

2007 Undergraduate Biochemical Sciences Honors Theses

Leah J. Blank

Transcription Factor Networks and Signaling: A Molecular Analysis of Lung Development
Dr. Doug Melton, Laboratory Sponsor

Resmi Ann Charalel

Towards Genome Engineering and Recoding the Escherichia Coli Genome
Dr. George Church, Laboratory Sponsor

Nancy Chen

Genomics and population Genetics of I-regulatory regions of House Finch (*Carpodacus mexicanus*) immune system genes during an epizootic
Dr. Scott Edwards, Laboratory Sponsor

Yicheng Chen

The Role of Endocytosis in Granule Cell Migration
Dr. Rosalind Segal, Laboratory Sponsor

Christine Elise Cherella

Characterization of Phospho-specific IRS1 Monoclonal Antibodies - Initial studies of IRS1 S265 and S1135 phosphorylation
Dr. Morris White, Laboratory Sponsor

Juliet Girard

Detecting tension between sister centromeres plays a role in the spindle checkpoint in budding yeast
Dr. Andrew Murray, Laboratory Sponsor

Wei He

The Role of Mutations in B-tubulin Isotype III in the Clinical Disorder Congenital Fibrosis of the Extraocular Muscle III
Dr. Elizabeth Engle, Laboratory Sponsor

Brian Thomas Ho

Chromosome mobility varies throughout the Escherichia coli cell cycle: A study in bacterial Chromosome dynamics
Dr. Nancy Kleckner, Laboratory Sponsor

Victoria T. Ho

Expression and Function of Bone Morphogenetic Protein 3 in Chick Embryonic Development
Dr. Vicki Rosen, Laboratory Sponsor

Sinisa Hrvatin

High throughput screening and isolation of natural product biosynthetic gene clusters
Dr. Christopher Walsh, Laboratory Sponsor

Robert Jeffrey Huang

Structural Studies of the Ankyrin Repeats of TRPV Ion Channels
Dr. Rachelle Gaudet, Laboratory Sponsor

Hala Asfand Iqbal

The Role of Major and Variant Histones in Drosophila Development
Dr. Ahmad Kami, Laboratory Sponsor

Pimkwan Jaru-ampornpan

Partial protection of clinically SIV-infected rhesus monkeys against a heterologous mucosal challenge

Dr. Norman Letvin, Laboratory Sponsor

Pichamol Jirapinyo

Polysaccharide A on the surface of *Bacteroides fragilis* induces TH1 subtype differentiation through activation of the transcription factors T-box expressed in T cells (T-bet)

Dr. Dennis Kasper, Laboratory Sponsor

Kevin Koo

Ethanol-Induced Microphthalmia in the Developing Zebrafish Retina

Dr. John Dowling, Laboratory Sponsor

Luisa Lara

The Role of C-type Lectins in *Caenorhabditis elegans* Immunity

Dr. Dennis Kasper, Laboratory Sponsor

Daniel Junseung Lee

Retrograde axonal transport and motor neuron function

Dr. Rosalind Segal, Laboratory Sponsor

Hana Lee

Array-based high-resolution genotyping of recombinant inbred lines for quantitative trait loci analysis

Dr. Christine Queitsch, Laboratory Sponsor

Deepali Malhorta

Biochemical Studies of the DnaA Protein from *Thermus Thermophilus*

Dr. David Jeruzalmi, Laboratory Sponsor

Ryan McCaffrey

A Link Between the Fanconi Anemia Pathway and Translesion DNA Synthesis

Dr. Alan D'Andrea, Laboratory Sponsor

Kristen Mengwasser

Mechanism of Drug Resistance Acquired by EGFR T790M Mutation

Dr. Michael Eck, Laboratory Sponsor

Alissa Anne Mueller

I. Structural and Mechanistic Studies of TadA, an Adenosine Deaminase that Acts on tRNA

II. Structural and Biochemical Analysis of the C-terminal Domain of UvrC, A DNA Damage Repair Enzyme

Dr. Greg Verdine, Laboratory Sponsor

Mei Rosa Ng

Microenvironmental Regulators of Microtubules in Cardiac Myocytes

Dr. Kit Kevin Parker and David Weitz, Laboratory Sponsors

Thomas R. Noriega

Fatty acid-derived membrane lipids regulate the SREBP pathway through positive feedback

