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Education:

1982: Ph.D., Kansas State University

Academic Appointments:

Awards and Honors:

National Institute of Health (NIAID) Merit Award

Fellow, American Academy of Microbiology

President's Associates Presidential Professor, University of Oklahoma Health Sciences Center

Endowed Professor, University of Oklahoma Health Sciences Center

Research Support:

Selected Publications:

1. Czajkowsky, D. M., E. M. Hotze, Z. Shao, and **R. K. Tweten**. 2004. [Vertical collapse of a cytolysin prepore moves its transmembrane \$\beta\$ -hairpins to the membrane](#). EMBO J 23:3206-3215.
2. Giddings, K. S., J. Zhao, P. J. Sims, and **R. K. Tweten**. 2004. [Human CD59 is a receptor for the cholesterol-dependent cytolysin intermedilysin](#). Nat Struct Mol Biol 11:1173-1178.
3. Ramachandran, R., **R. K. Tweten**, and A. E. Johnson. 2004. [Membrane-dependent conformational changes initiate cholesterol-dependent cytolysin oligomerization and intersubunit \$\beta\$ -strand alignment](#). Nat Struct Mol Biol 11:697-705.
4. Polekhina, G., K. S. Giddings, **R. K. Tweten**, and M. W. Parker. 2005. [Insights into the action of the superfamily of cholesterol-dependent cytolysins from studies of intermedilysin](#). Proc Natl Acad Sci 102:600-605.
5. Ramachandran, R., **R. K. Tweten**, and A. E. Johnson. 2005. [The domains of a cholesterol-dependent cytolysin undergo a major FRET-detected rearrangement during pore formation](#). Proc Natl Acad Sci 102:7139-7144.
6. Schuerch, D. W., E. M. Wilson-Kubalek, and **R. K. Tweten**. 2005. [Molecular basis of Listeriolysin O pH-dependence](#). Proc Natl Acad Sci 102:12537-12542

7. Soltani, C. E., E. M. Hotze, A. E. Johnson, and **R. K. Tweten**. 2007. [Structural elements of the cholesterol-dependent cytolysins that are responsible for their cholesterol-sensitive membrane interactions](#). Proc Natl Acad Sci U S A 104:20226-20231.
8. LaChapelle, S., **R. K. Tweten**, and E. M. Hotze. 2009. [Intermedilysin-receptor interactions during assembly of the pore complex: assembly intermediates increase host cell susceptibility to complement-mediated lysis](#). J Biol Chem 284:12719-12726.
9. Farrand, A. J., S. LaChapelle, E. M. Hotze, A. E. Johnson, and **R. K. Tweten**. 2010. [Only two amino acids are essential for cytolysin recognition of cholesterol at the membrane surface](#). Proc Natl Acad Sci U S A 107:4341-4346.
10. Wickham, S. E., E. M. Hotze, A. J. Farrand, G. Polekhina, T. L. Nero, S. Tomlinson, M. W. Parker, and **R. K. Tweten**. 2011. [Mapping the intermedilysin-human CD59 receptor interface reveals a deep correspondence with the binding site on CD59 for complement binding proteins C8alpha and C9](#). J Biol Chem 286:20952-20962.
11. Dowd, K. J., A. J. Farrand, and **R. K. Tweten**. 2012. [The cholesterol-dependent cytolysin signature motif: a critical element in the allosteric pathway that couples membrane binding to pore assembly](#). PLoS Pathog 8:e1002787.
12. Dunstone, M. A., and **R. K. Tweten**. 2012. [Packing a punch: the mechanism of pore formation by cholesterol dependent cytolysins and membrane attack complex/perforin-like proteins](#). Curr Opin Struct Biol 22:342-349.
13. Hotze, E. M., E. Wilson-Kubalek, A. J. Farrand, L. Bentsen, M. W. Parker, A. E. Johnson, and **R. K. Tweten**. 2012. [Monomer-monomer interactions propagate structural transitions necessary for pore formation by the cholesterol-dependent cytolysins](#). J Biol Chem 287:24534-24543.
14. Wade KR, Hotze EM, Briles DE, **Tweten RK**. 2014. [Mouse, but not human, ApoB-100 lipoprotein cholesterol is a potent innate inhibitor of *Streptococcus pneumoniae* pneumolysin](#). PLoS Pathog 10:e1004353.
15. Farrand AJ, Hotze EM, Sato TK, Wade KR, Wimley WC, Johnson AE, **Tweten RK**. 2015. [The cholesterol-dependent cytolysin membrane-binding interface discriminates lipid environments of cholesterol to support beta-barrel pore Insertion](#). J Biol Chem **290**:17733-17744.
16. Lukyanova N, Kondos SC, Farabella I, Law RH, Reboul CF, Caradoc-Davies TT, Spicer BA, Kleifeld O, Traore DA, Ekkel SM, Voskoboinik I, Trapani JA, Hatfaludi T, Oliver K, Hotze EM, **Tweten RK**, Whisstock JC, Topf M, Saibil HR, Dunstone MA. 2015. [Conformational changes during pore formation by the perforin-related protein pleurotolysin](#). PLoS Biol 13:e1002049.
17. Wade KR, Hotze EM, Kuiper MJ, Morton CJ, Parker MW, **Tweten RK**. 2015. [An intermolecular electrostatic interaction controls the prepore-to-pore transition in a cholesterol-dependent cytolysin](#). Proc Natl Acad Sci U S A 112:2204-2209.
18. Lawrence SL, Gorman MA, Feil SC, Mulhern TD, Kuiper MJ, Ratner AJ, **Tweten RK**, Morton CJ, Parker MW. 2016. [Structural Basis for Receptor Recognition by the Human CD59-Responsive Cholesterol-Dependent Cytolysins](#). Structure 24:1488-98.
19. Christie MP, Johnstone BA, **Tweten RK**, Parker MW, Morton CJ. 2018. [Cholesterol-dependent cytolysins: from water-soluble state to membrane pore](#). Biophys Rev 10:1337-1348.
20. Wade KR, Lawrence SL, Farrand AJ, Hotze EM, Kuiper MJ, Gorman MA, Christie MP, Panjekar S, Morton CJ, Parker MW, **Tweten RK**. 2019. [The structural basis for a transition state that regulates pore formation in a bacterial toxin](#). mBio 10:e00538-19.
21. Burns, JR, Morton, CJ, Parker, MW and **Tweten, RK**. 2019. An intermolecular π -stacking interaction drives conformational changes necessary to β -barrel formation in a pore-forming toxin. mBio, *in press*.