

CURRICULUM VITAE

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Place of Birth: Amarillo, Texas

Education:

1985	B.S.E.E.	Rice University, Electrical Engineering
1991	M.D.	University of Texas Southwestern Medical School
1991	Ph.D.	University of Texas Southwestern Graduate School, Biochemistry

Postdoctoral Training:

1991 – 1996	Postdoctoral Fellow with Stephen Harrison, Structural Biology, Children's Hospital, Boston and the Howard Hughes Medical Institute
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Academic Appointments:

1991 – 1994	Postdoctoral Fellow, Department of Microbiology and Molecular Genetics, Harvard Medical School
1994 – 1996	Instructor in Pediatrics, Harvard Medical School
1996 – 2003	Assistant Professor, Department of Biological Chemistry and Molecular Pharmacology, Harvard Medical School
2003 – 2007	Associate Professor, Department of Biological Chemistry and Molecular Pharmacology, Harvard Medical School
2007 –	Professor, Department of Biological Chemistry and Molecular Pharmacology, Harvard Medical School

Hospital or Affiliated Institution Appointments:

1994 – 1996	Instructor in Pediatrics, Department of Medicine, Children's Hospital, Boston
1996 – 2003	Assistant Professor, Department of Cancer Biology, Dana-Farber Cancer Institute
2003 – 2007	Associate Professor, Department of Cancer Biology, Dana-Farber Cancer Institute
2007 –	Professor, Department of Cancer Biology, Dana-Farber Cancer Institute

Major Committee Assignments:**Medical School:**

2001 – 2002	Admissions Committee, BBS Graduate Program, Harvard Medical School
2009 – 2012	Promotions, Reappointments and Appointments Committee, Harvard Medical School
2017 – 2018	Task Force on Promotion Criteria, Harvard Medical School
2017 –	Financial Conflict of Interest Committee, Dana-Farber Cancer Institute
2018 – 2021	Subcommittee of Professors, Harvard Medical School
2019 – 2021	Admissions Committee, BBS Graduate Program, Harvard Medical School

National:

2007 – 2018	MacCHESS Scientific Advisory Committee member, (Macromolecular Crystallography component of the Cornell High Energy Synchrotron Source)
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Professional Societies:

1988 – present	American Association for the Advancement of Science, Member
1988 –	American Crystallographic Association, Member
1999 –	Biophysical Society, Member
2008 –	American Chemical Society, Member
2010 –	American Society for Cell Biology, Member
2016 – present	American Association for Cancer Research, Member

Editorial Boards:

2006 – 2010	Chemical Biology and Drug Design, Member
2011 – 2016	Journal of Biological Chemistry, Member

Awards and Honors:

1994	Boston Medical Foundation / Charles King Trust Fellow
1995	Burroughs Wellcome Fund - Career Award in the Biomedical Sciences
1997	Barr Investigator, Dana-Farber Cancer Institute
1999	BASF-DFCI, Young Investigator Award
2002	Scholar Award, Leukemia and Lymphoma Society
2009	World Class Scholar, Korean Ministry of Science and Technology, Korea University
2010	AACR Team Science Award (DF/HCC Thoracic Oncology Research Team)
2019	NCI Outstanding Investigator Award

Regional, National and International Presentations:

Selected Regional Presentations:

