

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	ASBMB, Earl and Thressa Stadtman Distinguished Scientist Award
2026	ASM, Award for Basic Research
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.

External Review

Reviewing Board Editor: *PNAS* 2020-present; *eLife* 2018-2022.

Reviewer for *Nature*, *Nature Communications*, *Nature Chemical Biology*, *Science*, *mBio*, *Cell Host & Microbe*, *Molecular Cell*, *PNAS*, *PLoS ONE*, *PLoS Pathogen*, *Infection and Immunity*, *Molecular Microbiology*, *Cellular Microbiology*, *Plant Physiology*, *Journal of Biological Chemistry*, *Journal of Infectious Disease*, *Cellular Microbiology*, *Frontiers Microbiology*.

Internal Service

Biochemistry Graduate Program

Physical Biochemistry I, Course Director 2009-2025/Lecturer 2007-present

Microbial Pathogenesis, Lecturer

Molecular Microbiology Graduate Program Qualifying Exam Committee

STARS Program (Mentor)

SURF Program (Mentor)

Molecular Microbiology Training Grant Steering Committee

President's Research Council

STORIES Science Career Colloquium

Micro Chair Search Committee Chair

Endowed Scholars Monthly Work-in-Progress, Chair

Molecular Biology Seminar Series, Co-Chair with Kathrine O'Donnell

FIRST Faculty Selection Committee

External Service/Study Sections/Competition Judge

NIH Special Emphasis Panel 2004

NIH Special Emphasis Panel 2009

NIH Challenge Grants in Health and Science Research 2009

NIH IDM-A (R21, R15, R03, R35) 2009, 2010, 2011, 2020

NIH IDM-F13-C 2011

NIH Molecular & Integrative Signal Transduction 2008, 2012-2018 (permanent member)

Beckman Research Foundation Young Investigator Award Review Panel 2008, 2013, 2014, 2015
Beckman Foundation, Scientific Advisory Council 2020-2025
Chan/Zuckerberg 2021
Ben Barres Spotlight Awards 2021, 2022
HHMI Review Boards 2021-present
AAAS: 2001- , ASBMB: 2002- , ASCB: 2006- , ASM: 2006-
Texas Academy of Medicine, Engineering, Technology and Science (TAMEST)
Board of Directors, 2021-2025; Executive Board (Secretary) 2025-2028
National Academy of Sciences, CMC 2022-2025; Council 2025 -2028.

Leadership, Mentoring

ASBMB Meetings Committee 2022-2025
ASBMB Annual Awards Committee 2019-2025
ASBMB Nominating Committee 2019-2022
ASBMB Woman in Science 2017, 2018, 2019
ASBMB Annual Meeting Spotlight Session Organizer, 2018
ASBMB Annual Meeting Theme Organizer, 2014
FASEB Small GTPases, Session Chair 2011, 2018
FASEB Pathogenesis: Mechanisms of Infectious Disease Scientific Research Conference
Co-Chair 2019, Chair 2021, Career Panel Discussion 2015, 2017, 2019, 2021, 2023
ASCB Session Chair 2007
CSH Microbial Pathogenesis & Host Response, Session Chair, 2011, 2022; Keynote 2019
CSH-Asia Session Chair, 2013
UT Southwestern STARS mentor for High School Students, 2006-present
UT Southwestern SURF mentor for Undergraduate Students, 2019-present
Chair, UTSW Scholars Works-in-Progress, 2012 – present
American Society of Microbiology, Distinguished Lecturer, 2021-2023

