.

157. Smorodinsky-Atias, K., Goshen-Lago, T., Goldberg-Carp, A., Melamed, D., Shir, A., Mooshayef, N., Beenstock, J., Karamansha, Y., Darlyuk-Saadon, I., Livnah, O., **Ahn, N.G.**, Admon, A. and Engelberg, D. (2016) Intrinsically active variants of Erk oncogenically transform cells and disclose unexpected autophosphorylation capability that is independent of TEY phosphorylation. *Mol Biol Cell.* 27(6):1026-39. PMID:26658610.

156. Singh, S.P., Schwartz, M.P., Tokuda, E.Y., Luo, Y., Rogers, R.E., Fujita, M., **Ahn, N.G.** and Anseth, K.S. (2015) A synthetic modular approach for modeling the role of the 3D microenvironment in tumor progression. *Sci Rep.*: 5:17814. PMID:26638791

155. Xiao, Y., Warner, L.R., Latham, M.P., **Ahn, N.G.** and Pardi, A. (2015) Structure-based assignment of Ile, Leu and Val methyl groups in the active and inactive forms of the mitogen-activated kinase extracellular signal-regulated kinase 2. *Biochemistry* 54:4307-4319. PMID: 26132046.

154. Volkov, V., Grissom, P., Arzhanik, V., Zaytsev, A., Renganathan, K., McClure-Begley, T., Old, W., **Ahn, N.**, and McIntosh, J.R. (2015) Centromere protein F includes two sites that couple efficiently in depolymerizing microtubules. *J. Cell Biol.* 209:813-828. PMID: 26101217.

153. Brown, R., Stuart, S., Houel, S., **Ahn, N.G.** and Old, W.M. (2015) Large-scale examination of factors influencing phosphopeptide neutral loss during collision induced dissociation. *J. Am. Soc. Mass Spectrom.* 26:1128-1142. PMID: 25851653.

152. Stuart, S.A., Houel, S., Lee, T., Wang, N., Old, W.M. and **Ahn, N.G.** (2015) A phosphoproteomic comparison of BRAF(V600E) and MKK1/2 inhibitors in melanoma cells. *Mol. Cell. Proteomics,* 14:1599-1615. PMID:25850435.

151. Lee, T., Wang, N., Houel, S., Couts, K., Old, W., and **Ahn, N.** (2015) Dosage and temporal thresholds in miRNA proteomics. *Mol. Cell. Proteomics,* 14:289-302. PMID:25467838.

150. Xiao, Y., Liddle, J.C., Pardi, A. and **Ahn, N.G.** (2015) Dynamics of protein kinases: Insights from nuclear magnetic resonance. *Acc. Chem. Res.* 48:1106-1114. PMID:25803188

149. Long, J., Tokhunts, R., Old, W.M., Houel, S., Rodgriguez-Blanco, J., Singh, S., Shilling, N., Capobianco, A.J., **Ahn, N.G.,** and Robbins, D.J. (2015) Identification of a family of fatty-acid-speciated sonic hedgehog proteins, whose members display differential biological properties. *Cell Reports,* 10:1280-1287. PMID:25732819.

148. Rudolph, J., Xiao, Y, Pardi, A. and **Ahn, N.G.** (2015) Slow inhibition and conformation selective properties of ERK1/2 inhibitors. *Biochemistry* 54(1):22-31. PMID:25350931.

147. Sours, K.M., Xiao, Y. and **Ahn, N.G.** (2014) Extracellular-regulated kinase 2 is activated by the enhancement of hinge flexibility. *J. Mol. Biol.,* 426:1925-1935. PMID: 24534729.

146. Xiao, Y., Lee, T., Latham, M.P., Warner, L.R., Tanimoto, A., Pardi, A. and **Ahn, N.G.** (2014) Phosphorylation releases constraints to domain motion in ERK2. *Proc. Natl. Acad. Sci. USA,* 111(7):2506-2511. PMID: 24550275.

145. Beenstock, J., Ben-Yehuda, S., Melamed, D., Admon, A., Livnah, O., **Ahn, N.G.** and Engelberg, D. (2014) The p38β mitogen-activated protein kinase possesses an intrinsic autophosphorylation activity, generated by a short region composed of the αG helix and MAPK insert. *J. Biol. Chem.*, 289(34):23546-23556. PMID:25006254.

144. Tracy, C.M., Gray, A.J., Cuéllar, J., Shaw, T.S., Howlett, A.C., Taylor, R.M., Prince, J.T., **Ahn, N.G.**, Valpuesta, J.M. and Willardson, B.M. (2014) Programmed Cell Death Protein 5 Interacts with the Cytosolic Chaperonin Containing Tailless Complex Polypeptide 1 (CCT) to Regulate β-Tubulin Folding. *J. Biol.Chem.* 289(7):4490-4502. PMID:24375412

143. Schwartz, M.P., Rogers, R.E., Singh, S.P., Lee, J.Y., Loveland, S.G., Koepsel, J.T., Witze, E.S., Montanez-Sauri, S.I., Sung, K.E., Tokuda, E.Y., Sharma, Y., Everhart, L.M., Nguyen, E.H., Zaman, M.H., Beebe, D.J., **Ahn, N.G.**, Murphy, W.L. and Anseth, K.S. (2013) A quantitative comparison of human HT1080 fibrosarcoma cells and primary human dermal fibroblasts identifies a 3D migration mechanism with properties unique to the transformed phenotype. *PLoS One.* 8(12):e81689. PMID: 24349113.

142. Witze, E.S., Connacher, M.K., Houel, S., Schwartz, M.P., Morphew, M.K., Reid, L., Sacks, D.B., Anseth, K.S. and **Ahn, N.G.** (2013) Wnt5a directs polarized calcium gradients by recruiting cortical endoplasmic reticulum to the cell trailing edge. *Developmental Cell,* 26, 645-657. PMID: 24091015

141. Templeton, P.D., Litman, E.S., Metzner, S.I., **Ahn, N.G.*** and Sousa, M.C.* (2013) Structure of mediator of RhoA-dependent invasion (MRDI) explains its dual function as a metabolic enzyme and a mediator of cell invasion. *Biochemistry* 52(33):5675-5684. PMID: 23859498
=> * Corresponding authors

140. Ponicsan, S.L., Houel, S., Old, W.M., **Ahn, N.G.**, Goodrich, J.A. and Kugel, J.F. (2013) The Non-Coding B2 RNA Binds to the DNA Cleft and Active-Site Region of RNA Polymerase II. *J. Mol. Biol.,* 425(19):3625-3638. PMID:23416138.

139. Couts, K.L., Anderson, E.M., Gross, M.M., Sullivan, K. and **Ahn, N.G.** (2012)

Oncogenic B-Raf signaling in melanoma cells controls a network of microRNAs with combinatorial functions. *Oncogene,* 32(15):1959-1970. PMID:22751131.

138. Wang, D., Zhang, Z., O'Loughlin, E., Lee, T., Houel, S., O'Carroll, D., Tarakhovsky, A., **Ahn, N.G.** and Yi, R. (2012) Quantitative functions of Argonaute proteins in mammalian development. *Genes Dev.,* 26, 693-704. PMID:22474261.

137. Luo, Y., Ellis, L.Z., Dallaglio, K., Takeda, M., Robinson, W.A., Robinson, S., Lewis, K.D., McCarter, M.D., Gonzalez, R., Norris, D.A., Roop, D.R., **Ahn, N.G.** and Fujita, M. (2012) Side population cells from human melanoma tumors reveal diverse mechanisms of chemoresistance. *J. Invest. Dermatol.,* 132, 2440-2450. PMID:22622430.

136. Yen, C.Y., Houel, S., **Ahn, N.G.**, and Old, W.M. (2011) Spectrum-to-spectrum searching using a proteome-wide spectral library. *Mol. Cell. Proteomics,* 10, M111.007666. PMID:21532008.

135. Oyeyemi, O.A., Sours, K.M., Lee, T., Kohen, A., Resing, K.A., **Ahn, N.G.*** and Klinman, J.P.* (2011) Comparative hydrogen-deuterium exchange for a mesophilic vs thermophilic dihydrofolate reductase at 25 °C: Identification of a single active site region with enhanced flexibility in the mesophilic protein. *Biochemistry,* 50, 8251-8260. PMID:21859100.
=> * Corresponding authors

134. Meyer-Arendt, K., Old, W.M., Houel, S., Renganathan, K., Eichelberger, B., Resing, K.A. and **Ahn, N.G.** (2011) IsoformResolver: A peptide-centric algorithm for protein inference. *J Proteome Res.,* 10, 3060-3075. PMID:21599010.

133. Sours, K.M. and **Ahn, N.G.** (2010) Analysis of MAP kinases by hydrogen exchange mass spectrometry. In "MAP Kinase Signaling Protocols", R. Seger, Ed., *Methods in Molecular Biology,* 661, 239-255.

132. Ring, A.Y., Sours, K.M., Lee, T. and **Ahn, N.G.** (2010) Distinct patterns of activation-dependent changes in conformational mobility between ERK1 and ERK2. *Intl. J. Mass Spectrometry,* 302, 101-109. PMID:21599010.

131. Houel, S., Abernathy, R., Renganathan, K., Meyer-Arendt, K., **Ahn, N.G.** and Old, W.M. (2010) Quantifying the impact of chimera MS/MS spectra on peptide identification in large scale proteomics studies. *J. Proteome Res.,* 9, 4152-4160. PMID:20578722.