1999	Department of Chemistry, Massachusetts Institute of Technology, Invited Lecture
2000	Brigham and Women's Hospital, Invited Lecture
2001	Wistar Institute, Invited Lecture
2005	Cornell/Rockefeller/Sloan Kettering Tri-Institutional Seminar Series, Invited Speaker
2007	Northeastern University, Department of Biology, Invited Speaker
2008	Cambridge Healthtech Institute, Cambridge, MA, Invited Speaker
2009	Structural Biology Annual Retreat, Cambridge, MA, Invited Speaker
2010	Cambridge Healthtech Institute, Cambridge, MA, Invited Speaker
2019	Drug Discovery and Translational Research Program, DFCI/Novartis, Invited Speaker
2019	Massachusetts General Hospital, Neuro-Oncology Research Seminars, Invited Lecture
2019	Children's Hospital, Boston, Heme-Onc Seminar Series, Invited Speaker
2020	Blueprint Medicines, Cambridge, MA, Invited Speaker
2020	Biological Chemistry and Molecular Pharmacology Virtual Retreat, Invited Faculty Speaker
2021	Bristol Myers Squibb, Seminar and Roundtable, Virtual, Invited Speaker
2022	Yale University, Department of Pharmacology, Virtual, Invited Speaker
2023	Nimbus Therapeutics Scientific Seminar Series, Virtual, Invited Speaker
2023	Ikena Oncology Seminar Series, Virtual, Invited Speaker

Selected National Presentations:

1993	FASEB Conference on FC Receptors
1994	Gordon Conference on Diffraction Methods in Molecular Biology
1994	Keystone Symposium on Signal Transduction
1994	Invited Speaker at the Rockefeller, Southwestern Medical School, and Tulane Medical School
1997	Keystone Symposium on Signaling, Speaker
1998	American Association for Cancer Research Annual Meeting, Symposium Speaker
1999	Bio Physical Society, Annual Meeting
1999	Department of Pharmacology, U.T. Southwestern, Invited Lecture
2000	Tyrosine Phosphorylation and Cell Signaling, Salk Institute, Speaker and Session Chair
2000	Purdue University, Invited Lecture
2001	U.T. Southwestern M.S.T.P. Retreat, Keynote Speaker
2002	American Chemical Society Annual Meeting, Orlando, Invited Speaker
2003	ASCB Annual Meeting, San Francisco, Invited Speaker
2003	Gordon Conference, Motile and Contractile Systems, Invited Speaker
2003	USCF Pharmacological Sciences Seminar Series, Invited Speaker
2004	U.T. Southwestern Medical Center, Pharmacology Seminar Series, Invited Speaker
2005	ASCB Annual meeting, San Francisco, Invited speaker
2006	American Chemical Society, Southwest Regional Meeting, Houston, Invited speaker
2007	American Association for Cancer Research Annual Meeting, Oral Presentation
2007	Pfizer Pharmaceuticals Inc., Invited Speaker
2007	Scripps Research Institute, Invited Speaker
2008	American Chemical Society, National Meeting, Invited Speaker

