

Roy David Magnuson

Curriculum vitae
February 02, 2021

Office

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EDUCATION

1988-1995 Ph.D., Biology, Massachusetts Institute of Technology
Characterization of a Competence Pheromone in *Bacillus subtilis*
1981-1985 B.A., Integrated Science Program, Northwestern University
B.A., Biochemistry, Molecular Biology & Cell Biology, Northwestern University

PROFESSIONAL APPOINTMENTS/EMPLOYMENT

2005-2015 Associate Professor, Biological Sciences, University of Alabama in Huntsville
1999-2005 Assistant Professor, Biological Sciences, University of Alabama in Huntsville
1997-1999 Individual Research and Training Appointment (IRTA) Fellow, National Cancer Institute, National Institutes of Health, Bethesda, MD
1995-1997 Pharmacology Research Associate (PRAT) Postdoctoral Fellow, National Institute of General and Medical Sciences, National Institutes of Health, Bethesda, MD
1986-1988 Research Technician, Abbott Laboratories, Abbott Park, IL
1985-1986 Boat builder, Melges Boat Works, Zenda, WI

AWARDS AND HONORS

2000 Sigma Xi, The Scientific Research Society.
1997 NIH Fellow's Award for Research Excellence (FARE)
1985 Phi Beta Kappa
1980 Rensselaer Award for Mathematics and Science
1979 Presidential Physical Fitness Award

PUBLICATIONS (from google scholar)

(~15 publications, ~12 peer-reviewed research publications, ~1952 citations, h-index of ~13)

- 2013 15 Garcia-Pino, A., Y. Sterckx, R.D. **Magnuson** and R. Loris, 2013. "Type II Toxin-Antitoxin Loci: The phd/doc family". In: Gerdes, K., Ed., 2013. Prokaryotic Toxin-Antitoxins, Springer-Verlag, Berlin & Heidelberg pp.157-176.
- 2010 14 Garcia-Pino, A., Balasubramanian, S., Wyns, L., Gazit, E., De Greve, H., **Magnuson**, R.D., Charlier, D., van Nuland, N.A.J., Loris, R., 2010. "Allostery and Intrinsic Disorder Mediate Transcriptional Regulation by Conditional Cooperativity" *Cell*. 142(1):101-11.
- 2008 13 Garcia-Pino, A., Dao-Thi, M. H., Gazit, E., **Magnuson**, R. D., Wyns, L., and Loris, R. 2008. Crystallization of Doc and the Phd-Doc toxin-antitoxin complex. *Acta Crystallogr Sect F Struct Biol Cryst Commun* 64, 1034-1038.
- 2008 12 Garcia-Pino A, Christensen-Dalsgaard M, Wyns L, Yarmolinsky M, **Magnuson** RD, Gerdes K, Loris R. 2008. "Doc of Prophage P1 Is Inhibited by Its Antitoxin Partner Phd through Fold Complementation" *Journal of Biological Chemistry* 283(45):30821-7.
- 2008 11 Chen Y., Kay Holtman C., **Magnuson** R.D., Youderian P.A. and Golden S.S. 2008. "The complete sequence and functional analysis of pANL, the large plasmid of the unicellular freshwater cyanobacterium *Synechococcus elongatus* PCC 7942" *Plasmid* 59(3):176-92.
- 2007 10 **Magnuson**, R.D., 2007. "Hypothetical Functions of Toxin-Antitoxin Systems" *J Bacteriol* 189(17): 6089-6092.
- 2005 9 Zhao, Xueyan and **Magnuson**, R. D. 2005. Percolation of the Phd Repressor-Operator Interface. *Journal of Bacteriology*, 187:1901-1912.
- 2005 8 McKinley, James Estle and **Magnuson**, R. D. 2005. Characterization of the Phd Repressor-Antitoxin Boundary. *Journal of Bacteriology* 187:765-770.
- 2004 7 Smith, J. A., and **Magnuson**, R. D. 2004. Modular Organization of the Phd Repressor/Antitoxin Protein. *Journal of Bacteriology* 186:2692-2698.
- 1998 6 **Magnuson**, R. and Yarmolinsky, M. B. 1998. Corepression the P1 Addiction Operon by Phd and Doc. *Journal of Bacteriology* 180:6342-6351.
- 1996 5 **Magnuson**, R., Lehnher, H., Mukhopadhyay, G. and Yarmolinsky, M. B. 1996. Autoregulation of the Plasmid Addiction Operon of Bacteriophage P1. *Journal of Biological Chemistry* 271:18705-18710.
- 1995 4 Solomon, J., **Magnuson**, R., Srivastava, A. and Grossman, A. D. 1995. Convergent sensing pathways mediate response to two extracellular competence factors in *Bacillus subtilis*. *Genes & Development* 9: 547-558.
- 1994 3 **Magnuson**, R., Solomon, J. and Grossman, A. D. 1994. Biochemical and genetic characterization of a competence pheromone from *B. subtilis*. *Cell* 77: 207-216.
- 1991 2 Grossman, A. D., Ireton, K., Hoff, E. F., LeDeaux, J. R., Rudner, D. Z., **Magnuson**, R. and Hicks, K. A. 1991. Signal transduction and the initiation of sporulation in *Bacillus subtilis*. *Semin. Dev. Biol.* 2: 31-36.
- 1991 1 Nakano, M. M., **Magnuson**, R., Meyers, A., Curry, J., Grossman, A. D. and Zuber, P. 1991. *srfA* is an operon required for surfactin production, competence development, and efficient sporulation in *Bacillus subtilis*. *J. Bacteriol.* 173: 1770-1778.