130. Oyeyemi, O., Sours, K.M., Lee, T., Resing, K.A., **Ahn, N.G.*** and Klinman, J.P.* (2010) Temperature dependence of protein motions in a thermophilic dihydrofolate reductase and its relationship to catalytic efficiency. *Proc. Natl. Acad. Sci., USA,* 107, 10074-10079. PMID:20534574.
=> * Corresponding authors

129. Prince, J.T. and **Ahn, N.G.** (2010) The case of the disappearing drug target. *Molecular Cell*, 37, 455-456.

128. **Ahn, N.G.** (2009) PORE-ing over ERK substrates. *Nat. Struct. Mol. Biol.,* 16, 1004-1005.

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29. Thorburn, J., Carlson, M., Mansour, S.J., Chien, K.R., **Ahn, N.G.** and Thorburn, A. (1995) Inhibition of a signaling pathway in cardiac muscle cells by active MAP kinase kinase. *Mol. Biol. Cell,* 11, 1479-1490.

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27. Al-Alawi, N., Rose, D.W., Buckmaster, C., **Ahn, N.**, Rapp, U., Meinkoth, J. and Feramisco, J.R. (1995) TSH-induced mitogenesis is Ras dependent but appears to bypass the Raf-dependent cytoplasmic kinase cascade. *Mol. Cell Biol.,* 15, 1162-1168.

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25. Mansour, S.J., Matten, W.T., Hermann, A.S., Candia, J.M., Rong, S., Fukasawa, K., Vande Woude, G.F. and **Ahn, N.G.** (1994) Gain-of-function mutations in MAP kinase kinase promote mammalian cell transformation. *Science,* 265, 966-970.

24. Mansour, S.J., Resing, K.A., Candia, J.M., Hermann, A.S., Gloor, J.W., Herskind, K.R., Wartmann, M., Davis, R.J. and **Ahn, N.G.** (1994) Mitogen-activated protein kinase phosphorylation of mitogen-activated protein kinase-kinase: Analysis of *in vitro* phosphorylation sites. *J. Biochem.,* 116, 304-314.

23. Posada, J., Yew, N., **Ahn, N.G.**, Vande Woude, G.F. and Cooper, J.A. (1993) Mos stimulates MAP kinase in Xenopus oocytes and activates a MAP kinase kinase in vitro. *Mol. Cell . Biol.,* 13, 2546-2553.

22. **Ahn, N.G.** (1993) The MAP kinase cascade. Discovery of a new signal transduction pathway. *Mol. Cell. Biochem.,* 127/128, 201-209.

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20. Yonemura, K., Raines, E.W., **Ahn, N.G.** and Narayanan, A.S. (1993) Mitogenic signalling mechanisms of human cementum-derived growth factor. *J. Biol. Chem.,* 268, 26120-26126.

19. Krebs, E.G., **Ahn, N.G.**, Campbell, J.S., Graves, L.M., Seger, R. and Weiel, J.E. (1993) Regulation of protein serine/threonine kinases by tyrosine kinases. *Adv. Second Messengers Phosphoprotein Res.,* 28, 227-236.

18. Gause, K.C., Homma, M.K., Licciardi, K.A., Seger, R., **Ahn, N.G.**, Peterson, M.J., Krebs, E.G. and Meier, K.E. (1993) Effects of phorbol ester in mitogen-activated protein kinase kinase activity in wild-type and phorbol ester-resistant EL4 thymoma cells. *J. Biol. Chem.,* 268, 16124-16129.

17. **Ahn, N.G.**, Campbell, J.S., Seger, R., Jensen, A.L., Graves, L.M. and Krebs, E.G. (1993) Metabolic labelling of mitogen-activated protein kinase kinase in A431 cells demonstrates phosphorylation on serine and threonine residues. *Proc. Natl. Acad. Sci. USA,* 90, 5143-5147.

16. **Ahn, N.G.**, Seger, R. and Krebs, E.G. (1992) The mitogen-activated protein kinase activator. *Curr. Op. Cell Biol.,* 4, 992-999.

15. Seger, R., Seger, D., Lozeman, F.J., **Ahn, N.G.**, Graves, L.M., Campbell, J.S., Ericsson, L., Harrylock, M., Jensen, A.M. and Krebs, E.G. (1992) Human T-cell mitogen-activated protein kinase kinases are related to yeast signal transduction kinases. *J. Biol. Chem.,* 267, 25628-25631.

14. Seger, R., **Ahn, N.G.**, Posada, J., Munar, E.S., Jensen, A.J., Cooper, J.A., Cobb, M.H. and Krebs, E.G. (1992) Purification and characterization of mitogen-activated protein kinase activator(s) from epidermal growth factor-stimulated A431 cells. *J. Biol Chem.,* 267, 14373-14381.

13. **Ahn, N.G.**, Robbins, D.J., Haycock, J.W., Seger, R., Cobb, M.H. and Krebs, E.G. (1992) Identification of an activator of the MAP kinases ERK1 and ERK2 in PC12 cells stimulated with nerve growth factor or bradykinin. *J. Neurochem.,* 59, 147-156.

12. Haycock, J.W., **Ahn, N.G.**, Cobb, M.H. and Krebs, E.G. (1992). ERK1 and ERK2, two microtubule-associated protein 2 kinases, mediate the phosphorylation of tyrosine hydroxylase at serine 31 *in situ*. *Proc. Natl. Acad. Sci. USA*, 89, 2365-2369.

11. Seger, R., **Ahn, N.G.**, Boulton, T.G., Yancopoulos, G.D., Panayotatos, N., Radziejewska, E., Ericsson, L., Bratlien, R.L., Cobb, M.H. and Krebs, E.G. (1991). Microtubule-associated protein 2 kinases, ERK1 and ERK2, undergo autophosphorylation on both tyrosine and threonine residues: Implications for their mechanism of activation. *Proc. Natl. Acad. Sci. USA*, 88, 6142-6146.

10. **Ahn, N.G.**, Seger, R., Bratlien, R.L. and Krebs, E.G. (1991). Growth factor stimulated phosphorylation cascades: Activation of growth factor-stimulated MAP kinase. *CIBA Foundation Symposia,* 164, 113-131.

9. **Ahn, N.G.**, Seger, R., Bratlien, R.L., Diltz, C.D., Tonks, N.K. and Krebs, E.G. (1991) Multiple components in an epidermal growth factor-stimulated protein kinase cascade. *In vitro* activation of a MBP/MAP2 kinase. *J. Biol. Chem.,* 256, 4220-4227.

8. **Ahn, N.G.** and Krebs, E.G. (1990) Evidence for an epidermal growth factor-stimulated protein serine/threonine kinase cascade in Swiss 3T3 cells. Activation of serine peptide kinase activity by myelin basic protein kinases *in vitro*. *J. Biol. Chem.,* 265, 11495-11501.

7. **Ahn, N.G.**, Weiel, J.E., Chan, C.P. and Krebs, E.G. (1990) Identification of multiple epidermal growth factor-stimulated protein serine/threonine kinases from Swiss 3T3 cells. *J. Biol. Chem.,* 265, 11487-11494.

6. Weiel, J.E., **Ahn, N.G.**, Seger, R. and Krebs, E.G. (1990) Communication between protein tyrosine and protein serine/threonine phosphorylation. *Adv. in Second Messengers and*

Protein Phosphorylation, Nishizuka, Y., Endo, M. and Tanaka, C., eds., Raven Press, New York, 24, pp. 182-195.

5. **Ahn, N.G.** and Klinman, J.P. (1989) Nature of rate-limiting steps in a compartmentalized enzyme system. Quantitation of dopamine transport and hydroxylation rates in resealed chromaffin granule ghosts. *J. Biol. Chem.,* 264, 12259-12265.

4. **Ahn, N.G.**, Teller, D.C., Bienkowski, M.J., McMullen, B.A., Lipkin, E.W. and de Haën, C. (1988) Sedimentation equilibrium analysis of five lipocortin-related phospholipase A_2 inhibitors from human placenta. *J. Biol. Chem.,* 263, 18657-18663.

3. **Ahn, N.** and Klinman, J.P. (1987) Activation of dopamine β-monooxygenase by external and internal electron donors in resealed chromaffin granule ghosts. *J. Biol. Chem.,* 262, 1485-1492.

2. **Ahn, N.G.**, Lipkin, E.W., Teller, D.C. and de Haën, C. (1986) Coupling between insulin binding and activation of glucose transport in rat adipocytes. *Fed. Proc.,* 45, 1835.

1. **Ahn, N.** and Klinman, J.P. (1983) Mechanism of modulation of dopamine β-monooxygenase by pH and fumarate as deduced from initial rate and primary deuterium isotope effect studies. *Biochemistry*, 22, 3096-3106.

