CURRICULUM VITA
Dr. Jon Scales

Assistant Professor
Department of Biology
Midwestern State University
Wichita Falls, TX 76308
Phone: (940) 397-4297
FAX: (940) 397-4831
email:jon.scales@msutexas.edu

EDUCATION

Ph.D., (Biochemistry and Molecular Biology), University of Texas Health Science Center Houston, Graduate School of Biomedical Sciences, Houston, TX 1993

B.S., (Chemistry and Biology), Midwestern State University, Wichita Falls, TX 1988

EMPLOYMENT

2018-2020	Chair, Department of Biology, Midwestern State University
2003-Present	Assistant Professor, Department of Biology, Midwestern State University
1997–2003	Assistant Professor, Department of Biology, University of Wisconsin - Eau Claire
1993–1997	Postdoctoral Fellow, Sect. on Vertebrate Development, Lab of Mol. Genetics, NICHD, NIH

RESEARCH AREA

My research previously focused on the regulation of cadherin-based cell adhesion by members of the Eph-family of *r*eceptor *t*yrosine *k*inases (RTKs). Eph RTKs mediate repulsion between cells expressing the RTK and a cognate ligand (an ephrin). We determined that EphA4 is recruited to adherens junctions via a PDZ-binding motif located at its C-terminus. Furthermore, EphA4 kinase activity is directed through a signaling pathway involving the small GTPase rho to modulate cytoskeletal assembly and/or adherens junction function. I have begun to develop CRISPR tools to study the function of these genes in *Xenopus laevis* development .

My training and competencies in molecular biological methods has allowed me to expand to pursue other research projects involving questions to which these techniques can be employed to gain insight. One recent project was a collaboration with my former MS student Jodie Wiggins to identify that genetic sex determination was occurring in collared lizards which had previously only been thought to determine sex by environmental (temperature) cues.

I have recently undertaken a survey of lichens of the Dalquest desert research station using both classical taxonomic ID methods as well as developing molecular ID markers.

INVITED TALKS

The juxtamembrane domain of cadherin and the PDZ motif of XephA4 mediate interaction of Eph RTKs and adherens junctions for regulation of cell adhesion, Southwest and Gulf Regional Meeting of the Society for Developmental Biology, Dallas, TX, Oct. 2004

Domain of EphA4 mediating dissociation of cadherin adhesion complexes, 107th Texas Academy of Sciences Meeting, Kerrville, TX March 2004

There and back again – perspectives from undergraduate researcher to principle investigator directing undergraduate research, 1st MSU Science Undergraduate Research Symposium, Wichita Falls, TX April 2004

Eph RTKs Regulate Cell Adhesion during Xenopus Development, Guest Lecturer, Baylor University, Waco, TX April, 2001

PUBLICATIONS

Wiggins, JM., Santoyo-Brito, E, **Scales, JB**.,and Fox, SF, 2020, Gene dose indicates presence of sex chromosomes in collared lizards (*Crotaphytus collaris*), a species with temperature-influenced sex determination, *Herpetologica* 76:27-30.

Winning RS, Ward EK, **Scales JB**, and Walker GK,. 2002. EphA4 catalytic activity causes inhibition of RhoA GTPase in *Xenopus laevis* embryos. *Differentiation* 70:46-55.

Winning, R.S., **Scales, J.B**. and Sargent, T.D. 1996. Disruption of cell adhesion in *Xenopus* embryos by Pagliaccio, an Eph-class receptor tyrosine kinase. *Dev. Biol*. 179:309-319.

Scales, J.B., Winning, R.S. Renaud, C.S., Shea, L.J. and Sargent, T.D. 1995. Novel members of the eph receptor tyrosine subfamily expressed in *Xenopus* development. *Oncogene*, 11:1745-1752.

Gaffin, R.D., **J.B. Scales**, and R.L. Cate. 1995. Kallikrein-like enzyme from the venom of *Crotalus basiliscus basiliscus* (Serpentes: Crotalidae). *Texas J. Sci*. 47:53-61.

GRADUATE THESIS DIRECTION

Gabe Pate – incoming Graduate Student

Blake Babyak – Diversity in lichen populations of the Chihuahuan desert.

Thomas Gray –Potential pseudogene development in the *Drosophila melanogaster* mutant ap^{56f}

Prakash Dhajani – 2012 Identification of microsatellite markers in the genome of *Peromyscus leucopus*

Jodie Wiggins – 2010 A PCR based study of a dynamic hybrid zone in *Peromyscus leucopus*

Chris Churchill – 2007 Generation of a venom gland cDNA bank from the diamondback water snake *Nerodia rhombifera rhombifera*

Gary Burke – 2007 Genetic population variation of the plains killifish (*Fundulus zebrinus*) on the upper Wichita river in conjunction to implemented chloride control measures

Rodney Joseph – 2007 Mapping a lambda genomic clone of EphB3 from *Xenopus laevis* to locate thre transcriptional regulatory sequences

Lisa Chaney – 2006 Identification and purification of peptides with antimicrobial activity from *Acris crepitans banchardi*

GRADUATE THESIS COMMITTEES (ONGOING)

Blake Babyak

Gabe Pate

Marcelo Campolino

INDEPENDENT FUNDING

2019 University Research Grant $7495 - What's not to Lichen? Survey and Molecular Identification of Lichens of the Chihuahuan Desert

2017 University Research Grant $4481 – Incorporation of CRISPR technology in the Biology curriculum

2006-2007 University Research Grant $4250 – Development of microsatellite and mitochondrial markers for population genetics studies.

2006 University Research Grant $4794 – Characterization of domains of cadherin mediating interaction with EphA4

2004-2005 University Research Grant $3205 – Assaying Living and preserved tissues for the presence of *Leishmania*: a pilot study for determination of prevalence of *Leishmania* in North Texas

COLLABORATIVE FUNDING

2006 **In collaboration with Gary Burk**: Presidents Excellence Fund, $1500 - Genetic population variation of the plains killifish (*Fundulus zebrinus*) on the upper Wichita River in conjunction to implemented chloride control measures

2006 **In collaboration with Rodney Joseph:** Presidents Excellence Fund, $500 - Mapping a lambda genomic clone of EphB3 from *Xenopus laevis* to locate thre transcriptional regulatory sequences

2005 **In collaboration with Lisa Chaney**: Texas Academy of Science $1000 – Identification, isolation and characterization of peptides with antimicrobial activity from *Acris crepitans banchardi*

CURRICULAR RESPONSIBILITIES

Lower Division Courses
- Life I: Concepts of Mol & Cell Biol (1114)

Upper Division Courses
- Fundamental Genetics (3104)
- Genetics (3334)
- Developmental Biology (3344)
- Senior Seminar in Biology (4001)
- Molecular Biology (4233/4231)
- Tropical Rainforest Ecology (4693)
- Cell Biology (4714)

Graduate Courses
- Discussions (5002)
- Special Topics (5003)
- Molecular Biology (5333/5331)
- Advanced Genetics (5634)
- Tropical Rainforest Ecology (5693)
- Electron Microscopy & Analysis (5553)