2008 Biophysical Society, Annual Meeting, Long Beach, CA, Invited Speaker
 2008 Yale University Medical School, New Haven, CT, Invited Speaker
 2008 Novartis Institutes for Biomedical Research, Emeryville, CA, Invited Speaker
 2009 23rd Annual Symposium of the Protein Society, Boston, MA, Invited Speaker
 2011 Experimental Biology Annual Meeting, Washington, DC, Invited Lecture
 2011 8th Annual North Eastern Structural Symposium on the Structural Basis for Drug Resistance, Storrs, CT, Invited Speaker
 2012 Pennsylvania Muscle Institute Seminar Program, Philadelphia, PA, Invited Speaker
 2013 American Association for Cancer Research Annual Meeting, Washington, DC, Invited Speaker
 2015 Molecular Biophysics Graduate Program and Computational & Systems Biology Program, UT Southwestern Medical Center at Dallas, TX, Invited Speaker
 2016 American Association for Cancer Research Annual Meeting, New Orleans, LA, Invited Speaker
 2016 Department of Pharmacology, University of Washington, Seattle, WA, Invited Speaker
 2016 American Chemical Society, Southwest Regional Meeting, Galveston, TX, Invited Speaker
 2017 National Cancer Institute Brain SPORE Workshop, Duke University, Cary NC, Invited Speaker
 2017 Targeting Drug Resistance and Tumor Heterogeneity Meeting, Stony Brook University, Stony Brook, NY, Invited Speaker
 2018 FASEB Protein Phosphorylation Conference, Invited Speaker, Snowmass, CO
 2019 19th Annual NIH Chemistry-Biology Interface Symposium, Invited Speaker, University of Minnesota, Minneapolis, MN
 2019 FASEB Protein Kinases and Protein Phosphorylation Conference: Mechanisms to Therapeutics, Invited Speaker, Palm Springs, CA
 2019 NCI Brain SPORE Workshop, Invited Speaker, University of California, Los Angeles, CA
 2019 American Crystallographic Association Annual Meeting, Invited Speaker, Cincinnati, OH
 2020 NYU Perlmutter Cancer Center Seminar Series, Invited Guest Speaker
 2020 Genentech, Structural Biology and Protein Sciences Seminar, South San Francisco, CA, Invited Speaker
 2021 The Third RAS Initiative Symposium, Virtual, Invited Speaker
 2022 FASEB The Cell Signaling in Cancer Conference: From Mechanisms to Therapy, New Orleans, LA, Invited Speaker
 2022 2022 Post-Translational Regulation of Cell Signaling Symposium, Salk Institute for Biological Studies, La Jolla, CA, Invited Speaker and Session Chair
 2023 Winter Seminar Series, Cell Signaling in Health and Disease, University of California, San Diego, Invited Speaker
 2023 Structural Biology Symposium, University of Pennsylvania, Philadelphia, PA, Invited Speaker
 2023 ICB & DD 17th Annual Symposium on Frontiers in Chemical Biology and Drug Discovery, Stony Brook University, Stony Brook, NY, Invited Speaker
 2024 University of Texas Southwestern Medical Center, Molecular Biophysics Graduate Program Seminar, Dallas, TX, Invited Speaker

Selected International Presentations:

1989 32nd IUPAC Congress, Stockholm
 1996 International Symposium on Cell Signaling, Toronto, Invited Lecture
 1998 Institute for Cancer Research, Torino, Invited Lecture
 1999 International Union of Crystallography Congress, Glasgow, Invited Speaker

	University of Toronto, Invited Lecture
	Biotechnology Research Institute, Montreal, Invited Lecture
	Pezcoller Symposium, Rovereto, Italy, Invited Speaker and discussant
2004	Structural Biology of Cancer Targets, CNIO, Madrid, Invited Speaker
	12 th International Conference on Second Messengers and Phosphoproteins, Montreal, Invited Speaker
2006	International School of Crystallography, Erice, Sicily Invited Lecturer
	20 th IUBMB International Congress, Kyoto, Japan, Invited Speaker
	International Symposium on Medicinal Chemistry, Istanbul, Key Lecturer
	Korea Institute of Science and Technology, Seoul, Invited Speaker
2007	Institute of Biophysics, Beijing, Invited Speaker
2008	Gordon Research Conference, Growth Factors and Signalling, Oxford, UK
2009	Gordon Research Conference, Mechanisms of Cell Signaling, Oxford, UK
2009	6 th International Conference on Inhibitors of Protein Kinases, Warsaw, Invited Lecturer
2009	Korea Institute of Science and Technology, Seoul, Invited Speaker
2010	International Meeting on “Actin Dynamics”, Jena, Germany, Invited Speaker
2010	National Cancer Center, Korea, Invited Speaker
2010	Friedrich Miescher Institute for Biomedical Research, Basel, Switzerland, Invited Speaker
2011	Proteomics Symposium, Seoul Korea, Invited Speaker
2011	Novartis Institute for Biomedical Research, Basel, Switzerland, Invited Speaker
2012	NF-KB Signaling and Biology: From Bench to Bedside-KeyStone Symposia, Whistler, British Colombia, Invited Speaker
2012	CEMM Research Center for Molecular Medicine Meetings and Seminar, Vienna, Austria, Invited Speaker
2012	CNIO Frontiers Meetings and Seminar, Madrid, Spain, Invited Speaker
2014	Giovanni Armenise-Harvard Foundation 15 th Symposium, Lago di Garga, Italy, Invited Speaker
2015	Korean Society for Biochemistry and Molecular Biology, Invited Speaker
2017	9 th International Conference: Inhibitors of Protein Kinases – Challenges in Molecular Biology and Biomedicine, Warsaw, Poland, Invited Speaker
2017	Kinase Inhibitors in Drug Discovery, Berlin, Germany, Invited Speaker
2020	DFCI-Everest-PLGA Symposium, Heidelberg, Germany, Invited Speaker
2021	INSIDE – The Dark Side of the Cell, Online PhD Symposium, Virtual, Invited Speaker
2022	Korean Crystallographic Association Meeting, Jeju, South Korea, Keynote Speaker
2024	9 th International Meeting on Rare Disorders of the Ras-MAPK Pathway, Berlin, Invited Speaker