VI. PRESENTATIONS

2024: Royal Society of Chemistry, Chemical Biology Symposium, London, UK
Department of Pharmacy and Pharmacology, University of Bath, Claverton Down, Bath, UK
FASEB Conference on Phosphorylation and Signaling Networks, Dublin, Ireland

2023: Department of Biochemistry and Molecular Biology, Penn State University, University Park, PA
17th Annual Symposium, Institute of Chemical Biology and Drug Discovery, Stony Brook University, Stony Brook, NY
Department of Biotechnology, Yonsei University, Seoul, Korea
Plenary speaker, Department of Pharmacology Annual Retreat, Univ. Colorado Anschutz Medical Campus, Aurora, CO

2022: Department of Pharmacology, University of Texas Houston, Houston, TX
Judith Klinman Symposium, University of California Berkeley, Berkeley, CA
FASEB Conference on Phosphorylation and Signaling Networks, Oak Island, Nova Scotia, Canada
Department of Chemistry and Biochemistry, University of Denver, Denver, CO
Department of Pharmacology, Yale University, New Haven, CT

2021: FASEB Conference on The Understudied Druggable Proteome, Zoom Webinar

9th Annual Symposium on Structural Biology, University of Oklahoma, Norman, OK
Cori Lecture, Dept. of Biochemistry & Molecular Biophysics, Washington University, St Louis, MO
Dept. of Biochemistry, Biophysics & Molecular Biology, Iowa State Univ., Ames, IA
Dept. of Chemistry & Biochemistry, University of Windsor, Windsor, Ontario
Center for Structural Biology, National Cancer Institute, Frederick, MD

2020: Department of Chemistry and Biochemistry, Utah State University, Logan, UT
Department of Pharmacology, University of Texas Southwestern Medical School, Dallas, TX

2019: Advances in Mass Spectrometry Conference, U. Massachusetts, Amherst, MA
FASEB Conference on Protein Kinases, Rancho Mirage, CA
Edwin G. Krebs Memorial Lecture, Dept. of Pharmacology, Univ. Washington, Seattle, WA
Endocrine Research Conference, Univ. Colorado Anschutz Campus, Aurora, CO
Department of Chemistry and Chemical Biology, Northeastern University, Boston, MA
EMBL Conference on Post-translational Modifications, Heidelberg, Germany
Genentech, South San Francisco, CA
Department of Chemistry, University of California, Berkeley, CA
Department of Biological Science, Florida State University, Tallahassee, FL

2018: Israel Society of Biochemistry and Molecular Biology, Conference on Post-translational Modifications, Weizmann Institute, Rehovot, Israel
ASBMB Conference on Kinases and Pseudokinases, San Diego, CA
Gordon Research Conference on Enzymes, Coenzymes and Metabolic Pathways, Waterville Valley, NH
Gordon Research Conference on Phosphorylation and G Protein Mediated Signaling Networks, Biddeford, ME
Leslie Hellerman Lecture, Department of Biological Chemistry, Johns Hopkins University School of Medicine, Baltimore, MD

2017: Keynote address: Asia Oceana Mass Spectrometry Conference, Singapore
Department of Biological Sciences, National University of Singapore
Hanson Lecture, Department of Biochemistry, Case Western Reserve University, Cleveland, OH
FASEB Conference on Protein Kinases and Phosphorylation, Cambridge, UK
Department of Biochemistry & Biophysics, Univ. of Pennsylvania, Philadelphia, PA
Department of Biochemistry, Georgia Tech University, Atlanta, GA
Vanderbilt Institute of Chemical Biology, Vanderbilt Univ., Nashville, TN

2016: Department of Biochemistry, Univ. Texas Medical Branch, Galveston, TX
Department of Molecular Biology, Princeton University, Princeton, NJ

2015: ASBMB Satellite Meeting on Pseudokinases, San Diego, CA

Maud Menten Seminar Series, Department of Biochemistry, University of Western Ontario, London, Ontario
Department of Chemistry, University of North Carolina, Chapel Hill, NC
Structural Biology 2015, CUNY Advanced Science Research Center, New York, NY
Wisconsin Human Proteomics Symposium, Univ. Wisconsin, Madison, WI
Gordon Conference, Hong Kong University of Science and Technology, Hong Kong
Distinguished Lecture, Fox Chase Cancer Center, Philadelphia, PA
Array BioPharma, Boulder, CO

2014 2nd Symposium of the Brazilian Proteomics Society and Pan-American Proteomics Society, Rio de Janiero, Brazil
Structural Bioinformatics Group, CONICET, Univ. Buenos Aires, Argentina
Department of Pharmacological Sciences, Stony Brook Univ. Medical School, Stony Brook, NY
Department of Chemistry and Biochemistry, Univ. Arizona, Tucson, AZ
6th Copenhagen Bioscience Conference on "PTMs in Cell Signaling", Novo Nordisk Fonden, Copenhagen, Denmark
FEBS Advanced Lecture Course / 8th European Summer School on Advanced Proteomics, Kloster Neustift, Brixen, Italy
Gordon Conference on Protein Phosphorylation and G Protein Networks, Biddeford ME
Department of Cell Biology, University of Virginia, Charlottesville, VA
Center for Cancer Research, Purdue University, West Lafayette, CO

2013 Butcher Symposium, Westminster, CO
Developmental Therapeutics Retreat, Univ. Colorado Cancer Center, Denver CO
Annual Symposium of the American Society of Biochemistry and Molecular Biology, Boston, MA
21st Annual Conference, New England Bioscience Society, Boston MA

2012 Annual Meeting of the Biophysical Society, San Diego, CA
Plenary Speaker, Annual Meeting of the Korean Human Proteome Organization, Seoul, Korea
Center for Cell Signaling, Ewha University, Seoul, Korea
Dept. of Pharmacology, University of Texas Southwestern, Dallas, TX
FASEB Research Conference on Smooth Muscle, Snowmass Village, CO
W.M. Keck Foundation Meeting on Single Molecule Imaging, Los Angeles, CA
Plenary Speaker, Human Proteome Organization (HUPO) World Congress, Boston, MA

2011 ASMS Symposium on Peptide Fragmentation, Sanibel, FL
Keystone Symposium on The Evolution of Protein Phosphorylation, Keystone, CO
Origins of Cancer Symposium, Van Andel Research Institute, Grand Rapids, MI
Judith P. Klinman Symposium on Mechanistic Enzymology, Berkeley, CA

6th International Symposium on Enabling Technologies for Life Sciences, Boston, MA

2010
Lorne Conference on Protein Structure, Lorne, Australia
Edwin G. Krebs Memorial Symposium, Seattle, WA
Gordon Research Conference on Protein Phosphorylation and G Protein Networks, Biddeford ME
Keynote Talk, FASEB Summer Research Conference on Protein Phosphatases, Steamboat Springs, CO
5th Garvan Signaling Symposium, Sydney, Australia
Department of Biology, University of Northern Colorado, Greeley, CO
Department of Cell Biology, Stanford University, Palo Alto, CA
Department of Molecular Biology, Cell Biology and Biochemistry, Brown University, Providence, RI
Department of Cell Biology, University of Alberta, Edmonton, Alberta, Canada

2009
American Association for Cancer Research, Denver, CO
American Association for Experimental Biology, New Orleans, LA
VIII Annual Symposium of the European Protein Society, Zurich, Switzerland
EMBO Workshop on Wnt Signaling in Development and Disease, Arolla Switzerland
2nd International Meeting on Signal Transduction, Mexican Biochemical Society, Ixtapan de la Sal, Mexico
Department of Biochemistry, Abo Academi, Turku, Finland

2008
Annual Symposium of the American Society of Biochemistry and Molecular Biology
Department of Biochemistry, Texas A&M University, College Station, TX
Gordon Research Conference on Phosphorylation and G-Protein Networks, University of New England, ME
22nd Annual Symposium of the Protein Society, San Diego, CA
10th International Workshop on Scleroderma Research, Trinity College, Cambridge, UK
Department of Chemistry, University of Cambridge, Cambridge, UK
International Congress of Cell Biology, Seoul, Korea
Department of Biochemistry, Colorado State University, Ft. Collins, CO
Wistar Institute, Philadelphia, PA

2007
AACR Special Conference “Advances in Proteomics in Cancer Research” Amelia Island, FL
US HUPO Annual Meeting, Seattle, WA
“Proteomics 2007: Opening New Windows on Disease”, The Institute of Medical Science, University of Tokyo, Tokyo, Japan
Institute of Molecular and Cellular Biosciences Department of Molecular Biology, University of Tokyo, Tokyo, Japan

Department of Chemistry, University of Delaware
Department of Biochemistry, Wake Forest University
Cell Biology Program, The Scripps Research Institute, La Jolla, CA
Taketa Lecture, The Medical College of Wisconsin, Milwaukee, WI
Biophysics Seminar Series, Univ. of Colorado Health Sciences Center, Denver, CO
Department of Pharmacology and Toxicology, Dartmouth Medical School, Hanover, NH
Frontiers in Oncology Seminar, University of Maryland Greenebaum Cancer Center, Baltimore, MD
FASEB Conference on Protein Kinases, Indian Wells, CA
Department of Molecular and Cellular Biology, University of Connecticut, Storrs, CT
2007 International HUPO Symposium, Seoul, Korea
Basic Science Plenary Talk, 2007 Annual Meeting of the American Society of Nephrology, San Francisco, CA
Annual Retreat Research Pre-Symposium, Institute of Molecular Biology, Academia Sinica, Taiwan

