Kim Orth

Curriculum Vitae
Investigator, Professor, Department of Molecular Biology
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Education

1993	Ph.D., Biochemistry and Molecular Biology University of Texas Southwestern Medical Center
1986	Master of Science, Biological Chemistry UCLA School of Medicine
1984	Bachelor of Science, Biochemistry Texas A & M University

Professional Experience

1985 - 1986	Master Student Dept of Biological Chemistry, UCLA School of Medicine
1987 - 1989	Research Associate Protein Chemistry Core, HHMI, UTSWMC
1989 - 1990	Research Associate Dept of Biological Chemistry, UTSWMC
1991 - 1993	Ph.D. Student and Postdoctoral Associate Biological Chemistry Graduate Program, UTSWMC
1993 - 2001	Postdoctoral Fellow and Dawson Research Fellow Department of Biological Chemistry, University of Michigan
2001 - 2007	Assistant Professor and W.W. Caruth, Jr. Scholar in Biomedical Research Department of Molecular Biology, UT Southwestern Medical Center
2007 - 2011	Associate Professor and W.W. Caruth, Jr. Scholar in Biomedical Research Department of Molecular Biology, UT Southwestern Medical Center
2010 -present	Secondary Appointment, Department of Biochemistry
2011 -present	Professor and W.W. Caruth, Jr. Scholar in Biomedical Research Department of Molecular Biology, UT Southwestern Medical Center
2015- present	Investigator, Howard Hughes Medical Institute
2022-2025	Lead Scientist, Emerging Pathogens Initiative, HHMI

Awards

2026	Elected, American Academy of Arts and Sciences
2026	ASM, Award for Basic Research
2026	ASBMB, Earl and Thressa Stadtman Distinguished Scientist Award
2025-2028	Elected, National Academy of Sciences Council
2022	Elected Fellow, ASBMB
2022	Elected, American Association for the Advancement of Science
2022	Celebrating Women Wall, UT Southwestern Medical Center
2021-2023	American Society of Microbiology Distinguish Lecturer
2020	Member, The Academy of Medicine, Engineering and Science of Texas

2020	Elected, National Academy of Sciences
2019	Nirit and Michael Shaoul Visiting Scholar, Tel Aviv University
*2018	ASBMB Merck Award
2016	Elected, American Academy of Microbiology
2016-2020	Once Upon a Time Foundation Award
2013- present	Earl A. Forsythe Chair in Biomedical Science
2012	ASBMB Young Investigator Award
2011	TAMEST; 2011 Edith & Peter O'Donnell Award in Science
2010	Welch Foundation Norman Hackerman Award in Chemical Science
2006-2011	Burroughs Wellcome Investigator in Pathogenesis of Infectious Disease
2003-2006	Arnold and Mabel Beckman Young Investigator Award
2001-present	W.W. Caruth, Jr. Scholar in Biomedical Research, UTSWMC
1998-2001	Walther Cancer Institute, Dawson Research Fellowship
1993-1998	NCI Postdoctoral Fellowship, Molecular Genetics, U. of Michigan
1986	NIH Predoctoral Training Grant, Cell and Molecular Biology. UCLA
1980-1984	Texas A&M University Opportunity Award
1983-1984	Undergraduate Research R.A. Welch Fellow
1982	Texas A&M University Spring Award
1980	Clark Foundation Scholarship

*For my ASBMB Merck Award (2018), I wrote a solicited, personal reflection on my path in science for *JBC* as a working mother/scientist to provide tools for younger scientists.

Publications

1. Peterson, C.L., **Orth, K.,** & Calame, K.L. Binding in vitro of multiple cellular proteins to immunoglobulin heavy-chain enhancer DNA.
   MCB (1986) 6(12) 4168-78.
2. Gil, G., Smith, J.R., Goldstein, J.L., Slaughter, C.A., **Orth, K.,** Brown, M.S., & Osborne, T.F. Multiple genes encode nuclear factor 1-like proteins that bind to the promoter for 3-hydroxy-3-methylglutaryl-coenzyme A reductase.
   PNAS USA (1988) 85(23), 8963-7.
3. Hansen, E.J., Hasemann, C., Clausell, A., Capra, J.D., **Orth, K.,** Moomaw, C.R., Slaughter, C.A., Latimer, J.L., & Miller, E.E. Primary structure of the porin protein of Haemophilus influenzae type b determined by nucleotide sequence analysis.
   Infect & Immun. (1989) 57(4), 1100-7.
4. Hsu, P.L., Chamberlain, N.R., **Orth, K.,** Moomaw, C.R., Zhang, L.Q., Slaughter, C.A., Radolf, J.D., Sell, S., & Norgard, M.V. Sequence analysis of the 47-kilodalton major integral membrane immunogen of Treponema pallidum.
   Infect & Immun. (1989) 57(1), 196-203.
5. Krupinski, J., Coussen, F., Bakalyar, H.A., Tang, W.J., Feinstein, P.G., **Orth, K.,** Slaughter, C.A., Reed, R.R., & Gilman, A.G. Adenylyl cyclase amino acid sequence: possible channel- or transporter-like structure.
   Science (1989) 244(4912), 1558-64.
6. Hofmann, S.L., Goldstein, J.L., **Orth, K.,** Moomaw, C.R., Slaughter, C.A., & Brown, M.S. Molecular cloning of a histidine-rich Ca2+-binding protein of sarcoplasmic reticulum that contains highly conserved repeated elements.
   J. Biol. Chem. (1989) 264(30), 18083-90.

