

BIOGRAPHICAL SKETCH

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NAME Oh, S. Paul		POSITION TITLE	
eRA COMMONS USER NAME SUKPOH		Associate Professor	
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Korea University, Seoul, Korea	B.S.	1985	Chemistry
Harvard University, Cambridge, MA	Ph.D.	1993	Cell & Dev. Biology
Harvard Medical School, Boston, MA	Postdoc	1993-1994	Cell Biology
Massachusetts General Hospital, Boston, MA	Postdoc	1994-1997	Cardiovascular Research

A. Positions and Honors**Professional Experience**

1985 - 1987 Research Assistant, Department of Ophthalmology, Southwestern Medical School, Dallas, TX
 1987 - 1993 Graduate Student, Cell and Developmental Biology, Harvard Medical School, Boston, MA
 1993 - 1994 Post Doctoral Fellow, Department of Cell Biology, Harvard Medical School, Boston, MA
 1994 - 1997 Research Fellow, Cardiovascular Research Center, Mass. General Hospital, Boston, MA
 1994 - 1997 Post Doctoral Fellow, Department of Medicine, Harvard Medical School, Boston, MA
 1997 - 2003 Assistant Professor, Department of Physiology, University of Florida, Gainesville, FL
 1999 - Present Member, Center for Mammalian Genetics, University of Florida, Gainesville, FL
 2000 - 2002 Member, Peer Review Committee, AHA (Southern and Ohio Valley Research Consortium)
 2004 - Present Member, Peer Review Committee, AHA (Southern and Ohio Valley Research Consortium)
 2003 - Present Associate Professor (with Tenure), Department of Physiology, University of Florida
 2003 - 2005 Associate Director, Transgenic Core Facility, UFSCC, Gainesville, FL
 2004 Ad Hoc Member, NIH study section (Brain Disorders and Clinical Neuroscience-2)
 2005 Ad Hoc Member, NIH study section (ZRG-1)
 2005 Member, AHA National study section, CMREF
 2006 Ad Hoc Member, NIH study section (Dev2)

Honors and Awards

1984 The Best Student in College of Natural Science, Korea University
 1993 Outstanding Presentation Award, East Coast Connective Tissue Society
 1995 - 1997 Individual National Research Service Award (NRSA), NICHD
 1999 Larry Gentry Memorial Award for most outstanding poster,
 3rd international conference for TGF- β , NIH, Bethesda,
 2001 Invited Speaker, IVth international Hereditary Hemorrhagic Telangiectasia Conference
 Tenerife, Spain
 2002 Best Poster presentation, Faculty Research Day, University of Florida College of Medicine,
 Gainesville, FL
 2005 Exemplary Teacher, College of Medicine, University of Florida

B. Selected publications (selected)

Dublet, B., Oh, S., Sugrue, S., Gordon, M.K., Gerecke, D.R., Olsen, B.R., van der Rest, M. (1989) The structure of avian type XII collagen. **J. Biol. Chem.** 264, 13150-13156.