GRANTS & AWARDS (Total > \$900,000.00)

Major External Grants (Total > \$800,000.00, continuous funding from 2003-2012)

- 2009-2012 Roy Magnuson (PI)
Analysis of Phd: a 73 aa Protein with Multiple Ligands
NIH 2 R15 GM067668-04, 10/1/09-09/30/11 NCE to 09/30/12
\$220,900 AWARDED. (\$150,000 Direct Costs and \$69,750 Indirect costs)
- 2007-2009 Roy Magnuson (PI)
Analysis of Phd: a 73 aa Protein with Multiple Ligands
NIH 2 R15 GM067668-03, 5/1/07-4/30/09, NCE to 9/30/09 (Competitive
Renewal)
\$219,750 AWARDED. (\$150,000 Direct Costs and \$69,750 Indirect costs)
- 2005-2007 Roy Magnuson (PI)
Analysis of Phd: a 73 aa Protein with Multiple Ligands
NIH 2 R15 GM067668-02, 4/1/05-3/31/07.
\$218,250 AWARDED. (\$150,000 Direct Costs and \$68,250 Indirect costs)
- 2003-2005 Roy Magnuson (PI)
Analysis of Phd: a 73 aa Protein with Multiple Ligands
NIH 1 R15 GM67668-01, 4/1/03-3/31/05
\$145,500 AWARDED. (\$100,000 Direct Costs and \$45,500 Indirect costs)

Minor or Internal Grants (Total > \$100,000.00)

- 2013 Roy Magnuson (PI) and Aaron Lee. Research or Creative Experience for Undergraduates. University of Alabama in Huntsville
\$3,000.00 AWARDED.
- 2011 Roy Magnuson (PI) and Carl Pattison. Research or Creative Experience for Undergraduates. University of Alabama in Huntsville
\$3,000.00 AWARDED.
- 2006 Roy Magnuson and Katharina van Santen. Population Biology and Polymorphisms in Prokaryotic Toxin-Antitoxin Systems. Research Experience for Undergraduates. University of Alabama in Huntsville
\$3,000.00 AWARDED.
- 2006 Roy Magnuson. Application to: Quantitative Approaches to Gene Regulatory Systems. Center for Theoretical Biological Physics. University of California San Diego 2006 Summer School. Workshop Period: July 09-21, 2006. Submitted March 1, 2006.
\$500 scholarship AWARDED.
- 2006 Roy Magnuson. Application to: 2006 Course on Yeast Genetics and Genomics. Cold Spring Harbor Laboratory, Cold Spring Harbor, NY. Course Period: July 25-August 14, 2006. Submitted March 13, 2006.
\$700.00 scholarship AWARDED.

- 2001-2004 Ed Meehan (PI) (and numerous other investigators). The Alabama Structural Biology Consortium. NSF EPSCOR, DTD4/25/01(Ed Meehan)), February 2001 to February 2004, \$3,658,615 AWARDED. (I was a rather minor Co-PI on this grant. I received circa \$20,000 direct costs from this grant over a three-year period).
- 2001 Roy Magnuson (PI). Cloning and Characterization of Operons that are Structurally Similar to the P1 Plasmid Addiction Operon. UAH Mini-grant Program, February 1, 2001 to September 1, 2001 \$8,780 AWARDED.
- 2000 Roy Magnuson (PI). Function of Negative Autoregulation of an Addictive Genetic Element. UAH Mini-grant Program, May 8, 2000 to August 25, 2000, \$8,780 AWARDED.
- 1999-2003 Roy Magnuson (PI), Start-up funds, University of Alabama in Huntsville \$90,000

INVITED TALKS (~13)

- 2008 Population Biology of Plasmids and other Parasites. Roy David Magnuson (TALK). Pneumococcus Symposium, Birmingham, AL, July 24-25, 2008.
- 2006 POPULATION BIOLOGY AND POLYMORPHISMS OF PROKARYOTIC TOXIN-ANTITOXIN SYSTEMS. Katharina van Santen, Sophia Hightower and Roy David Magnuson (TALK). UAH Math Colloquium, September 8, 2006.
- 2005 Modular Structure and Evolution of a Self-Selecting Genetic Parasite. Roy David Magnuson (TALK). November 17, 2005, Seminar for Department of Microbiology and Immunology, Strich School of Medicine, Loyola University Chicago.
- 2005 Modular Structure and Evolution of a Self-Selecting Genetic Parasite. Roy Magnuson (TALK). April 12, 2005 Department of Biology Seminar, Texas A&M University, College Station, TX
- 2002 Mathematical Modeling of Genetic Pest Control. Roy Magnuson (TALK. April 17, 2002 Mathematical Sciences Colloquium, University of Alabama in Huntsville, Huntsville, AL.
- 1999 Analysis of a Spiteful Genetic Element: The Plasmid Addiction Operon of Bacteriophage P1. Roy Magnuson. Interview Talks for Assistant Professor at University of Nebraska at Omaha, Omaha, NE.
- 1999 Analysis of a Spiteful Genetic Element: The Plasmid Addiction Operon of Bacteriophage P1. Roy Magnuson. Interview Talks for Assistant Professor at University of Nebraska at Midwestern State University, Wichita Falls, Texas
- 1999 Analysis of a Spiteful Genetic Element: The Plasmid Addiction Operon of Bacteriophage P1. Roy Magnuson. Interview Talks for Assistant Professor at University of Wisconsin - Green Bay, Green Bay, WI.
- 1999 Analysis of a Spiteful Genetic Element: The Plasmid Addiction Operon of Bacteriophage P1. Roy Magnuson. Interview Talks for Assistant Professor at University of Alabama in Huntsville, Huntsville, AL.
- 1998 Lambda Lunch, National Institutes of Health, Bethesda, MD 1998.03.12