2006 Gallo Institute, San Francisco, CA
US HUPO Annual Meeting, Boston, MA
American Chemical Society 231st National Meeting, Atlanta, GA
2006 ASBMB 100th Anniversary Symposium, San Francisco, CA
Earl W. Sutherland Symposium, Vanderbilt University, Nashville, TN
Department of Chemistry, Ohio State University, Columbus, OH
Annual Meeting of the American Society of Mass Spectrometry, Seattle, WA
Gordon Research Conference on Molecular and Cellular Biology, Tilton Academy, Tilton, New Hampshire
Frontiers in Melanoma Seminar Series, Univ. of Colorado Health Sciences Center, Denver, CO
Department of Biochemistry, Student Invited Seminar, Kansas State University, Manhattan, KS
Department of Biochemistry, Symposium Honoring David C. Teller, Univ. of Washington, Seattle, WA
Graduate Program in Cellular and Molecular Biology, Student Invited Seminar, University of Michigan, Ann Arbor, MI
UCHSC Cancer Center Seminar Series, Univ. of Colorado Health Sciences Center, Denver, CO

2005 Hartwell Center for Bioinformatics and Biotechnology, St Jude's Hospital, Memphis, TN
Dept. Biochemistry and Molecular Biology, University of Indiana, Indianapolis, IN
OSI Pharmaceuticals, Boulder, CO
Program in Structural Biology, University of California, Berkeley, CA
Department of Chemistry, Yale University, New Haven, CN

Centro Nacional de Investigaciones Oncológicas (Spanish National Cancer Centre (CNIO)) Cancer Conference, Madrid, Spain
CU-Array Pharma Symposium on Protein Kinases, Boulder, CO
Gordon Research Conference on Toxicogenomics, Colby Sawyer College, NH
Annual Meeting of the American Society of Mass Spectrometry, San Antonio, TX
Gordon Conference on Second Messengers and Protein Phosphorylation, Univ. New England, ME (Vice-Chair)
Institute for Complex Adaptive Matter (ICAM) Symposium, UCSD, La Jolla, CA
FASEB Symposium on Protein Phosphorylation, Snowmass, CO
Annual Meeting of the Medical Scientists Training Program, Aspen, CO
Keynote Talk, Institute of Molecule Medicine and Genetics 2005 Retreat at Palm Key, Medical College of Georgia, Augusta GA
Neuroscience Seminar Program, Univ. Colorado, Boulder, CO

2004 Keystone Symposium on Proteomics, Santa Fe, NM
Keystone Symposium on Protein Kinases and Cancer, Lake Tahoe, CA
Department of Chemistry, University of Pennsylvania
Dept. Chemistry and Chemical Biology, Harvard University, Cambridge, MA
University Lecture Series, University of Texas, Southwestern, Dallas, TX
Department of Physiology, Columbia University, Ney York, NY
Cancer Research Center of Hawaii, University of Hawaii at Manoa, Honolulu, HI
100th Annual Meeting of the American Thoracic Society, Orlando, FL
Annual Meeting of the American Society for Biochemistry and Molecular Biology, Boston, MA
Gordon Conference on Second Messengers and Protein Phosphorylation, Meriden, NH
Breast Cancer Research Program Seminar, Vanderbilt University, Nashville, TN
16th Congress, Int'l Federation of Associations of Anatomists, Kyoto, Japan
American Association for Cancer Research Symposium on Cell Signaling, Key Biscayne, FL
Nobel Symposium, Stockholm, Sweden
Annual Meeting of the Society for Melanoma Research, Phoenix, AZ
Keynote Talk, Symposium on Functional Proteomics, Korea Society of Biochemistry and Molecular Biology, Seoul, Korea
Center for Cell Signaling Research, Ewha University, Seoul, Korea
Dept. Physiology & Biophysics, University of California, Irvine, CA

2003 CU-IBM Research Summit, UCHSC, Denver, CO
Proteomics in Diabetes Workshop, NIDDK, NIH, Bethesda, MD
Symposium on Structural Biology, Univ. Texas, Galveston, TX
Dept. of Cell Biology, Harvard Medical School
Dept. of Physiology and Biophysics, Case Western Reserve University, Cleveland, OH

Eppley Cancer Research Institute, Univ. Nebraska
Merck Frosst Conference series, Clinical Research Institute of Montreal.
Ottawa Health Research Institute, Univ. of Ottawa, Canada
Gordon Conference for Frontiers in Molecular Cell Biology, Tilton Academy, Tilton, New Hampshire
Cancer Research UK Beatson International Cancer Conference, Glasgow, Scotland
Salk/EMBL Oncogenes and Growth Control Meeting, San Diego, CA
Annual Meeting of the PanAmerican Society for Pigment Cell Research, Cape Cod, MA
19th International Congress of Biochemistry and Molecular Biology, Toronto, Canada
2003 Annual Meeting of the American Association of Pharmaceutical Scientists, Salt Lake City, Utah
4th Annual Rachmiel Levine Symposium. Advances in Diabetes Research: From Cell Biology to Cell Therapy, Universal City, CA
10th Annual Meeting of the Society of Free Radical Biology and Medicine, Seattle, WA
NIH Director's Wednesday Afternoon Lecture, NIH, Bethesda, MD
Workshop for the Protein Kinase Resource, Asilomar, CA
Frontiers in Pharmacology Seminar, New York University Medical Center, NY

2002 Department of Cell Biology, University of Cincinnati, Cincinnati, OH
Department of Chemistry, University of Illinois, Chicago, IL
Department of Biochemistry, University of Minnesota, Minneapolis, MN
Roswell Park Cancer Institute, Buffalo, NY
Ben May Institute, University of Chicago, Chicago IL
Department of Biochemistry, Michigan State University, East Lansing, MI
Research Grand Rounds, H. Lee Moffitt Cancer Center, Tampa FL
Annual Meeting of the American Society of Biochemistry and Molecular Biology, New Orleans, LA
Van Andel Institute, Grand Rapids, MI
Cell Signal Technology, Beverly, MA
Department of Cell Biology and Neuroscience, Rutgers University, Piscataway NJ
Department of Pharmaceutical Chemistry, University of California, San Francisco
The Vanderbilt Conference on Proteomics: The Next Biological Challenge, Vanderbilt University, Nashville TN
Department of Biological Sciences, University of California Davis Cancer Center, Sacremento, CA
Stowers Institute, Kansas City, MO
Keynote Talk: National Neurofibromatosis Foundation International Consortium for the Molecular Biology of NF1 and NF2, Aspen, CO
Gordon Conference on Cyclic Nucleotide Phosphodiesterases, South Hadley, MA
Boehringer Ingelheim Pharmaceuticals, Ridgefield, CT

Array Biopharma, Boulder, CO
Plenary seminar, Annual Meeting of the Protein Society, San Diego, CA
Sunesis, South San Francisco, CA
Agilent Technologies Inc., Palo Alto, CA
Department of Chemistry, Brigham Young University, Provo, UT
Cellular Proliferation Program at the Siteman Cancer Center, Washington University, St Louis, MO
Department of Biochemistry, Albert Einstein College of Medicine, New York, NY
Department of Chemistry and Biochemistry, University of California San Diego, La Jolla, CA

2001 Department of Biochemistry, University of Texas, Southwestern Medical Center, Dallas, TX
Department of Pharmacology, University of Texas Health Science Center, San Antonio, TX
International Symposium on Proteomics and Cell Signaling, Protein Network Research Center, Yonsei University, Seoul, Korea
Annual Meeting of the Association of Biomolecular Research Facilities, San Diego, CA
Department of Biological Sciences, Columbia University, New York, NY
Department of Biochemistry, Virginia Tech, Blacksburg, VA
Department of Biochemistry, University of Western Ontario, London, Ontario
Department of Chemistry, University of California, Berkeley, CA
Distinguished Speaker, Molecular and Cellular Pharmacology Program, University of Wisconsin, Madison
Department of Pharmacology, University of Washington, Seattle, WA
Celltech Chiroscience Inc., Bothell, WA
Gordon Research Conference on Second Messengers and Protein Phosphorylation, Meriden, NH
Department of Toxicology, University of Alabama at Birmingham
Gordon Research Conference on Molecular and Genetic Basis of Cell Proliferation, New London, NH
Somalogic Inc., Boulder, CO
Celgene/Signal Pharmaceuticals, San Diego, CA
Gordon Research Conference on Enzymes, Coenzymes and Metabolic Pathways, Meriden, NH
Gordon Research Conference on Hormone Action, Meriden, NH
2001 FASEB Summer Conference on Protein Kinases and Phosphorylation, Snowmass, CO
222nd American Chemical Society National Meeting, Chicago, IL
5th International Symposium on Mass Spectrometry in the Health and Life Sciences: Molecular and Cellular Proteomics, San Francisco, CA
UCSF Cancer Center, San Francisco, CA
Symposium on the Cardiovascular System in the Era of Genomics and Proteomics, Université de Montréal, Montreal, Canada

Genentech, South San Francisco, CA

2000 Department of Medical Oncology, University of Colorado Health Sciences Center, Denver, CO
Wendell Griffith Distinguished Lectureship, St. Louis University, St. Louis, MO
Keystone Symposium on Assembly of Signaling Networks, Taos NM
Program in Gene Regulation, Medical College of Georgia, Augusta, GA
Department of Pharmacology, University of Colorado Health Sciences Center, Denver, CO
Department of Chemistry and Biochemistry, University of Denver, Denver, CO
Parke-Davis, Ann Arbor, MI
Tularik, South San Francisco, CA
Department of Biological Sciences, University of California, San Diego, La Jolla, CA
Webb-Waring Institute of Antioxidant Research, University of Colorado Health Sciences Center, Denver, CO

