

Laura J. Mauro

Assistant Professor

Appointment 65% Research, 35% Teaching

Research Area Cell Signaling, Reproductive Physiology

Appointment History 2000-present Assistant Professor

Graduate Program Affiliations

Animal Sciences – Senior Member

Biochemistry, Molecular Biology & Biophysics – Senior Member

Molecular Veterinary Biosciences – Senior Member

Professional and Honorary Societies

Member, American Association for the Advancement of Science

Member, American Society for Bone and Mineral Research

Member, The Endocrine Society

Member and Board Member, Sigma Delta Epsilon

Five Most Significant Publications

Schiller, K.R. and L.J. Mauro. 2004. Tyrosine phosphatases as regulators of skeletal development and metabolism. J. Cell Biochem. Accepted.

Review article highlighting the importance of tyrosine phosphatases in controlling cell signaling events during skeletal development and maintenance.

Warmka, J.K., L.J. Mauro, and E.V. Wattenberg. 2004. Mitogen activated protein kinase phosphatase-3 is a tumor promoter target in initiated cells that express oncogenic ras. J. Biol. Chem. 279(32):33085-33092.

As collaborator with Wattenberg lab in the Cancer Center, we showed that MKP-3, a member of the tyrosine phosphatase family of signaling molecules, may normally help to suppress tumorigenic growth and therefore may be a vulnerable target of subsequent tumor promoters which act on the MAPK mitogenic pathway.

Yunker, L.A., A.T. Undersander, J.B. Lian, G.S. Stein, C.S. Carlson, and L.J. Mauro. 2004. The tyrosine phosphatase, OST-PTP, is expressed in mesenchymal progenitor cells early during skeletogenesis in the mouse. J. Cell. Biochem. In press.

First report of the in vivo expression of this molecule showing early skeletal expression of OST in mesenchymal osteoprogenitors suggesting a broader role in bone development and possible marker of mesenchymal stem cells.

Wheeler, M., M.K. Townsend, L.A. Yunker, and L.J. Mauro. 2002. Transcriptional activation of the tyrosine phosphatase, OST-PTP, gene during osteoblast differentiation. J. Cell Biochem. 87(4):363-376. (Cover article.)

This featured cover article reported the differentiation-dependent, osteoblast-specific transcriptional activation of this novel signaling gene.

Morrison, D.F. and L.J. Mauro. 2000. Structural characterization and chromosomal localization of the mouse cDNA and gene encoding the bone tyrosine phosphatase, mOST-PTP. *Gene* 257(2):195-208.

The first report of the gene structure of this novel signaling molecule.

Refereed Journal Publications and Book Chapters (Last Five Years)

Authored or co-authored 7 papers in peer-reviewed journals.

Schiller, K.R. and **L.J. Mauro**. 2004. Tyrosine phosphatases as regulators of skeletal development and metabolism. *J. Cell Biochem.* Accepted.

Warmka, J.K., **L.J. Mauro**, and E.V. Wattenberg. 2004. Mitogen activated protein kinase phosphatase-3 is a tumor promoter target in initiated cells that express oncogenic ras. *J. Biol. Chem.* 279 (32): 33085-33092.

Yunker, L.A., A.T. Undersander, J.B. Lian, G.S. Stein, C.S. Carlson, and **L.J. Mauro**. 2004. The tyrosine phosphatase, OST-PTP, is expressed in mesenchymal progenitor cells early during skeletogenesis in the mouse. *J. Cell Biochem.* In press.

Zeliadt, N.A., J.K. Warmka, S.E. Winston, R. Kahler, J.J. Westendorf, **L.J. Mauro**, and E.V. Wattenberg. 2004. Tumor promoter-induced expression of the MMP-13 gene in a mouse keratinocyte model of initiated epidermis. *Biochem. Biophys. Res. Comm.* 317:570-577.

Mauro, L.J. and D. Foster. 2002. Regulators of telomerase activity. *Am. J. Respir. Cell Mol. Biol.* 26: 521-524.

Wheeler, M., M.K. Townsend, L.A. Yunker, and **L.J. Mauro**. 2002. Transcriptional activation of the tyrosine phosphatase, OST-PTP, during osteoblast differentiation. *J. Cell Biochem.* 87:363-376. (**Featured COVER article**)

Morrison, D.F. and **L.J. Mauro**. 2000. Structural characterization and chromosomal localization of the mouse cDNA and gene encoding the bone tyrosine phosphatase, mOST-PTP. *Gene* 257(2):195-208.

Invited Lectures

Avian Research Center, University of Minnesota, 2000.

Chemistry Department, College of St. Catherine's, 2002.

Funding (Last Five Years) – \$418,506

UMN Grad School Grant-in-Aid. Novel adhesive signals during skeletogenesis. 2004-05. \$25,450.

NIH. Function of tyrosine phosphatase, OST-PTP in osteogenesis. 1998-04. \$365,107.

UMN Grad School Grant-in-Aid. A Multi-user microscopy station for cell and organ studies. 2003-04. \$12,891.

NIH. Activation of mitogenic signaling by alkylating agents. 1999-00. \$15,058.

Dissertations and Theses (Last Five Years)

Name	Program	Degree	Thesis Title
Laurie A. Yunker	Molecular Vet Biosci	M.S.	Spatial and temporal expression of the receptor protein tyrosine phosphatase, osteotesticular protein tyrosine phosphatase during skeletogenesis.

Graduate Student - Current Advisees

Katie Schiller M.S. Animal Sciences

Courses Taught (Last Five Years)

Designator	Name	Cr	% Effort	Term	Years
AnSc 3305	Repro Biology in Health & Disease	4	100%	Spring	2001
AnSc 3305	Repro Biology in Health & Disease	4	100%	Fall	2002, 2003
Bioc 8216	Signal Transduction & Gene Expression		15%		2000, 2003
Bioc 8007	Cell Biol & Biochem Extracellular Matrix		20%		2001
MVB 8560	Selected Topics: Bone & Cartilage Dev		50%		2002
Bioc 4994	Directed Research		100%		2000

Service

Reviewer: Archives of Oral Biology, GENE, Journal of Cellular Biochemistry, Journal of Bone and Mineral Research, Comparative Biochemistry and Physiology, Calcified Tissue International, Journal of Molecular Endocrinology

Grant Reviewer USDA/NRICGP Animal Genome and Genetic Mechanisms

Grant Reviewer USDA/NRICGP Animal Growth and Development

Bollum Symposium on Cell Signaling – committee organizer and introductory speaker, 2000

Biotechnology Workshop for Extension Educators – organizing committee, 2000

National Liaison, Graduate Women in Science, 2004-Present