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.
PNAS USA (1991) 88(3), 810-4.
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.
16. **Orth, K.**, Madison, E.L., Gething, M.J., Sambrook, J.F., & Herz, J. Complexes of tissue-type plasminogen activator and its serpin inhibitor plasminogen-activator inhibitor type 1 are internalized by means of the low density lipoprotein receptor-related protein/alpha 2-macroglobulin receptor.
PNAS USA (1992) 89(16), 7422-6.
17. Willnow, T.E., Goldstein, J.L., **Orth, K.**, Brown, M.S., & Herz, J. Low density lipoprotein receptor-related protein and gp330 bind similar ligands, including plasminogen activator-inhibitor complexes and lactoferrin, an inhibitor of chylomicron remnant clearance.
J. Biol. Chem. (1992) 267(36), 26172-80.
18. **Orth, K.**, Hung, J., Gazdar, A., Bowcock, A., Mathis, J. M., & Sambrook, J. Genetic instability in human ovarian cancer cell lines.
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.
J. Biol. Chem. (1994) 269(22), 15827-32.
20. **Orth, K.**, Willnow, T., Herz, J., Gething, M.J., & Sambrook, J. Low density lipoprotein receptor-related protein is necessary for the internalization of both tissue-type plasminogen activator-inhibitor complexes and free tissue-type plasminogen activator.
J. Biol. Chem. (1994) 269(33), 21117-22.
21. **Orth, K.**, Hung, J., Gazdar, A., Mathis, M., Bowcock, A., & Sambrook, J. Ovarian tumors display persistent microsatellite instability caused by mutation in the mismatch repair gene hMSH-2.
Cold Spring Harbor Symp. Quant. Biology (1994) 59, 349-56.
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.
Cancer Res. (1995) 55(23), 5545-7.
23. **Orth, K.**, O'Rourke, K., Salvesen, G.S., & Dixit, V.M. Molecular ordering of apoptotic mammalian CED-3/ICE-like proteases.
J. Biol. Chem. (1996) 271(35), 20977-80.
24. Chinnaiyan, A.M., **Orth, K.**, O'Rourke, K., Duan, H., Poirier, G.G., & Dixit, V.M. (1996). Molecular ordering of the cell death pathway. Bcl-2 and Bcl-xL function upstream of the CED-3-like apoptotic proteases.
J. Biol. Chem. (1996) 271(9), 4573-6.
25. Duan, H., **Orth, K.**, Chinnaiyan, A.M., Poirier, G.G., Froelich, C.J., He, W.W., & Dixit, V.M. ICE-LAP6, a novel member of the ICE/Ced-3 gene family, is activated by the cytotoxic T cell protease granzyme B.
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26. Froelich, C.J., **Orth, K.**, Turbov, J., Seth, P., Gottlieb, R., Babior, B., Shah, G.M., Bleackley, R.C., Dixit, V.M., & Hanna, W. New paradigm for lymphocyte granule-mediated cytotoxicity. Target cells bind and internalize granzyme B, but an endosomolytic agent is necessary for cytosolic delivery and subsequent apoptosis.
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27. **Orth, K.**, Chinnaiyan, A.M., Garg, M., Froelich, C.J., & Dixit, V.M. The CED-3/ICE-like protease Mch2 is activated during apoptosis and cleaves the death substrate lamin A.
J. Biol. Chem. (1996) 271(28), 16443-6.
28. Chinnaiyan, A.M., Hanna, W.L., **Orth, K.**, Duan, H., Poirier, G.G., Froelich, C.J., & Dixit, V.M. Cytotoxic T-cell-derived granzyme B activates the apoptotic protease ICE-LAP3.
Curr. Biology (1996) 6(7), 897-9.
29. D'Amours, D., Duriez, P.J., **Orth, K.**, Shah, R.G., Dixit, V.M., Earnshaw, W.C., Alnemri, E.S., & Poirier, G.G. Purification of the death substrate poly(ADP-ribose) polymerase.
Anal. Biochem. (1997) 249(1), 106-8.
30. **Orth, K.** & Dixit, V.M. Bik and Bak induce apoptosis downstream of CrmA but upstream of inhibitor of apoptosis.
J. Biol. Chem. (1997) 272(14), 8841-4.
31. Talanian, R.V., Yang, X., Turbov, J., Seth, P., Ghayur, T., Casiano, C.A., **Orth, K.**, & Froelich, C.J. Granule-mediated killing: pathways for granzyme B-initiated apoptosis.
J. Exper. Med. (1997) 186(8), 1323-31.
32. Zhou, Q., Snipas, S., **Orth, K.**, Muzio, M., Dixit, V.M., & Salvesen, G.S. Target protease specificity of the viral serpin CrmA. Analysis of five caspases.
J. Biol. Chem. (1997) 272(12), 7797-800.