- 1994 Genetic and Biochemical Characterization of a Competence Pheromone in *Bacillus subtilis*. Interview Talk for Postdoctoral Position. Lambda lunch, National Institutes of Health, Bethesda, MD 1994.04.14.
- 1994 Genetic and Biochemical Characterization of a Competence Pheromone in *Bacillus subtilis*. University of Utah, Salt Lake City, UT, 1994.03.
- 1994 Genetic and Biochemical Characterization of a Competence Pheromone in *Bacillus subtilis*. Genetics & Development Seminar, Massachusetts Institute of Technology, Cambridge, MA 1994.04.06

CONFERENCE ACTIVITY

Presentations by Magnuson (~26)

- 2010 Functional analysis of dual toxin-antitoxin interactions. Roy D Magnuson (Talk) and Sreeram Balasubramanian, Molecular Genetics of Bacteria and Phages, Cold Spring Harbor Laboratories, Aug 24 to Aug 28, 2010.
- 2009 Existence Conditions for Prokaryotic Toxin-Antitoxin Systems, Katharina van Santen and Roy David Magnuson (Poster). Molecular Genetics of Bacteria and Phages, August 4 -August 9, 2009, Madison, Wisconsin.
- 2007 Genetic and Bioinformatic Approaches Towards Engineering a Repressor-Operator Interface. Sairey Seigel and Roy David Magnuson (poster). Molecular Genetics of Bacteria and Phages, Madison, WI, August 7-12, 2007.
- 2006 POPULATION BIOLOGY AND POLYMORPHISMS OF PROKARYOTIC TOXIN-ANTITOXIN SYSTEMS. Katharina van Santen, Sophia Hightower and Roy David Magnuson (Poster). Center for Theoretical Biological Physics, Summer School, Quantitative Approaches to Gene Regulatory Systems, University of California, San Diego, July 09-21, 2006.
- 2006 POPULATION BIOLOGY AND POLYMORPHISMS OF PROKARYOTIC TOXIN-ANTITOXIN SYSTEMS. Katharina van Santen, Sophia Hightower and Roy David Magnuson (Talk), Molecular Genetics of Bacteria and Phages, Cold Spring Harbor Laboratories, August 22-26, 2006.
- 2004 Structure, Function and Evolution of a Self-Selecting Genetic Parasite. Roy Magnuson (Talk). September 17, 2004 Hudson Biotechnology Seminar. University of Alabama in Huntsville, Huntsville, AL.
- 2004 Modular Organization of the Phd Repressor/Antitoxin Protein. Roy D. Magnuson (Talk), Xueyan Zhao, Sairey Siegel, Jenifer Ferguson and James Estle McKinley. Molecular Genetics of Bacteria and Phages, Cold Spring Harbor, NY., August 24-29, 2004.
- 2003 Analysis of a Repressor-Operator Covariation. Xueyan Zhao and Roy Magnuson (Poster). Molecular Genetics of Bacteria and Phages, Madison, WI. August 5-10, 2003.
- 2002 Analysis of Protein-DNA and Protein-Protein Interactions of Phd. Jeremy Smith, Jamie McKinley, Xueyan Zhao and Roy Magnuson (Talk). Molecular Genetics of Bacteria and Phages. August 20-August 25, 2002, Cold Spring Harbor, NY.

- 2001 Functional Dissection of the of the P1 Plasmid Addiction Operon. Jeremy Smith, Jamie McKinley, and Roy Magnuson (Poster). Molecular Genetics of Bacteria and Phages. July 31-August 5, 2001, University of Wisconsin, Madison, WI.
- 2000 The P1 Plasmid Addiction Operon. Roy Magnuson (Talk). Biological Sciences Departmental Retreat, Lake Guntersville State Lodge, AL, 2000.09.29
- 1998 Characterization of a Plasmid Addiction Operon responsible for Programmed Cell Death in *E. coli*. Roy Magnuson (Talk) and Michael Yarmolinsky. Molecular Genetics of Bacteria and Phages, Cold Spring Harbor Laboratories, Cold Spring Harbor, NY. 1998.08.29
- 1998 N.I.H. FARE (Fellow's Award for Research Excellence) (Poster). 1998.03.xx
- 1997 Role of Doc in the Autoregulation of the P1 addiction operon. Roy Magnuson (Poster) and Michael Yarmolinsky. University of Wisconsin-Madison, Madison, WI. 1997.08.05-10
- 1997 Cooperation between Phd and Doc in Autoregulation of the P1 addiction operon. Roy Magnuson (Poster) and Michael Yarmolinsky. Gordon Research Conference, Plasmid and Chromosome Dynamics, Plymouth State College, Plymouth, NH. 1997.07.13-18
- 1996 Evidence for a Molecular Yoke that Enhances Repression of the P1 Addiction Operon. Roy Magnuson (Poster) and Michael Yarmolinsky. Laboratory of Biochemistry, MiniSymposium Dancing Partners: Protein and DNA, Carnegie Institution of Washington, Washington D.C..1996.09.06
- 1996 Evidence for a Molecular Yoke that Enhances Repression of the P1 addiction Operon. Roy Magnuson (Talk) and Michael Yarmolinsky, Molecular Genetics of Bacteria and Phages, Cold Spring Harbor Laboratories, Cold Spring Harbor, NY. 1996.08.20
- 1995 Autoregulation of the Plasmid Addiction Operon of P1 Prophage. Hansjörg Lehnherr, Roy Magnuson (Poster), Guaranga Mukhopadhyay and Michael Yarmolinsky. Molecular Genetics of Bacteria and Phages, Cold Spring Harbor Laboratories, Cold Spring Harbor, NY. 1995.08.24
- 1994 Cell-Cell Signaling During the Development of Competence in *Bacillus subtilis*. Roy Magnuson (Poster) , Jonathan Solomon & Alan D. Grossman. Microbial Stress, Gordon Conference, Plymouth, NH, 1994.07.24-29
- 1993 Induction of Competence in *Bacillus subtilis* by Extracellular Peptides. Roy Magnuson (Talk), Jonathan Solomon, Alok Srivastava and Alan D. Grossman. Molecular Genetics of Bacteria and Phages, Cold Spring Harbor Laboratories, Cold Spring Harbor, NY. 1993.08.25 (But I changed the talk and broke the pheromone ComX story)
- 1993 Induction of Competence in *Bacillus subtilis* by Extracellular Peptides. Roy Magnuson (Poster), Jonathan Solomon, Alok Srivastava and Alan D. Grossman. Conference on Multicellular and Interactive Behavior of Bacteria, Sponsored by the American Society of Microbiology, Marine Biological Laboratory, Woods Hole, MA.1993.03.29
- 1993 Talk, New England Spores Meeting, New York, NY, Nov.1993 ?
- 1992 Talk, New England Spores Meeting, Tufts University, Boston, MA, Nov
- 1992 Characterization of an Extracellular Factor that Regulates Gene Expression in *Bacillus subtilis*. Roy Magnuson (Poster), Jonathan Solomon & Alan D.