1999 Metabolex Proteomics Symposium, Hayward CA
Biochemical Pharmacology Discussion Group, New York Academy of Sciences, New York NY
Department of Molecular, Cellular & Developmental Biology, University of California, Santa Barbara, CA
Gordon Conference on Second Messengers and Protein Phosphorylation, Meriden, NH
Vascular Biology Conference '99, Osaka, Japan
Department of Biophysics, Graduate School of Science, Kyoto University, Kyoto, Japan
Institute of Molecular and Cellular Biosciences, University of Tokyo, Tokyo, Japan
Schering-Plough Research Institute, Kenilworth, NJ
National Jewish Medical and Research Center, Denver, CO

1998 Graduate Program in Molecular Biology, University of Colorado Health Sciences Center, Denver, CO
Battelle-Pacific Northwest National Laboratories, Richland, WA
North Dakota EPSCoR Conference on Protein-Protein Interactions. Grand Forks, ND
NMHCC 2nd Annual International Conference on Cell Signaling: Signal Transduction and Gene Transcription. San Diego, CA
Department of Molecular, Cellular and Developmental Biology, University of Colorado, Boulder, CO
10th International Conference on Second Messengers and Phosphoproteins. Jerusalem, Israel
Department of Pharmacology, University of Missouri, Columbia, MO

1997 Annual Meeting of the Protein Society, Boston, MA
Annual Meeting of the Research Society on Alcoholism, San Francisco, CA
Satellite Symposium on Alcohol and Signal Transduction
Forty Years in Protein Phosphorylation, Seattle, WA (Workshop chair)
Nordic Course on Cell Stress and Apoptosis, Turku, Finland
Molecumetics, Seattle, WA
Department of Pharmacology, University of North Carolina, Chapel Hill, NC
Department of Physiology, University of Maryland, Baltimore, MD
Department of Vascular Biology, Scripps Research Institute, La Jolla, CA
Department of Chemistry and Biochemistry, University of California, San Diego, La Jolla, CA

1996 Department of Pharmacology, University of Wisconsin, Madison, WI
Keystone Symposium on Signal Transduction, Taos, NM
Annual Meeting of the American Physiological Society, Washington D.C.
FASEB Summer Research Conference on Transcriptional Regulation during Cell Growth, Differentiation and Development, Snowmass, CO
NATO/FEBS Advanced Study Institute on Structure and Function of Interacting Protein Domains in Signal and Energy Transduction, Acquafredda di Maratea, Italy
Centre de Biochimie-CNRS, Université de Nice
Department of Pharmacology, University of Texas Southwestern, Dallas, TX
Samuel Lunenfeld Cancer Center, Mt. Sinai Hospital, Toronto, Ontario
Department of Biochemistry, University of Western Ontario, London, Ontario
Vollum Institute, University of Oregon Health Sciences Center, Portland, OR
Department of Biological Chemistry, University of Michigan, Ann Arbor, MI
Department of Pathology, Anatomy and Cell Biology, Thomas Jefferson University, Philadelphia, PA
Department of Medical Oncology, University of Colorado Health Sciences Center, Denver, CO

1995 Department of Biochemistry, Louisiana State University, New Orleans
FASEB Summer Research Conference on Protein Phosphorylation, Copper Mountain, CO
Dupont-Merck Pharmacuticals, Wilmington, DE
Amgen, Inc. Boulder, CO
Interdisciplinary Plant Biochemistry and Physiology Workshop, Breckenridge, CO

1994 University of California, San Diego Cancer Center, UCSD, La Jolla, CA
Department of Biochemistry, Loma Linda University, Loma Linda, CA
Somatogen, Inc., Boulder, CO
Department of Biochemistry, Colorado State University, Ft. Collins, CO
Department of Biochemistry, University of Colorado Health Sciences Center, Denver, CO
Manitoba Institute of Cell Biology, University of Manitoba, Winnipeg, Canada

1993 Gordon Conference on Molecular Pharmacology, Oxnard, CA
Department of Pharmacology, University of Colorado Health Sciences Center, Denver, CO
Eli Lilly Symposium on Signal Transduction, Indianapolis, IN
Department of Medicine, University of Colorado Health Sciences Center, Denver, CO

1992 Gordon Conference on Second Messengers and Protein Phosphorylation, Meriden, NH
Amgen, Inc. Boulder, CO

1991 Department of Pharmacology, University of Texas Southwestern Graduate School, Dallas, TX
Annual meeting of Society for Neuroscience: Satellite Symposium on Tyrosine Hydroxylase, New Orleans, LA
FASEB Summer Research Conference on Protein Phosphorylation, Copper Mountain, CO

1990 Annual meeting of American Society of Cell Biology: Minisymposium on Protein Phosphorylation, Houston TX

1985 Annual meeting of American Society of Biological Chemistry: Minisymposium on Dopamine β-hydroxylase, Anaheim, CA

VII. RESEARCH AND TRAINING SUPPORT

CURRENT:

NIH R35 GM136392-01 to -05
PI: Natalie Ahn
Title: "Molecular and Cellular Dynamics in Mammalian Signal Transduction"
Dates and costs of entire project: 04/01/20 - 01/31/25 $ 1,900,000 (direct), $ 2,873,415 (total)

NIH R35 GM136392-04S1
PI: Natalie Ahn
Title: "Molecular and Cellular Dynamics in Mammalian Signal Transduction, Instrument Supplement"
Dates and costs of entire project: 04/01/20 - 03/31/25 $ 54,770 (direct), $ 54,770 (total)

NIH T32 GM142607-01 to -05
PI: Natalie Ahn
Title: "Predoctoral training in signaling and cellular regulation"
Dates and costs of entire project: 07/01/21 - 06/30/26 $ 2,318,160 (direct), $ 2,463,775 (total)

NIH T32 GM142607-03S1
PI: Natalie Ahn
Title: " INCLUDE Supplement: Predoctoral training in signaling and cellular regulation"
Dates and costs of entire project: 07/01/24 - 06/30/25 $ 171,176 (direct), $ 181,414 (total)

PENDING:

NIH R35 GM136392-06 (Impact Score: 19)
PI: Natalie Ahn
Title: "Molecular and Cellular Dynamics in Mammalian Signal Transduction"
Dates and costs of entire project: 02/01/25 - 01/31/30 $ 2,250,000 (direct), $3,395,498 (total)

NIH S10 OD038278-01 (Impact Score: 19)
PI: Natalie Ahn
Title: Select Series Cyclic IMS Mass Spectrometry System
Dates and costs of entire project: 02/01/2025 - 01/31/2026 $ 1,089,778 (direct)

PAST:

NIH T32 GM08759-16 to -20
PI: Natalie Ahn
Title: "Predoctoral training in signaling and cellular regulation"
Dates and costs of entire project: 07/01/16 - 06/30/21 $ 1,875,480 (direct)

ALSAM Therapeutics Innovation Grant program
MPI: Natalie Ahn and Nichole Reisdorph
Title: "The role of bioactive lipids in cancer resistance to targeted therapeutics"
Dates and costs of entire project: 01/01/2019 – 12/31/2020 $ 200,000 ($100,000 to Ahn)

NIH R01 GM114594-01A1
PI: Natalie Ahn
Title: "Linking dynamics to catalysis and inhibition in ERK2"
Dates and costs of entire project: 12/01/15 - 11/30/19 $ 880,000 (direct)

NIH R01 GM127986-01
PI: Natalie Ahn
Title: "Investigation of the WRAMP structure, a mechanism for directional cell migration"
Dates and costs of entire project: 05/01/18 - 03/31/20 $ 400,000 (direct)

NIH S10 OD025267-01
PI: Natalie Ahn
Title: Q Exactive HF Nanoflow LC Mass Spectrometry System
Dates and costs of entire project: 02/01/2018 - 01/31/2019 $ 600,000 (direct)

NIH 3R01GM127986-01S1 NIGMS Diversity Administrative Supplement
Dates and costs of entire project: 05/01/2018 – 03/31/2019 $ 23,905 (direct)

NIH R01 GM105997-01 (RFA GM-13-004,"Interdisciplinary Collaborations for Macromolecular Interactions in Cells")
PIs: Natalie Ahn, Amy Palmer, Erik Snapp, Vladislav Verkhusha
Title: "Technologies to define and map novel interorganelle macromolecular interactions"
Dates and costs of entire project: 04/01/13 - 03/31/18 $1,000,000 (direct, $280,000 to Ahn)

NIH T32 GM08759-11 to -15
PI: Natalie Ahn
Title: "Graduate training in signal transduction and cell cycle regulation"
Dates and costs of entire project: 07/01/11 - 06/30/16 $ 1,498,850 (direct)

U. Colorado - Butcher Award Seed Grant PIs: Natalie Ahn, Amy Palmer
Title: "Revolutionizing the way we look at cells: Inventing organelle biosensors by harnessing the power of proteomics and live cell imaging"
Dates and costs of current year: 07/01/12 - 06/30/14 $ 50,000 (direct to Ahn)

Howard Hughes Medical Institute PI: Natalie Ahn
Title: "Biomolecular mass spectrometry."
Dates and costs of entire project: 05/01/94 – 08/31/14 $ 13 M (direct)

NIH R01 CA 118972-01A2 PI: Natalie Ahn
Title: "Signal Transduction Pathways in Melanoma"
Dates and costs of entire project: 04/01/07-03/31/13 $ 915,000 (direct)

NIH R01 GM074134-01A2 PI: Natalie Ahn
Title: "Regulation of MAP kinases by protein motions"
Dates and costs of entire project: 01/01/07-12/31/11 $ 679,500 (direct)