33. Wen, L.P., Fahrni, J.A., Troie, S., Guan, J.L., **Orth, K.**, & Rosen, G.D. Cleavage of focal adhesion kinase by caspases during apoptosis.
J. Biol. Chem. (1997) 272(41), 26056-61.
34. Panvichian, R., **Orth, K.**, Day, M.L., Day, K.C., Pilat, M.J. & Pienta, K.J. Paclitaxel-associated multimicellination is permitted by the inhibition of caspase activation: a potential early step in drug resistance.
Cancer Res. (1998) 58, 4667-72.
35. Levkau, B., Koyama, H., Raines, E.W., Clurman, B.E., Herren, B., **Orth, K.**, Roberts, J.M., & Ross, R. Cleavage of p21Cip1/Waf1 and p27Kip1 Mediates Apoptosis in Endothelial Cells through Activation of Cdk2: Role of a Caspase Cascade.
Mol. Cell (1998) 1, 553-563.
36. Clayton L.K., Germain, Y., Mizoguchi E., Patch R.J., Ocain T.D., **Orth, K.**, Bhan A.K., Dixit V.M. & Reinherz, E.L., T-cell receptor ligation by peptide/MHC induces activation of a caspase in immature thymocytes: the molecular basis of negative selection.
EMBO J. (1998) 16, 2282-2293.
37. D'Amours, D.G.M., **Orth, K.**, Dixit V.M. & Poirier G.G., Proteolysis of poly(ADP-ribose) polymerase by caspase 3: kinetics of cleavage of mono(ADP-ribosyl)ated and DNA-bound substrates.
Radiat Res. (1998) 150, 3-10 .
38. **Orth, K.**, Palmer, L.P., Bao, Z.Q., Stewart, S., Rudolph, A., Bliska, J.B. & Dixon, J.E. A *Yersinia* Virulence Factor Inhibits Activation of the Mitogen Activated Protein Kinase Kinase Superfamily.
Science (1999) 285, 1920-1923.
39. Muda, M., Manning, E.R., **Orth, K.** & Dixon, J.E. Identification of the human YVH1 protein tyrosine phosphatase orthologue reveals a novel zinc binding domain essential for *in vivo* function.
J. Biol. Chem. (1999) 274, 23991-23995.
40. Panvichian, R., **Orth, K.**, Pilat, M. J., Day, M. L., Day, K. C., Yee, C., Kamradt, J.M. & Pienta, K. J. Signaling network of paclitaxel-induced apoptosis in the LnCap prostate cancer cell line.
Urology (1999) 54, 746-752.
41. **Orth, K.**, Xu, Z., Midgett, M.B., Bao, Z.Q., Mangel, W.F., Staskawicz, B. & Dixon, J.E. *Yersinia* effector YopJ is a Ubiquitin-like protein protease that disrupts signaling.
Science (2000) 290, 1594-1597.
42. Juris, S.J., Rudolph, A.E., Huddler, D., **Orth, K.** & Dixon, J.E. A novel role for the *Yersinia* protein kinase: actin binding, kinase activation and cytoskeleton disruption.
PNAS USA (2000) 97, 9431-9436.
43. Abe, N.K., Kahle, K.T., Saelzler, M.P., **Orth, K.**, Dixon, J.E., & Rosner, M.R. ERK7 is an Autoactivated member of the MAPK Family.
J. Biol. Chem. (2001) 276, 21272-21279.
44. Collier-Hyams, L., Zeng, H., Sun, J., Tomlinson, A., Bao, Z. Q., Chen. H., Madara, J.L., **Orth, K.**, Neish, A.S. *Salmonella* AvrA effector acts as a mammalian avirulence factor.
J of Immunol. (2002) 169, 2846-2850.
45. Heussler, V.T., Rottenberg, S., Schwab. R., Küenzi, P., Fernandez, P.C, McKellar, S., Shiels, B., Chen, Z.J., **Orth, K.**, Wallach, D., Dobbelaere, D. A. E. Hijacking of the IKK signalosome by the transforming parasite *Theileria*.
Science (2002) 298, 1033-1036..
46. Yoon, S., Lui, Z., Eyobo, Y. & **Orth, K.** *Yersinia* Effector YopJ Inhibits Yeast MAPK signaling pathways by an evolutionarily conserved mechanism.
J. Biol. Chem. (2003) 278, 131-2135.