- Grossman. Eleventh International Spores Conference, Marine Biological Laboratories, Woods Hole, MA 02543. 1992.05.09-13
- 1991 Talk, New England Spores Meeting, Tufts University, Boston, MA, Nov
- 1991 Pheromone-Like Extracellular Factor Regulates Gene Expression in *Bacillus subtilis*. Roy Magnuson (Talk) and Alan D. Grossman. Molecular Genetics of Bacteria and Phages, Cold Spring Harbor Laboratories, Cold Spring Harbor, NY. 1991.08.23

Presentations by Magnuson's students (>30) (~11 out of state)

- 2013 Host Range of the Doc Toxin. (Poster). Aaron Lee and Roy David Magnuson. UAH-MTSU Joint Symposium, September 27-29, 2013, Tims Ford State Park, Winchester, TN. Also, 2013 RCEU poster session.
- 2009 Bimodal Toxin-Antitoxin interactions: A structural and functional analysis, **Sreeram Balasubramanian** (Poster), Abel Garcia-Pino, Remy Loris and Roy D. Magnuson, Molecular Genetics of Bacteria and Phages, August 4 -August 9, 2009, Madison, Wisconsin.
- 2008 Mutations in Phd and the Effects on Repression and Corepression, **Derek Thacker** (Talk), PBR Retreat, Hudson-Alpha Institute for Biotechnology, September 19, 2008. **Won 1st prize for Undergraduate Oral Presentation!** ☺
- 2009 Mutations in Phd and the Effects on Repression and Corepression. **Derek Thacker** (Talk), Honors Seminar, UAH, April 9, 2009.
- 2009 A Toxic Antitoxin? **Katharina van Santen** (Talks) PBR Retreat, Hudson-Alpha Institute for Biotechnology, September 19, 2008, Honors Seminar, UAH, April 14, 2009 & Honors Seminar, UA, April 17, 2009.
- 2008 PHD: A TOXIC ANTITOXIN? **Sreeram Balasubramanian** (Poster), Katharina van Santen, Sophia S. Hightower, and Roy David Magnuson. Molecular Genetics of Bacteria & Phages, Cold Spring Harbor Laboratories, NY, August 20-24, 2008.
- 2008 Host Growth Rate Affects Addictive Response. **by Bobbi Johnston** (Talk) Pneumococcus Symposium, Birmingham, AL, July 24-25, 2008.
- 2007 Host Growth Rate Affects the Observed Addictive Response Induced by P1 Addiction Operon. **Bobbi Johnston** (Poster) and Roy Magnuson. Molecular Genetics of Bacteria and Phages, Madison, WI, August 7-12, 2007.
- 2007 Bipartite Neutralization of Doc Toxin by Phd Antitoxin. **Sreeram Balasubramanian** (Poster) and Roy D. Magnuson. Molecular Genetics of Bacteria and Phages, Madison, WI, August 7-12, 2007.
- 2007 Bipartite Neutralization of Doc Toxin by Phd Antitoxin. **Sreeram Balasubramanian** (Poster) and Roy D. Magnuson. BYS PBR Retreat, Huntsville Botanical Gardens, Huntsville, AL October 19, 2007.
- 2007 Genetic and Bioinformatic Approaches Towards Engineering a Repressor-Operator Interface. **Sairey Seigel** (Poster) and Roy David Magnuson. Synthetic Biology 3.0 ETH Zurich, Switzerland, June 24-26, 2007.
- 2007 Genetic and Bioinformatic Approaches Towards Engineering a Repressor-Operator Interface. **Sairey Seigel** (Talk) and Roy David Magnuson. BYS PBR Retreat, Huntsville Botanical Gardens, Huntsville, AL October 19, 2007.

