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PRESENT POSITION

Professor of Biology	North Central College	9/1/11- Present
Roger and Nadeane Hruby Professor in the Liberal Arts and Sciences	North Central College	4/27/06-Present
Associate Professor of Biology	North Central College	9/1/05- 9/1/11
Chair of Biology	North Central College	9/1/05- 8/31/12
Assistant Professor of Biology	North Central College	9/1/99 – 9/1/05

EDUCATION

University of Wisconsin-Madison Ph.D., Cell and Molecular Biology, 1991-1996.
Iowa State University M.S., Biochemistry, 1990-1991.
Iowa State University B.S., Agricultural Biochemistry, 1987-1990.

TEACHING EXPERIENCE

Assistant/Associate/Full Professor of Biology North Central College – Naperville, Illinois 9/1/99 - Present

At North Central, I have taught Principles of Biology, Introduction to Cell Biology and Genetics, Cells, The Genetic Basis of Life, Nutrition, Cellular Biology, The Molecular Biology of Cancer, Emerging Infectious Diseases and Advanced Biochemistry and participated in a variety of committee and administrative duties. Additionally, I established a research laboratory in the area of yeast genetics. Working with undergraduate students, we are investigating the molecular mechanisms by which the Yak1 kinase slows cellular growth in various yeast species.

Visiting Lecturer University of St. Thomas – St. Paul, Minnesota 1/98-12/98

In the Spring of 1998, I directed two laboratory sections of Bio101: Introductory Biology. That fall, I was in charge of both the lecture and laboratory portions of Bio204: Cellular Biology.

Teaching Assistant University of Wisconsin-Madison 1/94-6/94

I participated in the teaching of Biocore 303: Cellular Biology. My duties included weekly recitation sessions, exam design and grading, organization and administration of review sessions and tutoring of individual students.

RESEARCH EXPERIENCE

N.I.H. Postdoctoral Fellow University of Minnesota 6/96 - 6/99

The yeast gene *MSI1* has been independently demonstrated to be important in the regulation of *RAS* signal transduction and the assembly of chromatin. I determined the molecular basis for how Msi1p affects these two distinct cellular processes. Additionally, I discovered that the *Chlamydomonas* protein Gbp1p (a putative telomere-binding protein) changes its nucleic acid binding preference from RNA to single-stranded DNA upon dimerization.

Research Assistant University of Wisconsin-Madison 11/91-5/96

I demonstrated that the viral oncoprotein SV40 large T antigen binds to at least four general transcription factors *in vitro* and that these associations are necessary, but not sufficient, for T antigen to transcriptionally activate the SV40 late promoter. Additionally, I investigated the role of human estrogen-related receptor, hERRα1, as a repressor of the SV40 late promoter and a modulator of cellular promoters and estrogen responsiveness.

Research Assistant Iowa State University 5/88-8/91

I quantitated the nucleotide sequence heterogeneity in the control region of the ribosomal RNA genes of mitochondrial DNA in dairy cattle. These data were correlated with production traits and evaluated for their potential uses as molecular markers to improve breeding programs.

EXTERNALLY FUNDED GRANTS

Merck/AAAS Undergraduate Science Research Program. $60,000. Financial assistance primarily for student stipends to support undergraduate research in biology and chemistry. 2005-2008.

National Institutes of Health Academic Research Enhancement Award (NIH-AREA) from the National Institute of General Medical Sciences. "Regulation of the Multiple Functions of Msi1p/Cac3p" for $75,000. 2003-2006.

Illinois State Board of Education Grant entitled "Integrating technology, standards and inquiry into the teaching of science" for $130,000. With Dr. Jeanne Slaughter (P.I.), Dr. Rebecca Clemente and Dr. Nancy Peterson. 2000-2002.

Summer Research Grants from the North Central College Faculty Development Committee. I have received small, internal grants to support the research activities of undergraduate students under my direction. 2000-2009.

Postdoctoral Fellow. National Institutes of Health. "Identification of Telomere End Binding Proteins in Yeast". $52,500. 1997-1999.

PUBLICATIONS (Undergraduate co-authors are underlined.)