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)
Molecular Micro. (2003) 50, 377-389.
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.
Biochemical J. (2006) 398, 521-529.
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.
Microbiology (2006) 152 :2809-18.
52. Chosed, R., Tomchick, D.R, Brautigam, C.A., Machius, M. & **Orth, K.** Structural analysis of *Xanthomonas* XopD provides insights into substrate specificity of Ulp1s.
J. Biol. Chem. (2007) 282:6773-6782.
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PNAS USA (2007) 104: 17117-17122.
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.
J. Biol. Chem. (2007) 282: 34299-34305.
55. Hao, Y-H., Wang, Y. Burdette, D., Mukherjee, S. Kietany, G., Goldsmith, E. & **Orth, K.** Structural requirements for *Yersinia* YopJ inhibition of MAP Kinase pathways.
PLoS ONE (2008) 1: 1-9 e1375.
56. Mukherjee, S., Negi, V.S., Kietany, Tanaka, Y., & **Orth, K.** *In Vitro* Activation of the IKK complex by HTLV-1 Tax.
J. Biol. Chem. (2008) 283: 15127-33.
57. Burdette, D., Yarbrough, M., Orvedahl, A., Gilpin, C. & **Orth, K.** *Vibrio parahaemolyticus* orchestrates a multifaceted host cell infection by induction of autophagy, cell rounding and then cell lyses.
PNAS USA (2008) 105: 12497-12502.
58. Laskowski-Arce, M.A. and **Orth, K.** A molecular conversation between a protozoan predator and a food-borne bacterial pathogen.
Applied and Environmental Microbiology (2008) 74: 7183-7188.
59. Burdette, D., Yarbrough, M. & **Orth, K.** Not without cause: *Vibrio parahaemolyticus* induces acute autophagy and cell death.
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60. Yarbrough, M., Li, Y., Kinch, L.N., Grishin, N.V., Hall B.E., & **Orth, K.** AMPylation of Rho GTPases by *Vibrio* VopS disrupts effector binding and downstream signaling.
Science (2009) 323: 269-272. (Epub, Nov. 2008).
61. Kinch, L.N., Yarbrough, M., **Orth, K.**, & Grishin, N.V. Fido, a novel AMPylation domain common to fic, doc and AvrB.
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63. Burdette, D., Seemann, J. & **Orth, K**. *Vibrio* VopQ Induces PI3-Kinase Independent Autophagy and Antagonizes Phagocytosis.
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64. Luong, P., Kinch, L.N., Brautigam, C.A., Grishin, N.V., Tomchick, D.R. & **Orth, K**. VopS Fic Domain uses direct transfer mechanism for AMPylation.
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PNAS USA (2011) 108(28):11614-9 Highlighted in *Nature* and *Nature Reviews Microbiology*
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J Biol Chem. (2011) Nov 11;286(45):38939-47.
71. Krachler, A-M, Ham, H. & **Orth, K**. Turnabout is fair play: Use of the bacterial Multivalent Adhesion Molecule 7 as an antimicrobial agent.
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75. Salomon, D., Gonzalez, H., Updegraff, B.L. & **Orth, K**. *Vibrio parahaemolyticus* Type VI Secretion System 1 is Activated in Marine Conditions to Target Bacteria, and is Differentially Regulated from System 2.
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My winding trail while fulfilling my love for science and family.

J Biol Chem. pii: jbc.AW118.003225. doi: 10.1074/jbc.AW118.003225.

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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

Current Research Support

I-1561 (Orth, Kim-PI)

6/01/06 - 5/31/24

Welch Foundation

Bile Salts as Agonist/Antagonist for *Vibrio* Receptor VtrA/C

1 R35 GM134945-01 (Orth, Kim-PI) (NCE)

2/1/20 - 1/31/25

NIH/GM

Biochemistry, biology and diversity of Fic domains

Invited Presentations: (distinguished invited lectures)

2025

Sept

Department of Microbiology, LSU

Sept

St Jude Children Research Hospital

July

ETOX, Spain

June

Broad Institute, Boston Ma.