- 2006 Characterization of the Antitoxin Domain of the Antitoxin Phd of the P1 Toxin-Antitoxin system. **Sreeram Balasubramanian** (Talk) and Roy David Magnuson. BYS PBR Retreat, September 8-9, 2006.
- 2006 A Biological Catch-22: Overexpression of the Phd Antitoxin is Toxic. Sophia Hightower, **Sreeram Balasubramanian** (Poster) and Roy Magnuson. BYS PBR Retreat, September 8-9, 2006.
- 2006 POPULATION BIOLOGY AND POLYMORPHISMS OF PROKARYOTIC TOXIN-ANTITOXIN SYSTEMS. **Katharina van Santen**, Sophia Hightower and Roy David Magnuson. Sigma Xi Student Research Day, 2006.03.31. Talk by KVS. BYS PBR Retreat, September 8-9, 2006. Poster by KVS. UAH COS Student Conference, Nov 2-3, 2006. Poster by KVS
- 2006 SECONDARY TOXICITY OF TOXIN-ANTITOXIN SYSTEMS--THE BARBED HOOK? **Sophia S. Hightower** (Poster) and Dr. Roy Magnuson. Sigma Xi Student Research Day, 2006.03.31
- 2006 ALANINE SCAN AT THE N-TERMINAL REGION OF THE PHD REPRESSOR. **Sairey Siegel** (Poster) and Roy D. Magnuson. Sigma Xi Student Research Day, 2006.03.31
- 2006 ANALYSIS OF THE PROTEIN-DNA INTERACTIONS THAT CONTRIBUTE TO THE TRANSCRIPTIONAL AUTOREGULATION OF THE PHD\DOC TOXIN-ANTITOXIN SYSTEM. **Khalid Holmes** (Poster).Sigma Xi Student Research Day, 2006.03.31
- 2006 TOPOLOGY OF THE PHD-DOC REPRESSIVE COMPLEX. **Sheng-tien Hung** (Poster) and Roy Magnuson. Sigma Xi Student Research Day, 2006.03.31
- 2006 TOPOLOGY OF THE PHD-DOC REPRESSIVE COMPLEX. **Sheng-tien Hung** (Talks) and Roy Magnuson. Molecular Genetics of Bacteria and Phages, Cold Spring Harbor Laboratories, August 22-26, 2006. BYS PBR Retreat, September 8-9, 2006.
- 2005 Genetic Evidence for Two Distinct Phd-Doc Interactions. **Jenifer Lynn Ferguson** (Poster) and Roy David Magnuson. 2005 Molecular Genetics of Bacteria and Phages, Madison, WI. **Jenifer won a Student Travel Award (\$300.00) for this conference!**
- 2005 Phd Mutations with Temperature-Sensitive Defects in Dimerization. **Sheng-tien Hung** (Poster), Sairey Siegel and Roy David Magnuson. 2005 Molecular Genetics of Bacteria and Phages, Madison, WI
- 2005 Modulation of Cooperative Contacts between Phd and Doc. **Jenifer Lynn Ferguson** (Poster) and Dr. Roy David Magnuson. Sigma Xi Student Research Day, March 11, 2005. **Won Poster prize!!! "Best Undergraduate Research Poster in the Life and Physical Sciences"**
- 2003 Antitoxin Activity of Phd. **James E. McKinley** (Poster), Xueyan Zhao, Jeremy A. Smith & Roy Magnuson. Molecular Genetics of Bacteria and Phages, Madison, WI. August 5-10, 2003.
- 2003 "Assessing the Utility of Covariation Analysis in Identifying Molecular Interactions" Rajesh Chalasani, **Sreeram Balasubramanian** (Poster) and Kenny Abernathy. Spring, 2003 Sigma Xi Student Research Day--**Awarded Prize for Best Graduate Poster in Computational Sciences--**

- 2002 Mathematical Modeling of Genetic Pest Control. **Sreeram Balasubramanian** (Poster), Mark Friedman and Roy Magnuson. Biological Sciences Retreat. September 20-21, 2002.--**Won Prize for Best Poster Overall--**
- 2000 Deletion Analysis of Phd to Map Regulatory and Antidote Functions. Jeremy Smith (Poster) and Roy Magnuson and the UAH Summer 2000 Genetics Lab. Biological Sciences Departmental Retreat. Lake Guntersville State Lodge, AL. 2000.09.29-30
- 2000 Deletion Analysis of Doc to Map Regulatory and Toxic Functions. Brian Moore (Poster), Sherricka Simington, Darren Ferree and Roy Magnuson Biological Sciences Departmental Retreat, Lake Guntersville State Lodge, AL. 2000.09.29-30
- 2000 Determination of Functional Significance of the Autoregulation of the P1 promoter. Joshua Hogins (Poster), Brian Mooore and Roy Magnuson. Biological Sciences Departmental Retrea. Lake Guntersville State Lodge, AL. 2000.09.29-30
- 2000 Competitive Fitness of a Plasmid Addiction System. Robyn Broyden (Poster) and Roy Magnuson. Biological Sciences Departmental Retreat, Lake Guntersville State Lodge, AL. 2000.09.29-30

TEACHING EXPERIENCE

Students Supervised to Completion

Ph.D. Dissertations (2)

- 2013 **Bobbi Ellen Johnston**, (Magnuson as Chair, Han as Advisor) BSE Ph.D. Dissertation, May 17, 2013, "Ligation-Dependent Multiplex PCR with bead-based array detection comprises a clinically adaptable method of microRNA profiling"
- 2010 **Sreeram Balasubramanian**, BSE Ph.D. Dissertation, June 23, 2010. "Functional Analysis of Dual Toxin-Antitoxin Interactions"