Pratt, Z.L., B.J. Drehman, M.E. Miller, and S.D. Johnston. 2007. Mutual Interdependence of *MSI1* (*CAC3*) and *YAK1* in *Saccharomyces cerevisiae*. *Journal of Molecular Biology* **386**:30-43.

Johnston, S.D., S. Enomoto, L. Schneper, M.C. McClellan, F. Twu, N.D. Montgomery, S.A. Haney, J.R. Broach, and J. Berman. 2001. *CAC3 (MSI1)* suppression of $RAS2^{G19V}$ is independent of Chromatin Assembly Factor-I and mediated by *NPR1*. *Molecular and Cellular Biology*. **21**:1784-1794.

Asleson, C.M., J.C. Asleson, E. Malandra, S.D. Johnston, and J. Berman. 2000. Filamentous growth of *Saccharomyces cerevisiae* is regulated by extracellular manganese concentration. *Fungal Genetics and Biology*, **30**:155-162.

Enomoto, S., S.D. Johnston, and J. Berman. 2000. Identification of a novel allele of *SIR3* defective in the maintenance, but not the establishment, of silencing in *Saccharomyces cerevisiae. Genetics*, **155**:523-538.

Johnston, S.D., J.E. Lew, and J. Berman. 1999. Gbp1p, a protein with RNA recognition motifs, binds single-stranded telomeric DNA and changes its binding specificity upon dimerization. *Molecular and Cellular Biology*, **19**:923-933.

Qian, Z., H. Huang, J.Y. Hong, C.L. Burck, S.D. Johnston, J. Berman, A. Carol, and S.W. Liebman. 1998. Yeast Ty1 retrotransposition is stimulated by a synergistic interaction between mutations in chromatin assembly factor I and histone regulatory proteins. *Molecular and Cellular Biology*, **18**:4783-4792.

Johnston, S.D., X. Liu, F. Zuo, T.L. Eisenbraun, S.R. Wiley, R.J. Kraus, and J.E. Mertz. 1997. Estrogen-related receptor α1 functionally binds as a monomer to extended half-site sequences including ones contained within estrogen-response elements. *Molecular Endocrinology*, **11**:342-352.

Johnston, S.D., X.-M. Yu, and J.E. Mertz. 1996. The major transcriptional transactivation domain of simian virus 40 large T antigen associates nonconcurrently with multiple components of the transcriptional preinitiation complex. *Journal of Virology*, **70**:1191-1202.

Boettcher, P.J., A.E. Freeman, S.D. Johnston, R.K. Smith, D.C. Beitz, and B.T. McDaniel. 1996. Relationships between polymorphism for mitochondrial deoxyribonucleic acid and yield traits of Holstein cows. *Journal of Dairy Science*, **79**:647-654.

PRESENTATIONS (Last ten years only; undergraduate co-authors are underlined)

Boettcher, A., S. Blaszak, S. DeWerff and S.D. Johnston. 2014. Protein-Protein Interactions of the Yak1 Kinase. Midwest Yeast Meeting, Evanston, IL.

Boettcher, A., S. Blaszak, S. DeWerff and S.D. Johnston. 2014. Protein-Protein Interactions of the Yak1 Kinase. Yeast Genetics Meeting, Seattle WA.

Boettcher, A., S. Blaszak, C. Carstens and S.D. Johnston. 2014. Examining the Interactions between Yak1 and Pat1, Mss11 and Dcs1 in Signal Transduction in *Saccharomyces cerevisiae*. National Conference for Undergraduate Research. Lexington, KY.

DeWerff, S., S. Blaszak and S.D. Johnston. 2013. Elucidating the Role of *YAK1* in Signal Transduction in *Saccharomyces cerevisiae*. National Conference for Undergraduate Research. Mankato, MN.

DeWerff, S., A. DuBois and S.D. Johnston. 2010. *YAK1* is an expressed pseudogene in *Saccharomyces bayanus*. Midwest Yeast Meeting. Evanston, IL.