June

EMBL Symposium, Infection: pathogens, hosts, and microbiomes

May

Baylor College of Medicine, Houston, Tx Student Invite

May

UCSF, San Francisco, Ca

April

HHMI, EPI

April

Carnegie Mellon, Pittsburg, Pa

April		ASMBM, Speaker Chicago, IL
April		Molecular Biology 30 th Anniversary
March		Department of Microbiology, NYU
March		Institute for Macromolecular Assemblies, CUNY
March		Department of Microbiology, University of Chicago
Jan		Department of Microbiology and Molecular Genetics, Harvard Medical School
2024		
Dec		UT Austin, Molecular Biosciences, Austin Tx
Oct		2024 Vibrio Meeting, Lima Peru
Oct	Virtual	ASM Distinguished Lecture, El Paso, Tx ASM Branch
Oct		2024 Lakeside Conference on Protein Toxins and Effectors, Lake Geneva, Wi.
Sept		UT Southwestern, Physiology Seminar, Dallas Tx
Sept		Midwest Microbial Pathogenesis Conference, Bloomington, Indiana
Sept		Brubaker Lecture, Michigan State Univ., Lansing Michigan
Aug		The Scripps Research Institute, San Diego, Ca.
July		GRC Toxins & Microbial Pathogenesis
May		Umeå Center for Microbial Research, Umeå, Sweden
March		Presidents Research Council, UTSWMC
March		STORIES: Career talk; UT Southwestern Graduate School
Feb		UT Health San Antonio, Dept of Biochemistry and Structural Biology
2023		
Dec		HHMI Annual Meeting, Speaker, HHMI Chevy Chase Headquarters
Oct		2023 INBRE undergraduate Research Conference, Univ Arkansas
Oct		Texas Woman's University, Undergraduate Faculty Visit
Sept		CSHL, Microbial Pathogenesis & Host Response
July-Aug		Univ. Witwatersrand Johannesburg; AHRI, Durban; Univ. Cape Town, South Africa
July		FASEB, Microbial Pathogenesis: Mechanisms of Infectious Disease
June		EMBL Symposium, New approaches and concepts in microbiology
May		ASM Distinguished Lecture, El Paso, Tx ASM Branch
May		UCSF Biomedical Sciences Seminar Series
May		UC Santa Cruz, Chemistry and Biochemistry Seminar Series
April		ASM Distinguished Lecture, Eastern Pennsylvania Branch ASM Branch
March		33 rd Annual USF Health Research Day, Keynote, USF
Feb	Virtual	ASM Distinguished Lecture, Northeast ASM Branch
2022		
Dec		University Medical Center Hamburg-Eppendorf, Hamburg, Germany
Nov		Brigham Young University
Nov		University of Utah
Oct		ASM Distinguished Lecture, East Tennessee State University ASM Branch
July		EMBL Symposium, Innate immunity in host-pathogen interactions
July		GRC Toxins & Microbial Pathogenesis GRC
June		STARS 2022 Summer Research Program, UTSWMC
June	Virtual	ASM Distinguished Lecture, Puerto Rico Society of Microbiologists ASM Branch
May		Medical Student Training Program, UT Southwestern Medical Center
April	Virtual	Annual Sarkar Lecture, University of Toronto
March		ASM Distinguished Lecture, Arizona-Southern Nevada ASM Branch
March	Virtual	Ragon Institute of MGH, MIT, and Harvard
March	Virtual	ASM Distinguished Lecture, Missouri Valley ASM Branch
March	Virtual	ASM Distinguished Lecture, Michigan ASM Branch
Feb	Virtual	Proteostasis Consortium Webinar
Jan	Virtual	University of Florida Gainesville
2021		
Sept	Virtual	Virginia Tech. Virginia
July	Virtual	FASEB Pathogenesis, Chair
June	Virtual	EMBL Symposium, New Approaches/Concepts in Microbiology, Section Chair
June	Virtual	World Microbe Forum