Report of Technological and Other Scientific Innovation:

Patents:

U.S. 9,908,884	EGFR inhibitors and methods of treating disorders Co-Inventor, filed May 05, 2010.
U.S. 10,385,019	Inhibitors of EGFR and methods of use thereof Co-Inventor, filed June 20, 2016
U.S. 11,186,574	Inhibitors of EGFR and/or HER2 and methods of use Co-Inventor, filed Aug. 31, 2018
U.S. 10,450,310	Bifunctional molecules for degradation of EGFR and methods of use Co-Inventor, filed Oct. 17, 2018

U.S. 11,584,746	Inhibitors of EGFR and methods of use thereof Co-Inventor, filed Feb. 20, 2019
U.S. 10,836,722	Inhibitors of EGFR and methods of use thereof Co-Inventor, filed June 13, 2019
U.S. 11,161,842	Bifunctional molecules for degradation of EGFR and methods of use Co-Inventor, filed Sept. 30, 2019
U.S. 11,945,816	Inhibitors of EGFR and/or HER2 and methods of use Co-Inventor, filed Oct. 20, 2021

Published Patent Applications:

WO/2019/164948	Co-Inventor, PCT application filed February 20, 2019. Inhibitors of EGFR and methods of use thereof
WO/2019/164932	Co-Inventor, PCT application filed February 20, 2019. Degradors of EGFR and methods of use thereof
WO/2019/164941	Co-Inventor, PCT application filed February 20, 2019. Pharmaceutical combinations of EGFR inhibitors and methods of use thereof
WO/2019/164949	Co-Inventor, PCT application filed February 20, 2019. Pharmaceutical combinations of EGFR inhibitors and methods of use thereof
WO/2019/164953	Co-Inventor, PCT application filed February 20, 2019. Degradors of EGFR and methods of use thereof
WO/2019/246541	Co-Inventor, PCT application filed June 21, 2019. Inhibitors of EGFR and methods of use thereof
WO/2020/257607	Co-Inventor, PCT application filed June 19, 2020. Allosteric EGFR inhibitors and methods of use thereof
WO/2020/257632	Co-Inventor, PCT application filed June 19, 2020. Allosteric EGFR inhibitors and methods of use thereof
WO/2021/096948	Co-Inventor, PCT application filed November 11, 2020. Allosteric EGFR inhibitors and methods of use thereof
WO/2022/067063	Co-Inventor, PCT application filed September 24, 2021. Mutant selective EGFR inhibitors and methods of use thereof
WO/2024/076929	Co-Inventor, PCT application filed October 2, 2023. Irreversible inactivators targeting ARAF/MEK complexes

Bibliography:

Original Reports

1. **Eck MJ**, Beutler B, Kuo G, Merryweather JP, Sprang SR. Crystallization of trimeric recombinant human tumor necrosis factor (cachectin). J Biol Chem. 1988; 263(26):12816-9.
2. **Eck MJ**, Sprang SR. The structure of tumor necrosis factor- α at 2.6 Å resolution. Implications for receptor binding. J Biol Chem. 1989; 264(29):17595-605.
3. **Eck MJ**, Ultsch M, Rinderknecht E, de Vos AM, Sprang SR. The structure of human lymphotoxin (tumor necrosis factor- β) at 1.9-Å resolution. J Biol Chem. 1992; 267(4):2119-22.

