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EDUCATION

UCLA School of Medicine, Los Angeles, CA

Doctor of Medicine, 2004

Senior dissertation: *From theory to practice: A review of the medical science of immunotherapy*, advisor Dr. Gary Schiller

Harvard Medical School, Boston, MA

Doctor of Philosophy in Biological and Biomedical Sciences, 2002

Thesis: *EphA regulation of Rho GTPases through the exchange factor ephexin during axon guidance*, advisor Prof. Michael E. Greenberg

Harvard University, Cambridge, MA

Bachelor of Arts in Biochemistry with secondary emphasis in Physics, *summa cum laude*, 1994

Thesis: *Characterization of a Drosophila enhancer-detector line displaying spatially specific enhancer activity during oogenesis*, advisor Prof. Fotis C. Kafatos

UCSD, San Diego, CA

Early Action Honors studies in computer science concurrent with high school, 1989-1990

RESEARCH

Postdoctoral fellow with Prof. Roger Y. Tsien, UCSD, 2004-current

- Investigating local protein synthesis and turnover during synaptic plasticity using chemical and optical methods.
- Designed and constructed novel chemically controlled sensors for the sensitive and specific visualization of newly synthesized proteins of interest.
- Developed system for rapid dose-dependent drug control of protein translation from transgenes.
- Studying interactions between multiple components of signal transduction networks in real time through simultaneous imaging of multiple FRET reporters.

Graduate student with Prof. Michael E. Greenberg, Harvard Medical School, 1996-2002

- Investigated mechanisms of cytoskeletal control by extracellular axon guidance factors during neurodevelopment.
- Discovered ephexin, a novel activator of Rho-family GTPases mediating neurite retraction by the ephrin-A family of repellent molecules.
- Elucidated a complete signal transduction pathway involving ephrin-regulated Src phosphorylation of ephexin.
- Developed novel knock-in and knock-out strategies for engineering mutant ephexin and BAD alleles in transgenic mice.
- Designed and constructed improved adenovirus systems for gene transfection and gene therapy in collaboration with Prof. Rosalind Segal.

MD-PhD student with Prof. S. Larry Zipursky, UCLA, 1994-1996

- Mapped and cloned genes involved in cell cycle control in the fly, including a cyclin regulator, *rca*, and a regulator of ubiquitination, *ebi*.

Undergraduate thesis student with Prof. Fotis C. Kafatos, Harvard University, 1991-1994

- Cloned and characterized a gene identified in a P-element enhancer-trap screen for genes involved in axis formation embryonic development.

Undergraduate research with Dr. Margaret Moore, Hybritech Inc., 1990

- Designed an enzymatic reporter for detection of protein-protein interactions based on complementation of fragments of beta-galactosidase.

RESEARCH INTERESTS

I am interested in combining chemical and molecular biological components to create useful tools for the visualization of cellular signalling events and, eventually, as part of rational therapeutic interventions for human disease. In the design of sensors, I place particular emphasis on the development of techniques generalizable to the investigation of multiple pathways, yet robust enough for *in vivo* use in animal models and perhaps eventually human patients. My current efforts are focused on designing and using novel reporters of protein turnover to study modifications to neural circuitry in neuronal cultures *in vitro*. In the immediate future, I would like to extend these studies to *in vivo* animal models of learning, injury, or recovery. In a new line of research, I plan on developing reporters of specific genetic sequences suitable for the investigation and treatment of infectious disease and cancer. I would like to apply structural data and quantitative modelling of signalling networks to guide the development of these more complex sensors.

AWARDS AND HONORS

Jane Coffin Childs Memorial Research Fellowship, 2005
Western Student Medical Research Forum Prize, 2004
U.S. Department of Defense Graduate Fellowship, 1997
NIH Medical Scientist Training Program Fellowship, 1994
Harvard University Phi Beta Kappa Honors Society, 1994
Harvard Public Service Abroad Fellowship, 1993
Ford Undergraduate Research Fellowship, 1992, 1993
John Harvard Scholarship for academic achievement, 1992, 1993, 1994

TEACHING EXPERIENCE**Harvard Medical School Dept. of Neurobiology, 1999**

Teaching assistant for graduate developmental neurobiology with Profs. Christopher A. Walsh, David van Vactor, and Rosalind Segal

UCLA Dept. of Biological Chemistry, 1996

Teaching assistant for advanced undergraduate cell biology with Prof. Michael Grunstein

UCLA Dept. of Chemistry, 1995, 1996

Teaching assistant for advanced undergraduate nucleic acid chemistry with Prof. Al Courey, UCLA Dept. of Chemistry, two quarters