Masters Theses (10)

- 2015 **Darren Ferree**, BYS Master's Thesis, June 29, 2015, "Identification of the Molecular Target of the Doc Toxin of the P1 Bacteriophage Plasmid Addiction System"
- 2014 **Stephanie Cale**, BYS Master's Thesis, May 20, 2014. "Doc of Bacteriophage P1 is an Enzyme that Inhibits Translation and Phosphorylates a Protein Target"
- 2013 **Nicole Egan Mertz**, BYS Master's Thesis, October 11, 2013. "Characterization of Phd Degradation by ClpXP"
- 2011 **Justin Pruitt** (Magnuson as Chair, Nobel as Advisor). BYS Master's Thesis, April 22, 2011. "Exploring Possible Factors Contributing to the Onset of Osgood Schlatter Disease"
- 2010 **Asuka Eguchi** (adopted). BYS Master's Thesis, April 30, 2010. "Nitric Oxide-Induced Neural Differentiation of Adipose-Derived Stem Cells"
- 2008 **Sarah "Sairey" Siegel**. BYS Master's Thesis, Spring, 2008. "Genetic and Bioinformatic Approaches towards Engineering a Repressor-Operator Interface"
- 2007 **Sheng-tien Hung**. BYS Master's Thesis, Summer, 2007. "The Topology of the Phd-Doc Repressive Complex"
- 2004 **James Estle McKinley**. BYS Master's Thesis, Spring 2004. "Genetic Analysis of the Phd Antitoxin from Bacteriophage P1"
- 2003 **Xueyan "Snow" Zhao**. BYS Master's Thesis, Fall 2003. "Repressor-Operator Specificity Determinants of the P1 Plasmid Addiction Operon"
- 2002 **Jeremy Smith**. BYS Master's Thesis, Summer 2002. "Mapping the Autoregulatory and Antidote Domains of Phd"

Masters Reports (2)

- 2017 **DeAndrea Hardin**. BYS Master's Report, April 20, 2017. "Obesity and Puberty"
- 2016 **Sage Garriss**. BYS Master's Report, October 17, 2016. "The Zika Virus"
- 2010 **Khalid Holmes**. BYS Master's Report, February 11, 2010. "Natively Unstructured Proteins"
- 2001 **Leslie Wilkinson**. BYS Master's Report 2001. "Camelpox Virus and its Potential for use as a Biological Warfare Agent"

Honors Theses (3)

- 2006-2010 **Katharina Van Santen.** BYS Undergraduate Honor's Thesis, May 10, 2010. "Secondary Addiction: A Catch 22 Hypothesis"
- 2008-2009 **Derek Thacker.** Undergraduate Honor's Thesis, April 29, 2009. "Mutations in Phd and their Effects on Repression and Corepression"
- 2000-2001 **Darren Ferree.** Undergraduate Honor's Thesis, May 11, 2001. "Mapping the Toxic and Regulatory Domains of Doc of the P1 Plasmid Addiction Operon"

Other Undergraduates Supervised (9+)

- 2017-2019 Emily Hartselle
2017-2018 Hasan Alrefai
2017-2018 Richard Evans
- 2012-2014 Aaron Lee
2010-2012 Stephanie Cale
2002-2004 Jenifer Lynn Ferguson
2000-2003 Joshua Hogins
Victoria Enchia
- 2004-2006 Sophia Hightower
Katarina Mosely
Sherricka Simington
Shanveta Jordan
- 1999-2002 Brian Moore
2000 Summer 2000 Genetics Class (supervised by Jeremy Smith)

Animal Room Workers Trained & Supervised:

- 2019-2020 Megan "Rosi" Patton
2019-2020 Josiah Lane
2019-2020 Jarrett "J.P." Henry
- 2017-2019 Kayla Hiland
2017-2019 Sabrina Mahdi
2014-2017 Noemi Eitel
2014-2017 Marissa Moore
2014-2015 Meredith "Kenzie" Broome
2014-2015 Ashton Koenig
- 2013-2014 Megan Hillgartner
2012-2014 Rebecca Hauser
2012-2014 Ashley West
Ben Allen
Michelle Morris
Heather Kaufman

Erica J. Pruett
Stephanie Cale
Elizabeth D. Whitley
Diana Fikar

UAH iGEM Team Members Trained & Supervised (assisting Tanya Sysoeva):

2019 Joseph Noble
2019 JP Henry
2019 Sharee Riggs
2019 Jonathan Kilroy
2019 Emily Hartsell

Microbiology Laboratory Workers Trained & Supervised:

2019-2020 Kayla Williams
2019-2020 Gabriela "Lee" Faust
2019-2020 Chae Hee Lim
2019-2020 Gabriele "Gabbly" Ward

2015-2019 Juleigh Jeffreys (Undergraduate)
2017-2018 Emily Sims
2017-2019 Sana Khadair
2015-2016 Ayah Abu-Spetani (Undergraduate)

Microbiology GTAs Trained & Supervised (assisted by Tanya Sysoeva):

2019-2020 John "Brad" Land
2018-2020 Timley Watkins
2019-2020 Tessa Costley
2018-2020 Sara Coker
2019-2020 Lauren Elam
2019-2020 Mohammed Ghazel

2015-2016 Mollye Sanders (GTA)
2014-2016 Manavalen Gajapathy (GTA)
2014-2015 Nicole Mertz (GTA)
2014-2015 Brandilynn Wilson (GTA)
2014-2015 Mollye Sanders (undergraduate)

Genetics Pass-Leaders Trained & Supervised

2020 Joseph Nobel
2020 Chi Pham
2020 Madison Blanton

Thesis Committees, Member of (12)