4. **Eck MJ**, Shoelson SE, Harrison SC. Recognition of a high-affinity phosphotyrosyl peptide by the Src homology-2 domain of p56lck. *Nature*. 1993; 362(6415):87-91.
5. **Eck MJ**, Atwell SK, Shoelson SE, Harrison SC. Structure of the regulatory domains of the Src- family tyrosine kinase Lck. *Nature*. 1994; 368(6473):764-9.
6. Rodseth LE, Brandhuber B, Devine TQ, **Eck MJ**, Hale K, Naismith JH, Sprang SR. Two crystal forms of the extracellular domain of type I tumor necrosis factor receptor. *J Mol Biol*. 1994; 239(2):332-5.
7. Songyang Z, Carraway KL 3rd, **Eck MJ**, Harrison SC, Feldman RA, Mohammadi M, Schlessinger J, Hubbard SR, Smith DP, Eng C, et al. Catalytic specificity of protein-tyrosine kinases is critical for selective signalling. *Nature*. 1995; 373(6514):536-9.
8. **Eck MJ**, Pluskey S, Trüb T, Harrison SC, Shoelson SE. Spatial constraints on the recognition of phosphoproteins by the tandem SH2 domains of the phosphatase SH-PTP2. *Nature*. 1996; 379(6562):277-80.
9. Nolte RT, **Eck MJ**, Schlessinger J, Shoelson SE, Harrison SC. Crystal structure of the PI 3-kinase p85 amino-terminal SH2 domain and its phosphopeptide complexes. *Nat Struct Biol*. 1996; 3(4):364-74.
10. **Eck MJ**, Dhe-Paganon S, Trüb T, Nolte RT, Shoelson SE. Structure of the IRS-1 PTB domain bound to the juxtamembrane region of the insulin receptor. *Cell*. 1996; 85(5):695-705.
11. Weissenhorn W, **Eck MJ**, Harrison SC, Wiley DC. Phosphorylated T cell receptor zeta-chain and ZAP70 tandem SH2 domains form a 1:3 complex in vitro. *Eur J Biochem*. 1996; 238(2):440-5.
12. Saxena K, Gaitatzes C, Walsh MT, **Eck M**, Neer EJ, Smith TF. Analysis of the physical properties and molecular modeling of Sec13: A WD repeat protein involved in vesicular traffic. *Biochemistry*. 1996; 35(48):15215-21.
13. Xu W, Harrison SC, **Eck MJ**. Three-dimensional structure of the tyrosine kinase c-Src. *Nature*. 1997; 385(6617):595-602.
14. Sondhi D, Xu W, Songyang Z, **Eck MJ**, Cole PA. Peptide and protein phosphorylation by protein tyrosine kinase Csk: insights into specificity and mechanism. *Biochemistry*. 1998; 37(1):165-72.
15. Hof P, Pluskey S, Dhe-Paganon S, **Eck MJ**, Shoelson SE. Crystal structure of the tyrosine phosphatase SHP-2. *Cell*. 1998; 92(4):441-50.
16. Huse M, **Eck MJ**, Harrison SC. A Zn²⁺ ion links the cytoplasmic tail of CD4 and the N-terminal region of Lck. *J Biol Chem*. 1998; 273(30):18729-18733.
17. Meng W, Sawasdikosol S, Burakoff SJ, **Eck MJ**. Structure of the amino-terminal domain of Cbl complexed to its binding site on ZAP-70 kinase. *Nature*. 1999; 398(6722):84-90.
18. Xu W, Doshi A, Lei M, **Eck MJ**, Harrison SC. Crystal structures of c-Src reveal features of its autoinhibitory mechanism. *Mol Cell*. 1999; 3(5):629-38.
19. Dhe-Paganon S, Ottinger EA, Nolte RT, **Eck MJ**, Shoelson SE. Crystal structure of the pleckstrin homology-phosphotyrosine binding (PH-PTB) targeting region of insulin receptor substrate 1. *Proc Natl Acad Sci U S A*. 1999; 96(15):8378-83.
20. Poy F, Yaffe MB, Sayos J, Saxena K, Morra M, Sumegi J, Cantley LC, Terhorst C, **Eck MJ**. Crystal structures of the XLP protein SAP reveal a class of SH2 domains with extended, phosphotyrosine-independent sequence recognition. *Mol Cell*. 1999; 4(4):555-61.
21. Huang X, Poy F, Zhang R, Joachimiak A, Sudol M, **Eck MJ**. Structure of a WW domain containing fragment of dystrophin in complex with beta-dystroglycan. *Nat Struct Biol*. 2000 Aug; 7(8):634-8.