Harvard University Depts. of Biology and Biochemistry, 1993, 1994

Teaching fellow for undergraduate genetics with Profs. William Gelbart and Matthew Meselson, two semesters

Harvard University Bureau of Study Counsel, 1991-1994

Individual tutor to undergraduates in biology, chemistry, and physics

PROFESSIONAL MEMBERSHIPS

Member, Society for Neuroscience, 2005-current
Member, American Society for Cell Biology, 2006-current
Student member, American College of Physicians, 2002-2004

PUBLICATIONS

- Sahin M*, Greer PL*, **Lin MZ***, Poucher H, O'Connell S, Schmidt S, Wright TM, Shamah SM, Eberhart J, Cowan CW, Hu L, Goldberg JL, Debant A, Corfas G, Krull CE, Greenberg ME. 2005. Eph-dependent tyrosine phosphorylation of ephexin1 modulates growth cone collapse. *Neuron* 46: 191-204. *Equal authorship. Featured in "New Exchanges in Eph-Dependent Growth Cone Dynamics" *Neuron* 46: 141.
- Cowan CW, Shao YR, Sahin M, Shamah SM, **Lin MZ**, Greer PL, Gao S, Griffith EC, Brugge JS, Greenberg ME. 2005. Vav family GEFs link activated Ephs to endocytosis and axon guidance. *Neuron* 46: 205-217.
- Lin MZ**, Teitell M, Schiller G. 2005. The evolution of antibodies into versatile tumor targeting agents. *Clinical Cancer Research* 11: 129-38.
- Zhang X, Boles RG, Law SK, **Lin M**. 2004. Ocular findings in geleophysic dysplasia. *Journal of the American Association for Pediatric Ophthalmology and Strabismus* 8:198-200.
- Datta SR, Ranger AM, **Lin MZ**, Sturgill JF, Ma YC, Cowan CW, Dikkes P, Korsmeyer SJ, Greenberg ME. 2002. Survival factor-mediated BAD phosphorylation raises the mitochondrial threshold for apoptosis. *Developmental Cell* 3: 631-643.
- Watson FL, Heerssen HM, Bhattacharyya A, Klesse L, **Lin MZ**, Segal RA. 2001. Neurotrophins use the Erk5 pathway to mediate a retrograde survival response. *Nature Neuroscience* 4: 981-988.
- Shamah SM*, **Lin MZ***, Goldberg JL, Estrach S, Sahin M, Hu L, Bazalakova M, Neve RL, Corfas G, Debant A, Greenberg ME. 2001. EphA receptors regulate growth cone dynamics through the novel guanine nucleotide exchange factor ephexin. *Cell* 105:233-244. *Equal authorship. Featured in "Signaling Downstream of Eph Receptors and Ephrin Ligands" *Cell* 105: 701 and in "Breakthrough of the Year: The Runners-Up" *Science* 294: 2443-2447.
- Sun Y, Nadal-Vicens M, Misono S, **Lin MZ**, Zubiaga A, Hua X, Fan G, Greenberg ME. 2001. Neurogenin promotes neurogenesis and inhibits glial differentiation by independent mechanisms. *Cell* 104: 365-376.
- Dalva MB, Takasu MA, **Lin MZ**, Shamah SM, Hu L, Gale NW, Greenberg ME. 2000. EphB receptors interact with NMDA receptors and regulate excitatory synapse formation. *Cell* 103:945-56
- Lin MZ**, Greenberg ME. 2000. Orchestral maneuvers in the axon: Trio and the control of axon guidance. *Cell* 101:239-42.
- Brunet A, Bonni A, Zigmund MJ, **Lin MZ**, Juo P, Hu LS, Anderson MJ, Arden KC, Blenis J, Greenberg ME. 1999. Akt promotes cell survival by phosphorylating and inhibiting a Forkhead transcription factor. *Cell* 96:857-68.
- Watson FL, Heerssen HM, Moheban DB, **Lin MZ**, Sauvageot CM, Bhattacharyya A, Pomeroy SL, Segal RA. 1999. Rapid nuclear responses to target-derived neurotrophins require retrograde transport of ligand-receptor complex. *Journal of Neuroscience* 19:7889-900.
- Dong X, Tsuda L, Zavitz KH, **Lin M**, Li S, Carthew RW, Zipursky SL. 1999. ebi regulates epidermal growth factor receptor signaling pathways in Drosophila. *Genes & Development* 13:954-65.
- Dong X, Zavitz KH, Thomas BJ, **Lin M**, Campbell S, Zipursky SL. 1997. Control of G1 in the developing Drosophila eye: rca1 regulates Cyclin A. *Genes & Development* 11:94-105.