- 2016 Gregory Skibinski, BSE Ph.D. Dissertation, January 25, 2016, "Characterization of Ubiquitin-Proteasome Dynamics in *Caenorhabditis Elegans* Muscle Cells During Protein-Folding Stress"
- 2015 Jayson Pagan, MS BYS, November 12, 2015, "Identification of a Putative Nuclease from *Thermococcus Thioreducens*."
- 2015 Arnab Sengupta, BSE Ph.D. Dissertation, June 16, 2015,
- 2015 Emily Gordon, BSE Ph.D. Dissertation, June 15, 2015,
- 2012 Gokul Krishna Turaga, BSE Ph.D., Preferred DNA Binding Orientation of the Hyperthermophile Protein Sac7d
- 2011 Nitin Shirole, MS BYS, "Role of the TnaC Peptide Residues in the Regulation of the Ribosome Function by L-Trp in *E. coli*"
- 2010 Sree Lakshmi Uttarala, MS Biological Sciences, "Interactions between ubiquitin conjugating enzymes in *Caenorhabditis elegans*--Insights into the ubiquitination pathway"
- 2010 Anita Bansal, Ph.D. Biotechnology Science & Engineering Program, "The Role of Putative Promoter Regions in Regulation of Conserved Interferon and Oxidative Stress Gene Expression Signatures in Cancer"
- 2009 Donna Brock Hockman, MS Biological Sciences, "Ubiquitin Conjugating Enzymes UBC-1, UBC-2 and UBE2A: Overexpression Effects on Polyglutamine Aggregates in *C. elegans*"
- 2009 Connie Hajjar, MS Biological Sciences, "Ubiquitin Pathway Components and Polyglutamine Protein Aggregation"
- 2008 Rebecca A. Howard, MS Biological Sciences, "A Role for Ubiquitin Conjugating Enzymes in Polyglutamine Protein Aggregation"
- 2008 Michael Muratet, Ph.D. Biotechnology Science & Engineering Program, "Annotation of the *Laccaria bicolor* genome for protein-coding and non-coding RNA genes and their possible interactions in the onset of Mycorrhizal Symbiosis"
- 2006 Uma Hota, MS Biological Sciences, "Functional Analysis of Ubiquitin Conjugating Enzymes in *Caenorhabditis elegans*"
- 2005 Mebrahtu A. Kahsai, Ph.D., Biotechnology Science and Engineering Program, "Sso10a, a Hyperthermophile DNA-Binding Protein"
- 2004 Michelle Allen Gudgen, MS, Biological Sciences, "Identification of Interaction Between the Ubiquitin Conjugating and Ubiquitin Ligase Components of the *Caenorhabditis elegans* Ubiquitin Pathway"
- 2001 Peter J. Schweinsberg, MS, Biological Sciences, Ectopic Expression of Par-2 Protein in the nematode, *Caenorhabditis elegans*"

Thesis Reports, Member of

- 2015 Mitchell Belue, MS Report, BYS, "Review of Devil Facial Tumor Disease"
- 2015 Adam John Miller, MS Report, BYS, "Genetic Identification & Trait of Analysis of Methicillin-Resistant *Staphylococcus Pseudintermedius*"
- 2000 Parker Carroll, MS report, BYS, "The Ubiquitin-Proteasome Pathway and its Role in Cellular Processes"

- 2001 Robin Lockett Carter, MS report, BYS, “Communicating Science Through Education”
- 2002 Rhonda Lee Hilliard, MS report, BYS, “The Chaperone-Mediated Genetic Modification of the DeltaF508 Mutation in Cystic Fibrosis”
- 2003 Nancy Wills, MS report, BYS, “MADS-boxgenes in Arabidopsis and tree development and the need for protein level studies”
- 2005 Elizabeth Snell, MS report ?, BYS, “Pegylation of Cyanovirin-N”

Thesis Committees, Observer of (5+)

- 2012 Emily Maddox, MSE, Mechanical and Aerospace Engineering, “Carbon Dioxide Removal System for Closed Loop Atmosphere Revitalization, Candidate Sorbents Screening and Test Results”
- 2006 Amy Brown Gerards, MSE, Mechanical and Aerospace Engineering, “High Pressure Ballistic Evaluation Motor: The Development and Characterization of the Army Ten-Pound Charge (ATPC) Motor”
- 2005 Jaime Cardenas Gonzalez, Ph.D., Optical Science and Engineering Program, “Microphotonic Devices for Compact Planar Lightwave Circuits and Sensor Systems”
- 2003 J. Michael Lyon, Ph.D., Department of Industrial and Systems Engineering and Engineering Management, “Mentoring of Scientists and Engineers: Dyadic and Formality Effects on Career Development and Psychosocial Interactions”
- 2000 Anuradha Lakshminarayana, MS, Computer Science, “A dimensional reduction analysis and glyph-based visualization of object-oriented software metrics”

Teaching Repertoire (Didactic Classes)

Introduction to Molecular Understanding of Biological Systems

Genetics & Evolution

General Microbiology (TA for lab), 4 hr.

General Microbiology Lab

Medical Microbiology (and laboratories), 5 hr.

Immunology (and laboratory), 4 hr.

Senior Seminar, 2 hr.

Gene Structure and Function, 3 hr.

Bioinformatics (team taught), 4 hr.

Graduate Seminar, 1 hr.