W.M. Keck Foundation Award PI: Natalie Ahn
Title: Defining cellular proteomes by mass spectrometry – Shared Instrumentation
Dates and costs of entire project: 01/2009-12/2012 $1,200,000 (direct)

NIH T32 GM08759-S1 PI: Natalie Ahn
Title: "ARRA Award: Graduate training in signal transduction and cell cycle regulation"
Dates and costs of entire project: 09/01/09 - 08/31/11 $ 128,992 (direct)

NIH T32 GM08759-06 PI: Natalie Ahn
Title: "Graduate training in signal transduction and cell cycle regulation"
Dates and costs of entire project: 07/01/06 - 06/30/11 $ 1,274,338 (direct)

NIH R13 DK075259-01 PI: Natalie Ahn
Title: "2006 'Phosphorylation and G protein Signaling Networks' Gordon Conference"
Dates and costs of entire project: 04/01/06 – 03/31/08 $ 42,000 (direct)

NIH R01 GM48521-10 PI: Natalie Ahn
Title: "Biochemical Analysis of the MKK/ERK Pathway"
Dates and costs of entire project: 12/01/01 - 11/30/05 $ 660,000 (direct)

NIH T32 GM08759-05 PI: Natalie Ahn
Title: "Graduate training in signal transduction and cell cycle regulation"
Dates and costs of entire project: 07/01/05 - 06/30/06 $ 118,259 (direct)

NIH S10 RR021005-01 PI: Natalie Ahn
Title: "ABI-4000 QTRAP Mass Spectrometer"
Dates and costs of entire project: 04/01/05 - 03/31/06 $ 496,557 (direct)

NIH R01 CA79801-01 PI: Natalie Ahn
Title: "MAP kinase signaling in hematopoietic differentiation"
Dates and costs of entire project: 01/01/99 - 12/31/02 $ 402,717 (direct)

NIH R01 GM48521-06 PI: Natalie Ahn
Title: "Biochemical Mechanisms of MAP Kinase Kinase-1 Regulation"
Dates and costs of entire project: 12/01/97 - 11/30/01 $ 403,726 (direct)

NIH R01 GM48521-01 PI: Natalie Ahn
Title: Growth Factor Regulation of Protein Kinase Cascades
Dates and costs of entire project: 09/30/92 - 08/31/97 $ 513,180 (direct)

Searle Scholarship Award (93-A-112). PI: Natalie Ahn
Title: Growth Factor Signalling Through Protein Phosphorylation
Dates and costs of entire project: 07/01/93 - 06/30/96 $ 162,000 (direct)

Amgen Inc. PI: Natalie Ahn
Title: Shared Equipment Grant for Young Investigators, 1996, $20,000 (direct)

Abbott Laboratories. PI: Natalie Ahn
Title: Shared Equipment Grant for Young Investigators, 1996, $10,000 (direct)

VIII. TRAINEES (asterisks indicate current group)

I have mentored 31 past or current postdoctoral fellows, 30 undergraduates, and 225 graduate students in my own lab, and served on the thesis committees of 110 graduate students in other labs. Of the 28 postdoctoral fellows who have left my lab, 8 are Professors at universities in the U.S., Japan and China, 2 are university teaching instructors, 14 are research scientists in private industry, and 2 are proteomics core facility directors. I have graduated 20 Ph.D. and 3 M.S. students, all but one of whom are pursuing postdoctoral or research scientist careers, and 2 who are Professors at R1 universities. In addition, I served as Founder and Director of the Graduate Training Program in Signaling and Cellular Regulation between 1999-2023, and am mentoring a younger facilty to take over as Director.

Postdoctoral Research Fellows and Research Associates

Andrea Doak, October 2024-present
Theodore Fobe, March 2024-present
Suganya Sekaran, Dec 2022-present
Laurel Pegram, April 2017-Dec 2022
Current position: Research Scientist, Loxo@Lilly, Louisville, CO
Maria Hoh, May 2018-Dec 2021

Current position: Research Scientist, OnKure Therapeutics, Boulder, CO

Scott Stuart, Jan 2010-Aug 2018

Recipient of ACS Postdoctoral Award during training (2011-2014).

Current position: M.D./Ph.D. resident, University of Colorado School of Medicine

Mary Katherine Connacher, May 2012-May 2017

Current position: Director of R&D, BioLoomics, Broomfield, CO

Recipient of ACS Postdoctoral Award during training.

Thomas Lee, Apr 2009-present

Current position: Director of Biophysics, Loxo@Lilly, Louisville, CO

Jeremy Balsbaugh, Jul 2011-Mar 2017

Current position: Director, Proteomics and Metabolomics Facility, U. Connecticut, Storrs, CN

Nan Wang, Nov 2011 – July 2014

Current position: Director, Mass Spectrometry, HHMI Janelia Research Campus, Ashburn, VA

Jyothi Sethuraman, Mar 2009-Oct 2012

Current position: Director, Adicet Bio Inc., Milpitas, CA

Kutralanathan Renganathan, Oct 2007-Oct 2010

Current position: Associate Director, Intellia Therapeutics, Inc., Cambridge, MA

Stephane Houel, Jun 2007-Aug 2011

Current position: Senior Product Manager, ThermoFisher Scientific, Cambridge, MA

Eric S. Witze, Jan 2004- Oct 2010

Current position: Associate Professor, Dept. of Cancer Biology, University of Pennsylvania, Philadelphia PA

Recipient of NIH NRSA Postdoctoral Fellowship during training.

John T. Prince, May 2008-Feb 2010

Assistant Professor, Dept. of Chemistry & Biochemistry, Brigham Young University, UT

Current position: Director of Data Science, Enveda Biosciences, Lehi, UT

William M. Old, Jul 2003-Jan 2009

Assistant Professor, Dept. of Molecular, Cellular and Developmental Biology, Univ. Colorado at Boulder

Current position: Sr. Principal Scientist, Enveda Biosciences, Boulder, CO

Zhengzhuang (Kevin) Shi, Jan 2006-Apr 2009

Current position: Assistant Professor, Huazhong University of Science and Technology, China

Megan W. Howard, May 2008-Mar 2009

Assistant Professor of Microbiology, University of Alaska, Anchorage, AK

Current position: Program Manager, National Security, Noblis ESI, Chantilly, VA

Carrie Hughes Croy, Sep 2003-Feb 2009

Current position: Director of Biology, Eli Lilly, Indianapolis, IN

Recipient of ACS Postdoctoral Fellowship Award during training.

Brian Eichelberger, Jan 2005-Dec 2007

. Assistant Professor, Dept. of Chemistry, John Brown University, Siloam Springs, AR

Current position: Director of Quality, SPL Inc, Midland, TX.

Gretchen Argast, Oct 2002-Aug 2007

. Current position: Sr. Director of Translational Medicine, Tenaya Therapeutics, San Francisco, CA

Recipient of NIH NRSA Postdoctoral Fellowship during training.

Rebecca E. Schweppe, Nov 2000-Mar 2006.

. Current position: Professor of Medicine-Endocrinology, Univ. Colorado Anschutz Medical Campus, Aurora, CO
Recipient of Life Sciences Postdoctoral Fellowship during training.
Yukihito Kabuyama, Nov 2000-Sep 2005
. Current position: Professor, Division of Applied Biochemistry, School of Agriculture, Utsunomiya University, Tochigi 321-8505, Japan
Karen R. Jonscher, Nov 2000-Jan 2005
Current position: Associate Professor, Dept. of Biochemistry and Physiology, University of Oklahoma Health Sciences Center, Oklahoma City, OK
Claire Haydon Eyers, May 2002-Jul 2004
Current position: Professor of Biological Mass Spectrometry, University of Liverpool, UK
Recipient of American Heart Association Postdoctoral Fellowship during training.
Karine R. Bernard, Feb 1999-Mar 2003
Current position: Dr es science en Immunologie, ImmunoNaturo, Geneva, Switzerland
David B. Friedman, Aug 1997-Feb 2000
Current position: Lecturer, Middle Tennessee State Univ., Nashville, TN
Paul S. Shapiro, Mar 1995-Sep 1999
Current position: Professor and Former Chair, Department of Pharmaceutical Sciences, Univ. Maryland, Baltimore, MD
Recipient of NIH NRSA Postdoctoral Fellowship during training.
Donna F. Louie, Sep 1994- Aug 1998
Current position: Instructor, Libby Research Academic Program, U. Colorado at Boulder
Anne M. Whalen, Sep 1994- Sep 1998
Current position: Global Head Regulatory Affairs, Trajan Scientific, Boston, MA

Graduate Students

* David Vaisar, 2022-present, Ph.D. candidate, Biochemistry
* Kristyn Hayashi, 2021-present, Ph.D. candidate, Biochemistry
Suzannah Miller, 2017-2022, Ph.D. Biochemistry
Recipient of NSF Graduate Research Fellowship during training (2018-2021).
Dylan Iverson, 2016-2021, Ph.D., Biochemistry
"Allostery and Conformational Dynamics in Protein Kinase ERK2"
Postdoctoral Fellow, Univ. Colorado Boulder
Scientist, VaxCyte, San Carlos, CA
Andrew Kavran, 2016-2021, Ph.D. Biochemistry, IQBio Training Program
"Intermittent Drug Treatment of BRAF-V600E Melanoma Cells Delays Resistance by Adaptive Resensitization to Drug Challenge"
Current position: Postdoctoral Fellow, Bristol Myers Squibb, Boston, MA
Pelle Simpson, 2017-2018, M.S., University of Amsterdam
Current position: Principal Scientist, Enveda Biosciences, Boulder, CO
Jennifer Liddle, 2012-2017, Ph.D., Biochemistry
"Biophysical Characterization of MAP Kinase Activation and Regulation"
Postdoctoral Fellow, Univ. Pennsylvania, Lab of Ben Garcia
Current position: Facility Scientist, Proteomics and Metabolomics Lab, U. Connecticut, Storrs, CN
Joel Basken, 2011-2017, Ph.D., MCD Biology