22. Lei M, Lu W, Meng W, Parrini MC, **Eck MJ**, Mayer BJ, Harrison SC. Structure of PAK1 in an autoinhibited conformation reveals a multistage activation switch. *Cell*. 2000 Aug; 102(3):387-97.
23. Morollo AA, **Eck MJ**. Structure of the cooperative allosteric anthranilate synthase from *Salmonella typhimurium*. *Nat Struct Biol*. 2001; 8(3):243-7.
24. Jeon H, Meng W, Takagi J, **Eck MJ**, Springer TA, Blacklow SC. Implications for familial hypercholesterolemia from the structure of the LDL receptor YWTD-EGF domain pair. *Nat Struct Biol*. 2001; 8(6):499-504.
25. Morra M, Simarro-Grande M, Martin M, Chen AS, Lanyi A, Silander O, Calpe S, Davis J, Pawson T, **Eck MJ**, Sumegi J, Engel P, Li SC, Terhorst C. Characterization of SH2D1A missense mutations identified in X-linked lymphoproliferative disease patients. *J Biol Chem*. 2001; 276(39):36809-16.
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27. Poy F, Lepourcelet M, Shivdasani RA, **Eck MJ**. Structure of a human Tcf4-beta-catenin complex. *Nat Struct Biol*. 2001 Dec; 8(12):1053-7.
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29. Freedman SJ, Sun ZY, Poy F, Kung AL, Livingston DM, Wagner G, **Eck MJ**. Structural basis for recruitment of CBP/p300 by hypoxia-inducible factor-1 alpha. *Proc Natl Acad Sci U S A*. 2002; 99(8):5367-72.
30. Chan B, Lanyi A, Song HK, Griesbach J, Simarro-Grande M, Poy F, Howie D, Sumegi J, Terhorst C, **Eck MJ**. SAP couples Fyn to SLAM immune receptors. *Nat Cell Biol*. 2003; 5(2):155-60.
31. Freedman SJ, Song HK, Xu Y, Sun ZY, **Eck MJ**. Homotetrameric structure of the SNAP-23 N- terminal coiled-coil domain. *J Biol Chem*. 2003; 278(15):13462-7.
32. Stolt PC, Jeon H, Song HK, Herz J, **Eck MJ**, Blacklow SC. Origins of peptide selectivity and phosphoinositide binding revealed by structures of disabled-1 PTB domain complexes. *Structure*. 2003; 11(5):569-79.
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41. Paez JG, Jänne PA, Lee JC, Tracy S, Greulich H, Gabriel S, Herman P, Kaye FJ, Lindeman N, Boggon TJ, Naoki K, Sasaki H, Fujii Y, **Eck MJ**, Sellers WR, Johnson BE, Meyerson M. EGFR mutations in lung cancer: correlation with clinical response to gefitinib therapy. *Science*. 2004; 304(5676):1497-500.
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