June	Virtual	ETOX Workshop, Dortmund, Germany
Jan	Virtual	Bacteriology Course, Johns Hopkin University
Jan	Virtual	WALS NIH Directors Lecture
Jan	Virtual	NIH Lambda Lunch
2016-2020		
Oct	Virtual	University of Rhode Island, Micro Undergrad Researchers
Oct	Virtual	Harvard School of Public Health
Oct	Virtual	University of Pennsylvania, Department of Microbiology
Sept	Virtual	University of Arizona, Dept. Immunobiology
Sept	Virtual	Indiana University School of Medicine, Department of Biochem & Mol Biology
May	Delayed	St. Judes Children's Research Hospital
March	Delayed	MPIB Distinguished Lecture Series, Max-Planck-Institute, Martinsried, Germany
Jan		Kendrick Memorial Speaker, The Ohio State University
Jan 2020		Frisco High School, AP Biology Symposium
Dec		HHMI Annual Meeting, Speaker, HHMI Chevy Chase Headquarters
Nov		Vibrio 2019, Montreal Canada
Nov		Duke University, Department of Biochemistry
Oct		MCD Biology, University of Colorado Boulder
Oct		Woody Lecture, Colorado State University
Sept		Molecular Pathogenesis and Host Response, Cold Spring Harbor Laboratories
Sept		Department of Biochemistry, Boston University,
Sept		Medical Student Training Program, UT Southwestern Medical Center
Jun,		Boston Chemical Society, Boston Ma.
May		MRC Centre for Molecular Bacteriology and Infection, Imperial College London
May		MRC Laboratory of Molecular Biology, Cambridge
May		Frontiers Seminar, Stanford University
March		Nirit and Michael Shaoul Fellow, Israel
March		Tel Aviv University, Weizmann Institute, Hebrew University
March		6 th International Symposium, SFB 766, Tübingen, Germany
Feb		Department of Cell Biology, UTSWMC
Jan 2019		Department of Microbiology, University of Michigan
Dec		Department of Microbiology, UT Southwestern Medical Center
Nov		Department of Molecular Biology, Princeton
Oct		Medical Student Training Program retreat Univ of Denver, Snowmass, Co.
Sept		FASEB, Arf and Rab family of G proteins, Washington DC
Sept		Toxins and Parasites, Freiburg University
July		Keynote, 2018 Toxins & Microbial Pathogenesis GRC, Waterville Valley
June		STARS 2018 Summer Research Program, UTSWMC
May		Department of Microbiology, Institute Pasteur, France
May		NOX signaling, GRC, Geneva
May		Department of Microbiology and Immunology, University of Miami
April 2018		Merck Award & ASBMB Spotlight Session, Chair, San Diego
Dec		Department of Biology, University of Iowa
Nov		Vibrio2017: The Biology of Vibrios, Chicago, IL
Nov		HHMI Annual Meeting, Speaker, HHMI Chevy Chase Headquarters
Oct		Department of Biochemistry, University of Kentucky
Aug		ASBMB, Spotlight Session, Speaker, Chicago, IL
July		FASEB Microbial Pathogenesis, Snowmass, Co.
June		Lambda Seminar, NIH
March		Keynote, Bay Area Annual Microbial Pathogenesis Meeting, UCSF
March		Dept. of Microbiology and Molecular Genetics, UT Health Science Center
Feb		Department of Molecular and Cellular Biology, Indiana University
Jan, 2017		Department of Microbiology, Northwestern University
Nov		Department of Biochemistry, UTSWMC
Oct		Medical Student Training Program, UT Southwestern Medical Center
Sept		FASEB, Arf and Rab family of G proteins, West Palm Beach, FL

Sept	Department of Molecular Medicine, Cornell University
Aug	2012 Salk Meeting on Post-translational Regulation of Cell Signaling, Salk Institute
June	American Society for Microbiology, Elected to the American Academy of Micro
May	Department of Microbiology, NYU
April	24 th Texas Protein Folders and Function Meeting, Cleveland, TX
March	Department of Biochemistry and Molecular Biophysics, Columbia University
March	Department of Biophysics, CUNY
Feb	Department of Microbiology and Molecular Genetics, University of Pittsburg
Jan 2016	U.S. – Japan Panel on Cholera and Other Bacterial Enteric Infections, NIH NIAID
2011-2015	
Dec	Department of Biochemistry, University of Minnesota
Nov	Department of Biology, College of Wooster
Oct	Department of Biochemistry, University of Michigan
Sept	Microbial Pathogenesis & Host Response, Cold Spring Harbor
July	GRC, Stress Proteins in Growth, Development & Disease
May	Department of Biochem and Molecular Biology, of Texas Medical Branch
April	Janelia Farms, HHMI
April	Department of Microbiology, UTSWMC
March	Department of Molecular Biology & Microbiology, Tufts University
March	Spring Symposium, Harvard Digestive Diseases Center
Feb	Department of Microbiology and Immunology, UCSF
Feb,	Novartis, San Francisco, CA
Jan 2015	Frontiers in Biochemistry, Vanderbilt University
Dec	Mini-symposium Co-Chair, ASCB 2014, Philadelphia, PA
Nov	<i>Women in Science Seminar Series, WISMAC</i>
Nov	Department of Biological Sciences, UCSD
Oct	Department of Molecular Microbiology, Washington University
Sept	McKetta Department of Chemical Engineering, The University of Texas at Austin
May	Department of Cellular & Molecular Biology, University of Nevada
April	Annual Meeting Theme Organizer- Signal transduction, ASBMB 2014 San Diego,
March	Department of Microbiology, University of Pennsylvania
Feb	Department of Bioch and Molecular Biology, Virginia Commonwealth University
Feb	Paul G. Allen School for Global Animal Health, Washington State University
Jan	Institute of Microbiology and Infection, University of Birmingham, United Kingdom
Jan 2014	Institute for Molecular Infection Biology, University of Wurzburg, Germany
Nov	Bacterial Infection and Host Defense, Cold Spring Harbor Asia, Suzhou, China
Oct	<i>2013 President's Lecture Series, UTSWMC</i>
Sept	Texas FreshAIR, Austin, Tx
July	FASEB, Arf and Rab family of G proteins, Snowmass CO
July	ETOX16, Freiburg, Germany
June	Celebrating Science with Jack Dixon, HHMI Conference Center in Chevy Chase
May	Scripps Lecture, The Scripps Research Institute, Scripps Florida
May	Medical Student Training Program, UTSWMC
April	PULSe Seminar Series, Purdue University, PULSe Graduate Student Org
April	Department of Pharm and Cancer Biology, Duke University School of Medicine
March	Hockaday's 11 th Biennial Career Day, Hockaday School of Dallas
Feb	<i>2013 BECUR Conference, University of Arizona</i>
Feb	Molecular Biology Seminar Series, UCLA
Jan 2013	Dept. of Biology, Texas Woman's University
Nov	Dept. of Veterinary Pathobiology, Texas A&M University
Oct	<i>Osborn Lectureship, Celebrating Woman in Science, Univ of Conn Health Center</i>
Sept	Keynote Lecture at Annual Retreat, Department of Genetics, Stanford
Aug	2012 Salk Meeting on Post-translational Regulation of Cell Signaling, Salk
July	2012 Gordon Research Conference, Enz, Coenzy and Metabolic Pathways
June	American Society for Microbiology, 112 th General Meeting. San Francisco,
May	Seoul National University, Seoul, Korea