"Specificity of molecular responses to ERK1/2 and MKK1/2 inhibitors in melanoma cells"
Next position: Principal Scientist, Arpeggio Biosciences, Boulder, CO
Current position: Director of Operations, Enveda Biosciences, Boulder, CO

Tianjing Hu, 2009-2015, Ph.D., Biochemistry
"Control of Cell Invasion in Melanoma by a New Gene, FAM129B"
Postdoctoral Fellow, U. Colorado Anschutz Medical Campus, Lab of Timothy McKinsey
Current position: Senior Scientist, InDevR Inc, Boulder CO

Yao Xiao, 2010-2015, Ph.D., Biochemistry
"Conformational Dynamics in the Regulation of MAP Kinase, ERK2"
Postdoctoral Fellow, CalTech, Lab of Linda Hsieh-Wilson
Current position: Software Development Engineer, AWS Redshift Dataplane, San Diego CA

Kevin Sours, 2005-2011, Ph.D., Biochemistry
"Regulation of MAP Kinase Activation Studied by HX-MS"
Postdoctoral Fellow, Universität des Saarlandes, Lab of Rolf Müller
Current position: Principal Scientist, Bonumose, Charlottesville, VA

Karen Meyer-Arendt, 2005-2011, Ph.D., Biochemistry
"Computational Methods for Improved Peptide and Protein Identification in Proteomics"
Current position: Senior Software Engineer, Columbia Engineering Bootcamps, Portland OR

Kasey Hammond Couts, 2005-2010, Ph.D., Biochemistry
"Analysis of B-Raf-V600E Regulated MicroRNAs and Proteins in Melanoma"
Postdoctoral Fellow, U. Colorado Denver, Lab of Mayumi Fujita
Current position: Assistant Professor, U. Colorado Anschutz Medical Campus

Evan Trudeau, 2004-2007, M.S., MCD Biology, March 2007
Current position: Res. Specialist, U. North Carolina, Chapel Hill, NC, Lab of Klaus Hahn

Elisabeth C. Roberts Solano, 1999-2005, Ph.D., MCD Biology
"Cell Cycle Dependent Regulations of Mitogen Activated Protein Kinases"
Current position: Director, Development, Quark Pharmaceuticals Inc., Boulder, CO

Mariah C. Ruth Brown, 2003-2005, M.D. Thesis Research, Dept. of Medicine, Yale Univ.
"Surveying the Protein Composition of Human Cell Membranes by Proteomics"
Current position: Professor of Dermatology, Univ. of Colorado Anschutz Medical Center, Aurora, CO

Michelle A. Emrick, 1998-2004, Ph.D., Chemistry and Biochemistry
"Mechanistic Studies of Extracellular Signal Regulated Kinase 2"
Postdoctoral Fellow, Univ. of Washington, Lab of William Catterall, U. Washington (2005-2008)
Current position: Associate Director, Analytical Development, Zymeworks Inc, Seattle, WA

Thomas Lee, 1999-2004, Ph.D., Chemistry and Biochemistry.
"Mitogen Activated Protein Kinase Regulation Investigated by Hydrogen Exchange and Mass Spectrometry"
Postdoctoral Fellow, U. Wisconsin Madison, Lab of Elizabeth Craig
Current position: Director of Biophysics, Loxo@Lilly, Louisville, CO

Joel R. Sevinsky, 1996-2002, Ph.D., MCD Biology
"Analysis of MKK/ERK Induced Megakaryocyte Differentiation"
Director of Molecular and Microbiology Research, Luca Technologies, Golden, CO
Head of Molecular Science Laboratory, Colorado Dept. of Public Health
Current position: Founder and CEO, Theiagen Genomics, Denver, CO

Andrew N. Hoofnagle, 1999-2002, Ph.D., Chemistry and Biochemistry; M.D., 2003
"Activation Induced Changes in Conformational Mobility in the MAP Kinases"
Postdoctoral Fellow, Univ. of Washington, Lab of Jay Heinecke
Current position: Professor, Dept. Laboratory Medicine; Head, Division of Clinical Chemistry; Director of Clinical Mass Spectrometry, U. Washington, Seattle WA

Jacob L. Todd, 1999-2001, M.S. in Chemistry and Biochemistry
"Nuclear Translocation of Mitogen Activated Protein Kinase Kinase 1 (MKK1) Depends on ERK Phosphorylation Sites"
Current position: Lead Software Engineer, Adcellerant, Boulder, CO

Scott C. Galasinski, 1994-2000, Ph.D., MCD Biology
"Regulation of Mammalian Histone Deacetylases by Phosphorylation"
Senior Group Leader, Abbvie Laboratories, Abbott Park, IL (2008-2016)
Current position: Head Business Development and Strategy, Molecular Axiom Inc., San Diego CA

Timothy S. Lewis, 1995-2000, Ph.D., Chemistry and Biochemistry
"Identification of Novel MAP kinase Pathway Signaling Targets by Functional Proteomics and Mass Spectrometry"
Current position: Associate Director of Cell Biology, Seattle Genetics, Seattle, WA

Sam J. Mansour, 1992-1996, Ph.D., MCD Biology
"Analysis of the oncogenic potential of MAP kinase kinase"
Current position: Unknown

Margaret M. Wall, 1992-1994, M.S. in Basic Sciences
"The role of Mos in skeletal muscle differentiation: Evidence and proposed experiments."
Current position: Patent lawyer

Undergraduates -- Independent Research

Oliver Ghrist Sep 2023-May 2024
Jocelyn Gunn Jan 2022-Feb 2022
Daniel Lee Aug 2021-May 2023
Jason Haw Sep 2019- May 2020
Steven Sloane Jan 2019-Dec 2019
Bryan Murillo May 2017-March 2019
Amira Saraiti Zainal Sep 2016-May 2017
Kayla O'Connor Dec 2015-May 2016
Mustafa Aydogan June 2014-May 2015
Richard Paucek, September 2014-December 2014
Nicholas Lombardi May-Aug 2012
Hyo-jin Sung May 2010-May 2011
Leah Reid May 2008-Aug 2011
Adam Ring, Aug 2007-May 2010, B.S. 2010
Honors Thesis: "Hydrogen Exchange Mass Spectrometry Reveals Distinct Patterns of Regulated Conformational Mobility in Closely Related MAP Kinases"
Akiko Tanimoto Feb 2007-Dec 2008 (B.S. 2008)
Honors Thesis: "Studies on MP1-p14, a Scaffold for Phosphorylation of ERK2 by MKK1 "
Lia Rottman, Jan 2007-Jul 2007
Kevin Pierce, Oct 2003-Jun 2006
Marcus Lanskey, Oct 2003-Jul 2005

Paul Starkey, Jun 2003-Sep 2005
Holly Asmussen, Oct 2003-May 2004
Heather Asmussen, Oct 2003- May 2004
Joy Wattawa, May-Aug 2002
Alexis Melton, Jan-Dec 2001 (B.S. 2001)
Alex Usorov, Aug-Dec 1999 (B.A. 1999)
Sonia Martinez, 1998-1999 (B.S, 1999)
Kristy Gloor, 1995-1998 (B.A, 1998) Honors Thesis: "Enhancement of Phosphorylation on HMG14 and HMG17 Coincides with an Increase in Their Cytoplasmic Localization"
April Hermann, Aug-Dec 1993 (B.A., 1993)
Kajari Vohra, May-Aug 1993 (B.A., 1994)
Jason W. Gloor, 1992-1993 (B.S., 1994)
Jennifer Jones, May-Aug 1992 (B.A., 1993)

Thesis committees (excluding my own students):