Classes Taught (>60)

2020	BYS 219 Genetics & Evolution
2000-2020	BYS 321 General Microbiology (TA for lab), 4 hr.
2018	BYS 321L General Microbiology Lab
2001-2021	BYS 490 Senior Seminar, 2 hr. (sometimes team taught, not taught every year)
1999-2021	BYS 430 Immunology (and laboratory), 4 hr.
1999-2021	BYS 630 Immunology (and laboratory), 4 hr.
2011-2012	BYS 201 Introduction to Molecular Understanding of Biological Systems
2000-2004	BYS 421 Medical Microbiology (and laboratories), 5 hr.
2000-2004	BYS 621 Pathogenic Bacteriology (and laboratories), 4 hr.
2005-2006	BYS 519 Gene Structure and Function, 3 hr.
2002	BSE 620/621 Bioinformatics (team taught), 4 hr.
Various	BYS 690 Graduate Seminar, 1 hr.
Various	BSE 780 Graduate Seminar, 1 hr.

Student Instructor Evaluations

Notably High scores for:

"Challenging" (as indicated by responses to SIE question # 9)

"Positive attitude towards both teaching and students" (SIE # 8)

Other Teaching Experience

1993	Student organizer for Teaching Workshop at MIT.
1990	TA for Paul Schimmel's graduate course on Proteins, Nucleic Acids, and their Interactions at MIT.
1989	TA for Graham Walker's Undergraduate Project Lab on Rhizobium at MIT.

SERVICE

Service to the Profession

Manuscript reviews (9 journals)

1998-2014	Journal Bacteriology
2013	PLOS ONE
2013	BBA Gene Regulation
2000, 2009	Plasmid
2008	Molecular Microbiology
2008	PlosGenetics
2008	Genetics
2008	EcoSal
2007	Biological Procedures Online
2006	Proceedings of the National Academy of Science, USA
1995	Journal of Biological Chemistry (1995)

Grant Reviews (6 organizations)

2012	National Science Center, Poland
2009	Marsden Fund, New Zealand
2009	National Science Foundation, USA
2005	Pierce's Disease Control Program, California Department of Food & Agriculture
2002	Burrough's Wellcome Foundation
2001	Maryland Agricultural Experiment Station at the University of Maryland

Other service to the profession:

2004-2005	President, Sigma Xi, Chapter 262, University of Alabama in Huntsville.
2003-2004	President-Elect, Sigma Xi, Chapter 262, University of Alabama in Huntsville.
2000-2006	Originator and Editor of the Biobuzz Electronic Newsletter

Service to College and University

2005-2021	Chair, Institutional Animal Care and Use Committee (IACUC).
2005-2021	Supervision of UAH Vivarium
2014	Member, Review Committee, Department of Psychology, UAH
2014	Member, Review Committee, Department of Sociology, UAH
2000-2004	Member, Institutional Animal Care and Use Committee (IACUC).
2012-2013	Member, A Proposal to Enhance Leadership in Biotechnology at UAH
2012-2013	Member, Strategic Planning Task Force #9 Broaden and Expand the Research Portfolio
2009-2012	Member on Human Subjects Institutional Review Board.
2010-2012	Senator for Department of Biological Sciences, Faculty Senate

2010-2011 Member, Faculty and Student Development Committee, Faculty Senate
 2011-2012 Member, Finance and Resources Committee, Faculty Senate
 2012 Member, College of Science PTAC Committee
 2007 Member, College of Science PTAC Committee
 2006 Member, Review Committee, Department of Mathematics, UAH.
 2003-2007 Chair, Dean's Recruitment Committee. (Zhan Scholars).
 2001-2003 Chair, BSE Admissions Committee.
 2000-2003 Served on Organizing Committee for the 2nd, 3rd, 4th and 5th annual Biological Sciences Retreats.

Service to Department

2005-2021 Supervision & Training of Animal Room Workers
 2015-2021 Supervision & Training of Microbiology Workers
 2015-2021 Supervision & Training of Microbiology GTAs (assisted by Tanya Sysoeva)
 2019-2021 Supervision & Training of UAH iGEM Team (assisting Tanya Sysoeva)
 2016-2017 Member, Search Committee for Assistant Professor
 2014-2016 BYS SACS
 2012-2016 BYS Reappointment Committees (Matzkin)
 2012-2017 BYS Reappointment Committees (MacGregor)
 2013-2015 Chair, Catalog Committee
 2012-2014 BYS Reappointment Committees (Mendenhall)
 2013-2014 BYS Promotion and Tenure Committees (Cruz-Vera & Ng)
 2011-2012 BYS Promotion and Tenure Committee (Boyd)
 2013 Coordinated BYS equipment salvage from Karbhari Lab
 2012 Member, Search Committee for Visiting Assistant Professor
 2010 Member, Search Committees for Visiting Assistant Professors (until I recused myself).
 2009-2010 Member, Promotion and Tenure Committee.
 2009-2010 Assisted with Animal Room contracts with Nektar.
 2008 Member, Promotion and Tenure Committee.
 2007 Member, Promotion and Tenure Committee.
 2007 Coordinated moving freezers and Animal Facilities to Shelby Center.
 2007-2008 Faculty Senate
 2005-2007 Member of Faculty Search Committee.
 2005-2006 Coorganizer, with John Shriver, of Biotechnology Seminars.
 2005-2006 Member, Departmental SACS Committee.
 2004 Member, Departmental undergraduate curriculum committee.
 2001 Member, Departmental strategic plan committee for instructional laboratories

PROFESSIONAL MEMBERSHIPS

1992 American Association for the Advancement of Science
 1991 American Society for Microbiology
 2000 Sigma Xi
 1985 Phi Beta Kappa