May	Microbiological Society of Korea; Plenary Speaker, Seoul, Korea
April	ASBMB 2012 Young Investigator Award Lecture, San Diego, California
March	University Lecture Series, UT Southwestern Medical Center
March	Ann Stuart & Ray R. Poliakoff Annual TWU Celebration of Science; Women in Science,
Feb	Science Café for UTSW Sigma Xi chapter, UTSWMC
Feb 2012	UTSW Graduate Recruits, Biochemistry Program, UTSWMC
Dec	Microbiology Doctoral Training Program Seminar Series, University of Wisconsin
Oct	Distinguished Seminar Series, University of Louisville, Kentucky
Oct	Welch Conference: From Molecules to Medicine, Houston, Texas
Sept	Pediatric Infectious Disease, UT Southwestern Medical Center
Sept	Molecular Pathogenesis and Host Response, Cold Spring Harbor Laboratories
June	FASEB, Regulation and Function of Small GTPases, River, Vermont
April	Dept. of Molecular & Cell Biology, University of California, Berkeley
April	8 th Annual MSI Symposium, Harvard University
April	Hockaday's 10 th Biennial Career Day, Hockaday School of Dallas
March 2011	Dept. Micro and Immuno, Galveston National Laboratory, UT Medical Branch
<u>2006-2010</u>	
Dec	18 th Meeting of Toxinology of the French Society of Toxinology (SFET), , France
Nov	Presidents Research Council, UTSWMC
Nov	Chemical and Structural Biology Seminar Series, Rockefeller University
Oct,	Department of Microbiology, University of Colorado School of Medicine
Oct	Department of Microbiology, University of Chicago
May	2010 Graduate Student SCR Symposium, University of Colorado at Boulder
May	Department of Physiology, UTSWMC
April	Department Biochemistry, University of Washington
March	Department of Cell Biology, UTSWMC
March	Department of Microbiology, University of Georgia
Feb	Department of Biology, University of Brandeis
Jan 2010	Dept of Cellular & Mol Medicine, Ludwig Cancer Inst Seminar Series, UCSD
Dec	Cold Spring Harbor Laboratory, CSH, NY
Nov	Department of Pharmacology, UTSWMC
Nov	Division of Infectious Diseases, Harvard Medical School
Oct	44 th US-Japan Conference on Cholera & Other Bacterial Enteric Infections, San Diego
Oct	Department of Microbiology, University of Pennsylvania
Oct	GI Grand Rounds, UT Southwestern Medical Center
Sept	Medical Student Training Program, UTSWMC
Sept	Conf on Antimicrobial Agents and Chemotherapy, 49 th Annual Meeting in SF
April	Department of Microbiology, University of Virginia
April	2009 Annual Symposium, Burnham Institute for Medical Research
April	Hockaday's 9 th Biennial Career Day, Hockaday School of Dallas
Feb	Department of Cell Biology, Washington University
Jan, 2009	Departments of Chemistry/Biochemistry & Pharmacology, UCSD
Dec	Department of Biochemistry and Biophysics, Texas A&M University
Oct	Department of Microbiology and Immunology, LSU Health Sciences Center
Sept	EMBO, Cell Biology and Cellular Microbiology, Lillars-sur Ollons, Switzerland
Sept	Medical Student Training Program, UT Southwestern Medical Center
Aug	Center for Immun and MicroDisease, Distinguished Speaker, Albany Medical College
July	2008, Enzymes, Coenzymes and Metabolic Pathways
July	2008 GRC, Microbial Toxins & Pathogenicity
June	Van Andel Research Institute, Grand Rapids, Michigan
May	Department of Microbiology and Molecular Genetics, NYU
May	Guest Lecturer: Advanced Topics in Microbial Pathogenesis, NYU
May	Dept of Micro and Mol Genetics, Graduate students at UT Health Science Center
April	ASBMB, 2008 Annual Meeting in San Diego
March 2008	Dept of Micro, Graduate students at UT Health Science Center in San Antonio
Dec	Co Chair Minisymposium for ASCB, 47 th Annual Meeting in Washington DC