Scott Peterson, Ph.D. 1993, Biochemistry
Corey Nislow, Ph.D. 1993, MCDB
Robert Schaeff, Ph.D. 1994, Biochemistry
Phil Niemark, Ph.D. 1994, MCDB
Diane Iseley, Ph.D. 1994, Biochemistry
Gary Silver, Ph.D. 1994, Biochemistry
Peter Seeberger, Ph.D. 1995, Biochemistry
Gwen Crooks, Ph.D. 1995, Biochemistry
Jan Ping Yan, Ph.D. 1995, Biochemistry
Edina Hall, M.S.. 1995, Biochemistry
Harry Thompson, M.S.. 1995, Biochemistry
Steven Drake, Ph.D. 1996, Biochemistry
Denise Ippensen, Ph.D. 1996, MCDB
Natasha Singh, Ph.D. 1996, MCDB
Eric Weiss, Ph.D. 1996, MCDB
Angela Matassa, B.S. 1996, MCDB
Mark Danielson, Ph.D. 1997, Biochemistry
Trent Gu, Ph.D. 1997, MCDB
Amy Schutz, Ph.D. 1997, MCDB
Joanna Lowell, Ph.D. 1998, Biochemistry
Randall Bass, Ph.D. 1998, Biochemistry
Estelle Steiner, Ph.D. 1998, MCDB
Derek Sieburth, Ph.D. 1998 , MCDB
Lipita Roy, B.S. 1998, MCDB
Andrea Wolf, B.S. 1998, MCDB
Carol Alexander, M.S. 1999, Biochemistry
Ken Jenkins, Ph.D. 1999, Biochemistry
Debra Rate, Ph.D. 2000, Biochemistry
Richard Steet, Ph.D. 2000, Biochemistry
Chris Dufton, Ph.D. 2000, MCDB
Chris Mattison, Ph.D. 2000, MCDB
Rebecca Schweppe, Ph.D. 2000, Endocrinology, UCHSC
Heather Flanagan, Ph.D. 2001, MCDB
Mark Benson, M.S. 2001, Biochemistry
Tricia Lively, Ph.D. 2002, Biochemistry
Ben Lundstad, Ph.D. 2002, Biochemistry
Susy Kohout, Ph.D. 2002, Biochemistry
Eduardo Marcora, Ph.D. 2002, MCDB
Joshua Bornhorst, Ph.D. 2002, Biochemistry
Anita Seto, Ph.D. 2002, Biochemistry
James Stroud, Ph.D. 2003, Biochemistry
Kristina Murphy, Ph.D 2005, MCDB
Jennifer Rascher, Ph.D. 2005, Biochemistry
Tuan Nguyen, Ph.D. 2005, Biochemistry
Suzanne van Kreeveld, M.S., 2005, MCDB
Hiu Tom Cheung, Ph.D. 2006, Biochemistry
Richard Erickson, Ph.D. 2006, Biochemistry
Liang Guo, Ph.D. 2007, Biochemistry
Kristen Barthel, Ph.D. 2007, Biochemistry
Elizabeth Luczak, Ph.D. 2007, MCDB
Catherine Lozupone, Ph.D. 2007, MCDB
Sara Symons, M.S., Biochemistry
Brian Kalet, Ph.D. 2007, Biochemistry
Ricardo Stephens, Ph.D. 2007, Biochemistry
Michael Latham, Ph.D. 2008, Biochemistry
Dan Nickerson, Ph.D., 2008, MCDB
Rachel Mooney Namba, Ph.D., 2009, Biochemistry
Stacey Wagner, Ph.D. 2009, Biochemistry
Schuyler Van Englenberg, Ph.D. 2010, Biochemistry
Haemi Lee, Ph.D. 2010, Chemistry
Paul Templeton, Ph.D. 2010, Biochemistry
Philip Dittmer, Ph.D. 2010, Biochemistry
Janet McCombs, Ph.D. 2011, Biochemistry
Jason Magida, Ph.D. 2011, MCDB
Chris Ebmeier, Ph.D., 2011, Biochemistry
Matthew Knuesel, Ph.D. 2011, Biochemistry
Douglas Chapnick, Ph.D. 2012, Biochemistry
Steve Ponicsan, Ph.D. 2012, Biochemistry
Jose Miranda, Ph.D. 2012, Biochemistry
Leslie Morton, Ph.D. 2013, Biochemistry
Michelle Turco, Ph.D. 2013, Biochemistry
Junglim Lee, Ph.D. 2014, Biochemistry
Sarah McQuate, Ph.D. 2014, Biochemistry

Thesis committees, cont. (excluding my own students):

Stephanie Stickel, Ph.D. 2014, MCDB Genevieve Park, Ph.D. 2014, Biochemistry Samir Singh, Ph.D. 2014, Chem Engr Stacey Skaalure, Ph.D. 2014, Chem Engr Ling-he Xi, Ph.D. 2015, MCDB Christa Blenck, Ph.D. 2016, MCDB Samantha O'Hara, Ph.D. 2016, MCDB Noah Kastelowitz-Lieberman, Ph.D. 2016, Biochemistry Thomas Beadnell, Ph.D. 2017, Dept. Medicine, Endocrinology, UCHSC, Denver Jacqueline Turner, B.S. Honors 2017, Biochemi Lavan Khandan, Ph.D. 2017, MCDB Eric Bunker, Ph.D. 2017, Biochemistry Joshua Wheeler, Ph.D. 2018, Biochemistry Pamela Doerner, Ph.D. 2018, Biochemistry Erin Yu Han, Ph.D. 2018, Biochemistry Ayman Alawneh, Ph.D. 2018, Chemistry Lynn Sanford, Ph.D. 2019, Biochemistry Gretchen Geibel Wettstein, M.S. 2019, MCDB Thomas Buckles, Ph.D. 2019, Biochemistry Georgiana Salant, Ph.D. May 2020, Biochemistr Justin Moser, Ph.D. May 2020, Biochemistry Chen Yang, Ph.D. July 2020, MCDB George Hayden Swisher, Ph.D. Aug 2020, Biochemistry	Nicholas Hill, Ph.D. Nov 2020, Biochemistry Moshe Gordon, Ph.D. 2021, Biochemistry Yuxiao Tan, Ph.D. 2023, MCDB Tuiumkan Nishanova, M.S., 2022, MCDB Kelsey Dahlgren, Ph.D. 2022, Biochemistry Humza Ashraf, Ph.D. 2023, Biochemistry Stephen Scappaticci, Ph.D. 2022, Chemistry Zeyu Liu, Ph.D., 2023, Chemistry Stephen Upton, Ph.D. 2024, Biochemistry Emily Kibby, Ph.D. 2024, Biochemistry Briana Aboulache, Ph.D. 2024, Biochemistry Varuna Nangia, Ph.D. candidate, Biochemistry C. Riley Ill, Ph.D. candidate, Biochemistry Joy Armendariz, Ph.D. candidate, BIochemistry

IX. CLASSROOM TEACHING

Spring 2025 BCHM 4720, Metabolic Pathways and Human Disease, 4 cr.

Spring 2024 BCHM 4720, Metabolic Pathways and Human Disease, 4 cr.

Spring 2023 BCHM 4720, Metabolic Pathways and Human Disease, 4 cr.

Fall 2022 GRAD 5000, Responsible Conduct of Research, 1 session.

Fall 2021 CHEM 1400, General Chemistry for Majors, 4 cr.

Fall 2020 CHEM 1400, General Chemistry for Majors, 4 cr.

Fall 2019 CHEM 1400, General Chemistry for Majors, 4 cr.

Spring 2018 CHEM 5801, Advanced Topics in Signal Transduction & Cell Cycle Regulation, (taught two 75 min classroom sessions. Class Instructor was Xuedong Liu)

Fall 2017 CHEM 5770, Advanced Biochemistry (CORE), 5 cr (team taught with R. Kuchta)

Fall 2017 CHEM 5776, Responsible Conduct of Research, 1 cr (team taught with R. Kuchta)

Spring 2017 CHEM 4720/5720, Metabolic Pathways and Human Disease, 4 cr

Spring 2016 CHEM 4720/5720, Metabolic Pathways and Human Disease, 4 cr

Spring 2015 CHEM 5781, Advanced Biochemistry 2, 3 cr
Fall 2013 CHEM 4731/5731 General Biochemistry 2, 4 cr
Spring 2013 CHEM 5811, Advanced Methods in Protein Sequencing and Analysis, 3 cr
Spring 2011 CHEM 5811, Advanced Methods in Protein Sequencing and Analysis, 3 cr
Spring 2010 CHEM 5801, Advanced Topics in Signal Transduction & Cell Cycle Regulation, 3 cr
Spring 2009 CHEM 5811, Advanced Methods in Protein Sequencing and Analysis, 3 cr
Spring 2007 CHEM 5811, Advanced Methods in Protein Sequencing and Analysis, 3 cr
Fall 2006 CHEM 5821, Special Topics in Signal Transduction and Cell Regulation, 1 cr
Spring 2006 CHEM 5801, Advanced Topics in Signal Transduction & Cell Cycle Regulation, 3 cr
Spring 2006 CHEM 5821, Special Topics in Signal Transduction and Cell Regulation, 1 cr
Spring 2004 CHEM 5781, Advanced Biochemistry 2, 3 cr
Fall 2003, CHEM 5801, Advanced Topics in Signal Transduction & Cell Cycle Regulation, (2 lectures)
Spring 2003 CHEM 4731/5731, General Biochemistry 2, 3 credit hrs.
Fall 2001, CHEM 5801, Advanced Topics in Signal Transduction & Cell Cycle Regulation, 3 cr
Spring 2000 CHEM 5781, Advanced Biochemistry 2, 3 credit hrs, 8 graduate students
Fall 1999 CHEM 5801, Advanced Topics in Signal Transduction & Cell Cycle Regulation, 3 cr
Fall 1999 CHEM 5821, Special Topics in Signal Transduction & Cell Regulation, 1 cr
Spring 1999 CHEM 5781, Advanced Biochemistry 2, 3 cr
Spring 1998 CHEM 4731/5731, General Biochemistry 2, 3 cr
Spring 1997 CHEM 4731/5731, General Biochemistry 2, 3 cr
Spring 1996 CHEM 4731/5731, General Biochemistry 2, 3 cr
Spring 1995 CHEM 4731/5731, General Biochemistry 2, 3 cr
Spring 1994 CHEM 5781, Advanced Biochemistry 2, 3 cr
Spring 1993 CHEM 5781, Advanced Biochemistry 2, 3 cr