Dr. Axel Nohtruff, Laboratory Sponsor

Michael Jeffrey Podolsky

The Role of Activity in the Formation of Odor Maps

Dr. Venkatesh Murthy, Laboratory Sponsor

Sutheera Ratanasirinrawoot

The contribution of notch signaling to neural crest development in the zebrafish model of melanoma

Dr. Leonard Zon, Laboratory Sponsor

Jennifer Rood

Promoter Structure and Function in the Transcriptional Network Activated by the MAP Kinase Hog1

Dr. Erin O'Shea, Laboratory Sponsor

Julia Rotow

Aspects of Gene Regulation in the σ K Regulon During Sporulation in *Bacillus subtilis*

Dr. Rich Losick, Laboratory Sponsor

Hersh Sagreiya

An Investigation of the Mechanisms Involved in the Footsteps, Kickback, Wenceslas, and Belly Dancer Illusions

Dr. Margaret Livingstone, Laboratory Sponsor

Rajan Anthony Sonik

The Role of the Human and Mouse Erythroid AE1 N-terminal Cytoplasmic Domain in Binding Glycophorin A

Dr. Seth Alper, Laboratory Sponsor

Vasanthi Sridhar

Analysis of the Role of the Non-Receptor Tyrosine Kinase Family in Drosophila Embryo Axon Guidance

Dr. David Van Vactor, Laboratory Sponsor

David Staudt

The Requirement for Embryonic Stem Cell Chromatin in Fusion-Mediated Nuclear Reprogramming

Dr. Kevin Eggan, Laboratory Sponsor

Michael Swita

2C7-Protamine Fusion Protein as a Novel siRNA Delivery System for HIV Therapy

Dr. Judy Lieberman, Laboratory Sponsor

Aileen Sy

Embryonic Pancreatic Progenitors Replicate Homogeneously to Produce the Mature Adult Pancreas

Dr. Doug Melton, Laboratory Sponsor

Shyam K. Tanguturi

Identification of Novel Regulators of Globin Expression for the Treatment of Sickle Cell Disease and Thalassemias

Dr. Todd Golub, Laboratory Sponsor

David Thaisrivongs

Synthesis of the C5'-C2 and C36-C48 Subunits of Aflastatin A

Dr. David Evans, Laboratory Sponsor

Benjamin Tseng

Transcriptional Regulation of Members of the Tripartite Motif Family in Response to Viral

Infection

Dr. Tom Maniatis, Laboratory Sponsor

Nadia Wan

Studies on the immunogenicity, carbohydrate specificity, and conformational changes of the rotavirus VP8*core

Dr. Philip Dormitzer, Laboratory Sponsor

Michael Dale Wang

Building on the First Generation of Accurate Massively Parallel Multiplex Sequencing

Dr. George Church, Laboratory Sponsor

Sophia Wang

An investigation into the fighting behavior of *Drosophila melanogaster* using rutabaga and amnesiac memory mutants.

Dr. David Kravitz, Laboratory Sponsor

Alvin Wong

Molecular Effectors of Angiogenesis: The Role of Cyclophilin B in the Angiogenic Switch

Dr. Moses Marsha, Laboratory Sponsor

Albert Wu

Sequential molecular analysis of tumor stroma in a spontaneous tumor model

Dr. David Scadden, Laboratory Sponsor

Vijay Yanamadala

A Novel Ga12-Mediated Apoptosis Pathway and its Potential Role in the Development of Polycystic Kidney Disease

Dr. Brad Denker, Laboratory Sponsor

Nicolas A. Yannuzzi

Models of Muller Glial Cell Disruption and the Consequences on Retinal Health and Visual Function in the Zebrafish Retina

Dr. John Dowling, Laboratory Sponsor

Dongbo Yu

Functional expression screens with luciferase- and GFP-based reporters to probe NFAT/FoxP3 and PI3 kinase signaling networks

Dr. Brian Seed, Laboratory Sponsor

Yi-Chen Lilly Zhang

NFAT1 Induces a Transcriptional Program of T Cell Anergy that is Functionally Distinct from Regulatory T Cell Suppression

Dr. Anjana Rao, Laboratory Sponsor