- Oh, S.P., Taylor, R.W., Gerecke, D.R., Rochelle, J.M., Seldin, M.F., Olsen, B.R. (1992). The mouse $\alpha 1(XII)$ and human $\alpha 1(XII)$ -like collagen gene are localized on mouse chromosome 9 and human chromosome 6. **Genomics**. 14, 225-231.
- Oh, S.P., Griffith, C.M., Hay, E.D., Olsen, B.R. (1993) Tissue specific expression of type XII collagen during mouse embryonic development. **Dev. Dyn.** 196, 37-46.
- Oh, S.P., Warman, M., Seldin, M., Cheng, S-D, Knoll, J.H.M., Timmons, S., Olsen, B.R. (1994) Cloning of cDNA and genomic DNA encoding human type XVIII collagen and localization of the $\alpha 1(XVIII)$ collagen gene to the mouse chromosome 10 and the human chromosome 21. **Genomics** 19, 494-499.
- Oh, S.P., Kamagata, Y., Muragaki, Y., Timmons, S., Ooshima, A., Olsen, B.R. (1994) Isolation and sequencing of cDNAs for proteins with multiple domains Gly-X-Y repeats identify a novel family of collagenous proteins. **Proc. Nat. Acad. Sci. (USA)** 91, 4229-4233.
- Muragaki, Y., Timmons, S., Griffith, C.M., Oh, S.P., Fadel, B., Quertermous, T., Olsen, B.R. (1995) Mouse *Col18a1* is expressed in a tissue-specific manner as three alternative variants and is localized in basement membrane zones. **Proc. Nat. Acad. Sci. (USA)** 95, 8763-8767.
- Böhme, K., Li, Y., Oh, S.P., Olsen, B.R. (1995) Primary structure of the long and short splice variants of mouse collagen XII and their tissue-specific expression during embryonic development. **Dev. Dyn.** 204, 432-445.
- Lei, H, Oh, S.P., Okano, M., Jüttermann, R., Goss, K., Jaenisch, R. and Li, E. (1996) De novo DNA cytosine methyltransferase activities in mouse embryonic stem cells. **Development** 122, 3195-3205.
- Oh, S.P. and Li, E. (1997) The signaling pathway mediated by the type IIB activin receptor controls axial patterning and lateral asymmetry in the mouse. **Genes Dev.** 11, 1812-1826.
- Yao, T-P., Oh, S.P., Fuchs, M., Zhou, N-D., Ch'ng, L-E., Newsome, D., Bronson, R.T., Li, E., Livingston, D.M. and Eckner, R. (1998) Gene dosage-dependent embryonic development and proliferation defects in mice lacking the transcriptional integrator p300. **Cell** 93, 361-372.
- Song, J., Oh, S.P. (co-first author), Schrewe, H., Nomura, M., Lei, H., Okano, M. Gridley, T. and Li, E. (1999) The type II activin receptors are essential for egg cylinder growth, gastrulation and rostral head development in mice. **Dev. Biol.** 213, 157-169.
- Oh, S.P.*, Seki, T., Goss, K.A., Yi, Y. Imamura, T., Donahoe, P.K., ten Dijke, P., Miyazono K., Kim, S. and Li, E. (2000) Activin Receptor-Like Kinase-1 (ALK-1) modulates TGF- β 1 signaling in regulation of angiogenesis. **Proc. Nat. Acad. Sci. (USA)** 97, 2626-2631. ***Corresponding Author**
- Kim, S.K., Hebrok, M., Li, E., Oh, S.P., Schrewe, H., Harmon, E.B., Lee, J.S. and Melton, D.A*. (2000) Activin receptor patterning of foregut organogenesis. **Genes Dev.** 14(15):1866-1871.
- Shi, Y., Simmons, M.N., Seki, T., Oh, S.P. and Sugrue, S.P.* (2001) Change in gene expression subsequent to induction of Pnn/DRS/memA: increase in p21^{cip/waf1}. **Oncogene** 20, 4007-4018.
- Ferguson, C.A., Tucker, A.S., Heikinheimo, K., Nomura, M., Oh, S.P., Li, E. and Sharpe, P.T*. (2001) The role of effectors of the activin signaling pathway, activin receptors IIA and IIB, and Smad2, in patterning of tooth development. **Development** 128, 4605-4613.
- Fukai, N., Eklund, L., Marneros, A.G., Oh, S.P., Keene, D.R., Tamarkin, L., Niemela, M., Ilves, M., Li, E., Pihlajaniemi, T. and Olsen, B.R. * (2002) Lack of collagen XVIII/endostatin results in eye abnormalities. **EMBO J.** 21, 1535-1544.

- Oh, S.P.* and Li, E. (2002) Gene-dosage-sensitive genetic interactions between *inversus viscerum (iv)*, *nodal*, and activin type IIB receptor (*ActRIIB*) genes in asymmetrical patterning of the visceral organs along the left-right axis. **Dev. Dyn.** 224, 279-290.
- Oh, S.P.*, Yeo, C-Y, Lee, YJ, Schrewe, H., Whitman, M. and Li, E. (2002) Activin type IIA and IIB receptors mediate Gdf11 in axial vertebral patterning. **Genes Dev.** 16, 2749-2754.
- Srinivasan, S., Hanes, M.A., Dickens, T., Porteous, M.E., Oh, S.P., Hale, L.P. and Marchuk D.A.* (2003) A mouse model for hereditary hemorrhagic telangiectasia (HHT) type 2. **Hum Mol Genet** 12, 473-482.
- Kanadia, R.N., Urbinati, C.R., Crusselle, V.J., Luo D., Lee, Y-J., Harrison, J., Oh, S.P. and Swanson, M.S.* (2003) Developmental expression of mouse muscleblind genes Mbnl1, Mbnl2 and Mbnl3. **Gene Expr Patterns.** 3, 459-462.
- Seki, T., Yun, J., and Oh, S.P. * (2003) Arterial-specific activin receptor-like kinase 1 expression suggests a novel pathogenetic mechanism for Hereditary Hemorrhagic Telangiectasia. **Circ. Res.** 93, 682-689.
- Seki, T., Hong, K-H., Yun, J., Kim, S-J., and Oh, S.P.* (2004) Isolation of a regulatory region of activin receptor-like kinase 1 gene sufficient for arterial endothelium-specific expression. **Circ. Res.** 94, e72-77.
- Simmen, R.C.M.*, Eason, R.R., McQuown, J.R., Linz, A.L., Kang, T-J., Chatman, L., Till, S.R., Fujii-Kuriyama, Y., Simmen, F.A., and Oh, S.P. (2004) Sub-Fertility, Uterine Hypoplasia, and Partial Progesterone Resistance in Mice Lacking the Krüppel-Like Factor 9/Basic Transcription Element Binding Protein-1 (Bteb1) Gene. **J. Biol. Chem.** 279, 29286-29294.
- Park, S., Lee, Y.J., Lee, H-J., Seki, T, Hong, K-H., Park, J., Beppu, H., Lim, I.J., Yoon, J, Li, E., Kim, S-J., and Oh, S.P.* (2004) B-cell translocation gene 2 (Btg2) regulates vertebral patterning by modulating BMP/Smad signaling. **Mol. Cell. Biol.** 24, 10256-10262.
- Seki, T., Hong, K-H, and Oh, S.P.* (2006) Non-overlapping expression patterns of two transforming growth factor β type I receptors suggest distinct roles of each receptor in the vascular development. **Lab. Invest.** 86, 116-129.
- Yang, S., Lee, Y.J., Kim, J-M, Park, S., Peris, J., Laipis, P., Park, Y.S., Chung, J.H., and Oh, S.P.* (2006) A murine model for human sepiapterin-reductase deficiency. **Am J. Hum. Genet.** 78, 575-87.
- Lee, Y.J., Hong, K-H, Yun, J., and Oh, S.P.* Generation of isoform-specific hypomorphic alleles of activin receptor type IIB (*In minor revision*).