7. Hansen, E.J., Pelzel, S.E., **Orth, K.,** Moomaw, C.R., Radolf, J.D., & Slaughter, C.A. Structural and antigenic conservation of the P2 porin protein among strains of Haemophilus influenzae type b.
Infect. & Immun. (1989) 57(11), 3270-5.
8. Frenkel, R.A., Slaughter, C.A., **Orth, K.,** Moomaw, C.R., Hicks, S.H., Snyder, J.M., Bennett, M., Prough, R.A., Putnam, R.S., & Milewich, L. Peroxisome proliferation and induction of peroxisomal enzymes in mouse and rat liver by dehydroepiandrosterone feeding.
J. Steroid Biochem. (1990). 35(2), 333-42.
9. Dyer, S.H., Slaughter, C.A., **Orth, K.,** Moomaw, C.R., & Hersh, L.B. Comparison of the soluble and membrane-bound forms of the puromycin-sensitive enkephalin-degrading aminopeptidases from rat.
J. Neurochem. (1990) 54(2), 547-54.
10. Lee, L.W., Moomaw, C.R., **Orth, K.,** McGuire, M.J., DeMartino, G.N., & Slaughter, C.A. Relationships among the subunits of the high molecular weight proteinase, macropain (proteasome).
Biochim. Biophys. Acta. (1990) 1037(2), 178-85.
11. McCammon, M.T., Dowds, C.A., **Orth, K.,** Moomaw, C.R., Slaughter, C.A., & Goodman, J.M. Sorting of peroxisomal membrane protein PMP47 from Candida boidinii into peroxisomal membranes of Saccharomyces cerevisiae.
J. Biol. Chem. (1990) 265(33), 20098-105.
12. Letsou, A., Alexander, S., **Orth, K.,** & Wasserman, S. A. Genetic and molecular characterization of tube, a Drosophila gene maternally required for embryonic dorsoventral polarity.
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13. DeMartino, G.N., **Orth, K.,** McCullough, M.L., Lee, L.W., Munn, T.Z., Moomaw, C.R., Dawson, P.A., & Slaughter, C.A. The primary structures of four subunits of the human, high-molecular-weight proteinase, macropain (proteasome), are distinct but homologous.
Bioch. Biophys. Acta. (1991) 1079(1), 29-38.
14. Hagen, F.S., Grant, F.J., Kuijper, J.L., Slaughter, C.A., Moomaw, C.R., **Orth, K.,** O'Hara, P.J., & Munford, R.S. Expression and characterization of recombinant human acyloxyacyl hydrolase, a leukocyte enzyme that deacylates bacterial lipopolysaccharides.
Biochem. (1991) 30(34), 8415-23.
15. Bassel-Duby, R., Jiang, N.Y., Bittick, T., Madison, E., McGookey, D., **Orth, K.,** Shohet, R., Sambrook, J., & Gething, M.J. Tyrosine 67 in the epidermal growth factor-like domain of tissue-type plasminogen activator is important for clearance by a specific hepatic receptor.
J**. Biol. Chem.** (1992) 267(14), 9668-77.
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PNAS USA (1994) 91(20), 9495-9.
19. Willnow, T.E., Orth, K., & Herz, J. Molecular dissection of ligand binding sites on the low density lipoprotein receptor-related protein.
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22. Myeroff, L.L., Parsons, R., Kim, S.J., Hedrick, L., Cho, K.R., **Orth, K.,** Mathis, M., Kinzler, K.W., Lutterbaugh, et, al. A transforming growth factor beta receptor type II gene mutation common in colon and gastric but rare in endometrial cancers with microsatellite instability.
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47. *Hotson, A., *Chosed, R., Shu, H. **Orth, K.,** & Mudgett, M.B. Xanthomonas type III effector XopD Targets SUMO-conjugated proteins in planta. (*Contributed equally)
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48. Trosky, J., Mukherjee, S., Burdette, D., Roberts, M., McCarter, L., Siegel, R. & **Orth, K.** Inhibition of MAPK signaling pathways by VopA from Vibrio parahaemolyticus.
J. Biol. Chem. (2004) 279, 51953-51957.
49. Mukherjee, S. Kietany, G., Li, Y Wang, Y., Hall B.E., Goldsmith, E & **Orth, K.** Yersinia YopJ Acetylates and Inhibits Kinase Activation by Preventing Phosphorylation. (2006)
Science 312:1211-1214.
50. Chosed, R., Mukherjee, S. & **Orth, K.** Impact of regulatory domains on activity and specificity of Arabidopsis thaliana Ulp1s.
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51. Fehr D, Casanova C, Liverman A, Blazkova H, **Orth, K.,** Dobbelaere D, Frey J, Burr SE. AopP, a type III effector protein of Aeromonas salmonicida, inhibits the NF-kappaB signalling pathway.
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54. Trosky, J. E., Li, Y., Mukherjee, S., Keitany, G., Ball, H. and **Orth, K.** VopA Inhibits ATP binding by Acetylating the Catalytic Loop of MKKs.
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PNAS USA (2011) 108(28):11614-9 Highlighted in *Nature* and *Nature Reviews Microbiology*
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69. Grammel M, Luong P, **Orth K**, Hang HC. A chemical reporter for protein AMPylation.
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Patents

US Pat No.7,291,476
Inventors: Kim Orth and Sohini Mukherjee
Title: O-Acetyltransferases
Ref No: UTSD: 1770

US Pat No. 61/472,440
Inventors: Kim Orth, Anne-Marie Krachler, Hyeilin Ham
Title: Modulating Bacterial MAM Polypeptides in Pathogenic Disease
Ref No: UTSD: 2412