Nov	Department of Microbiology, Dartmouth Medical School
Nov	Department of Molecular Biological, University of North Texas
Nov	Department of Biological Sciences, Southern Methodist University,
Oct	Department of Infectious Diseases & Microbial Pathogenesis, Yale University
May	FASEB, Histone Deacetylases, Snowmass Village, Colorado
May	ASM, Session Chair and Speaker, Toronto, Canada
Feb	Microbial Pathogenesis Journal Club/Research Talk Series,
Feb	Unité des Interactions Bactéries-Cellules, Pasteur, France
Jan 2007	Microbial Pathogenesis Seminar Series, UCSF
Nov	Department of Molecular Biology, UTSWMC
Nov	Department of Microbiology and Molecular Genetics, Harvard Medical School
Oct	Microbiology and Immunology Seminar Series, Stanford University
Sept	Department of Biochemistry, UTSWMC
Sept	TransKingdom Innate Immunity Workshop, Asilomar Conference Grounds
Sept	Department of Biochemistry, University of North Carolina
Sept	Department of Pharmacology, Duke University
Aug	Beckman Foundation, Beckman Center, Orange County, California
July	2006 GRC, Proteolytic Enzymes and Their Inhibitors
June	2006 GRC, Phosphorylation and G protein signaling networks
May	American Society for Microbiology, 106th General Meeting. Orlando, Fl.
Feb 2006	3rd International Conf. on Ub, Ub-like Proteins, and Cancer, MD Anderson
<u>2000-2005</u>	
Nov	Department of Molecular Microbiology, UTSWMC
July 2005	FASEB Summer Research Conf., Protein Kinases and Protein Phosphorylation
Dec	Cancer Center, UCSD
De,	MBI Thursday Seminar Series, Molecular Biology Institute, UCLA
July	2004 GRC, Proteolytic Enzymes and Their Inhibitors
April	George Lynn Cross Distinguished Lecture Series for Micro and Botany, Univ of OK
Feb	Department of Path and Laboratory Medicine, Emory Univ School of Medicine
Feb 2004	2nd International Conf. on Ub, Ub-like Proteins and Cancer, MD Anderson
Dec	Division of Biochemistry and Molecular Biology, UNT Health Science Center
Nov 2003	Autoimmunity Branch, NIAMS, NIH Bethesda MD
Sept 2002	Portoroz Conference on Cysteine Proteinases and Their Inhibitor, Slovenia
June	2001 GRC, Second Messengers and Protein Phosphorylation
May	Department of Molecular Biology and Oncology, UTSWMC
May	Biology of Proteolysis, Cold Spring Harbor Laboratories
April 2001	Mech of Pathogenesis in Plant and Animal Diseases, The Banbury Center, CSH
Nov	Swiss Society of Tropical Medicine and Parasitology, , Switzerland
Nov	University of Berne, Institute for Molecular Pathology, Switzerland
Nov	Institute of Human Genetics, Aarhus University, Denmark
Jan 2000	Biology Department, Brookhaven National Laboratory
<u>1990s</u>	
Sept 1999	Microbial Pathogenesis & Host Response, Cold Spring Harbor Laboratories
June 1999	Department of Pharmacology, UT Southwestern Medical Center
May 1999	Tyrosine Phosphorylation & Cell Signaling, Cold Spring Harbor Laboratories
June 1994	Molecular Genetics of Cancer, LIX CSH Symposium on Quantitative Biology,
March 1994	Texas Triangle Meeting, Simmons Cancer Center, UTSW Medical Center
Sept 1993	Molecular and Cellular Biology of Plasminogen Activators, CSH Laboratories
June 1992	Eleventh International Congress on Fibrinolysis, Copenhagen, Denmark