C. Research Projects Ongoing or completed During the Last 3 Years:

ACTIVE

(1) Role of ALK1 in hereditary hemorrhagic telangiectasia:

AHA, Grant-in-Aid, 0455336B, 7/1/04 – 6/30/06. PI

The major goal of this project is to investigate whether Alk1 expression in veins is sufficient to elicit trans-morphogenesis of veins to arteries.

(2) Identification of regulatory elements requiring for arterial endothelium-specific expression of Alk1 gene: (Trainee: K-H Hong)

AHA, Predoctoral Fellowship, 7/1/2004 – 6/30/2006. Sponsor

The major goal of this project is to define regulatory element in the Alk1 gene, necessary for arterial endothelium-specific expression.

(3) Role of Btg2 in tumorigenesis**Senior Investigator Award, University of Florida Shands Cancer Center, 5/1/2005 – 4/30/2006: PI**

The major goal of this project is to investigate whether ablation of potential tumor suppressor gene Btg2 leads to increase the predisposition of tumor formation in normal condition as well as in treatment with a DNA-damaging agent.

(4) Role of TGF-beta family signaling in HHT and PPH:**NIH/NHLBI, 2R01 HL64024, 7/1/2005 – 6/30/2009. PI**

The major goal of this project is to investigate the pathogenetic mechanisms underlying two human vascular diseases; Hereditary Hemorrhagic Telangiectasia (HHT) and Pulmonary Arterial Hypertension (PAH), and to develop genetic animal models for these diseases.

(5) Identification of Genes Involved in the Morphogenesis**Collaboration Grant, Novartis Institutes for BioMedical Research, Inc. 2/15/2006 – 2/14/2008. PI**

The major goal of this collaboration grant with Novartis is to identify genes specifically expressed in developing arterial endothelial cells using genetic mouse models.

(6) AT₁ Receptor Control in Chronic Hypertension Attenuation (PI: M. Raizada)**NIH/NHLBI R01 HL 56921-6, 7/1/2005 – 6/30/2010. Co-PI**

The major goal of this project is to investigate to test the hypothesis that overexpression of endothelial ACE2 will result in long-term antihypertensive effects: both decreases in high blood pressure and reversal of cardiovascular pathophysiologies.

(7) Role of KOS in Regulating Cell Growth (PI: S. May)**NIH/NCI R01 CA109150 8/16/04-7/31/09. Co-PI**

The major goal of this project is to investigate whether genetic ablation of KOS1 alters cell cycle regulation and lead to increased tumorigenesis.

(8) Epithelial Adhesion interactions in the cornea (PI: S. Sugrue)**NIH/NIE R01 EY007883 5/1/2005-4/30/2010. Co-PI**

The major goal of this project is to investigate the role of Pinin gene in epithelialization during mouse development

COMPLETED**(1) Role of ALK1 as a modulator for TGF- β signalings on Angiogenesis:****NIH/NHLBI, R01 HL64024, 8/1/2000 – 7/31/2004 (no-cost extension until 7/31/2005). PI**

The major goal of this project is to investigate the hypothesis that the balance of two type I receptors ALK1 and ALK5 controls endothelium properties during angiogenesis

(2) Transcriptional regulation by X chromosome inactivation: (PI: T. Yang)**NIH/NGM, R01 GM44286, 9/1/2001 – 8/31/2005. Co-Investigator**

The major goal of this project is to investigate the hypothesis that the establishing patterns of chromatin structure (including DNA methylation and histon acetylation patterns) on active X chromosome versus inactive X chromosome involves cis-acting DNA sequences associated with individual X-linked loci.