Visick, J.E., S.D. Johnston, A. Driks, and N.L. Peterson. 2010. Broader Impacts – Collaborative Research in a Capstone Course. Council on Undergraduate Research National Conference. Ogden, UT.

Oltman, S.P., D.K. Tran, and S.D. Johnston. 2010. The characterization of the Yak1p to slow growth rate in *Saccharomyces cerevisiae* and *Saccharomyces bayanus*. National Conference for Undergraduate Research, Missoula, MT.

Albright, E.R., A.L. Collins, D.K. Tran, and S.D. Johnston. 2008. Investigating the Mechanisms by which the Yak1 Kinase Decreases Cellular Growth Rates. Yeast Genetics and Molecular Biology Meeting. Toronto, Canada.

S.D. Johnston and J.E. Visick. 2008. An Online Activity Introducing First-Year Students to Genomics. Yeast Genetics and Molecular Biology Meeting. Toronto, Canada.

Collins, A., T. Madzierek, B. Youel, J.A. Bjorklund, S.D. Johnston. 2008. Determining the contributions of two signaling pathways in yeast to secondary metabolites important to the brewing process. National Conference for Undergraduate Research, Salisbury, MD.

Albright, E.R., D.K. Tran, and S.D. Johnston. 2008. Identification of genes required for the Yak1 kinase to slow cellular growth in *Saccharomyces cerevisiae*. National Conference for Undergraduate Research, Salisbury, MD.

Albright, E., D. Tran, A. Collins, S. Halkyard, and S.D. Johnston. 2007. Characterization of the Mechanisms by which the Yak1 Kinases Slows Cellular Growth. Midwest Yeast Meeting, Evanston, IL.

Stark, B., A. Collins and S.D. Johnston. 2007. The Systematic Genetic Analysis of the *Saccharomyces cerevisiae* Genome for Gene Deletions Producing Synthetic Lethality with *YAK1* Deletion or Over-expression. National Conference for Undergraduate Research, San Rafael, CA.

Starks, S., J.J. Karpus, J. Salazar, T. Kauffman, J.A. Bjorklund and S.D. Johnston. 2007. Influencing the chemical profile of beer through genetic manipulation. National Conference for Undergraduate Research, San Rafael, CA.

Johnston, S.D., Z.L. Pratt, J.J. Karpus and M.E. Miller. 2006. The Yak1 kinase is required for Msi1p/Cac3p to join the chromatin assembly complex and to activate transcription in the absence of fermentable carbon sources. Yeast Genetics and Molecular Biology Meeting. Princeton, NJ.

Halkyard, S. and S.D. Johnston. 2006. The physiological state of the Msi1p complex in *Saccharomyces cerevisiae* does not change with different carbon sources. National Conference on Undergraduate Research. Asheville, NC.

Pratt, Z.L., and S.D. Johnston. 2005. Msi1p accumulates during carbon stress and cold stress in the yeast *Saccharomyces cerevisiae*. National Conference on Undergraduate Research. Lexington VA.

Pratt, Z.L., D.C. Miller and S.D. Johnston. 2004. Msi1p/Cac3p activates transcription in the absence of fermentation. Yeast Genetics and Molecular Biology Meeting. Seattle, WA.

PATENT: Mertz, J.E., S.D. Johnston, R.J. Kraus, and E.A. Ariazi. Human estrogen-related receptor α. 09/031,250US.

AWARDS AND HONORS

Roger and Nadeane Hruby Professor in the Liberal Arts and Sciences, 2006.

Clarence F. Dissenger Award for Junior Faculty, 2002

Awarded annually to one member of the junior faculty at North Central College, in recognition of distinguished teaching and leadership and for going "above and beyond the call of duty" in the life of the College.

Postdoctoral Fellow, National Institute for General Medical Sciences, 1997-1999.

Molecular Biosciences Training Grant Fellow, 1994-1996.

Wisconsin Alumni Research Foundation Fellow, 1993-1994.

National Science Foundation Graduate Fellow, 1990-1993.

Phi Kappa Phi Fellowship, 1990-1991.

National Merit Scholar, 1987-1990.

Iowa State University Biotechnology Scholar, 1987-1990.