



## TECHNOLOGY

# TLR Inhibitors for Treatment of Influenza, Cancer, Allergy, Inflammation and Prevention of Endotoxic Shock

## OVERVIEW

The Toll-like receptors (TLRs) play a vital role in eradicating pathogenic microbial infections, eliminating necrotic host cells and enhancing tissue repair in the host. On the flip side, chronic TLR activation leads to inflammatory disease and “systemic” activation of TLRs may lead to death.

All TLRs have a Toll-IL-1 receptor (TIR) domain that initiates the signaling cascade through TIR adaptors such as TRAM, TRIF, TIRAP and MyD88. UMB inventors have developed “decoy peptides” that disrupt TLR signaling assembly or activation by targeting specific domains/adaptors. The strategy employs cell-penetrating **decoy peptides**, as described in Toshchakov and Vogel (*Expert Opin Biol Ther* 2007 Jul; 7(7):1035-50). These inhibitors have the potential to modulate or down regulate the effect of TLR activation. Thus, they are useful in characterization of TLR signaling pathways, and may hold promise in therapeutic treatment of influenza, several cancers, allergy, and inflammation and in preventing endotoxic shock. One of the peptides has been shown to improve survival of influenza infected mice.

Peptide inhibitors against TLR2 and TLR4 receptors are available for licensing.

Selected publications:

Cell Rep. 2015 Jun 30;11(12):1941-52. doi: 10.1016/j.celrep.2015.05.035. Epub 2015 Jun 18.

J Immunol. 2013 Mar 1;190(5):2263-72. doi: 10.4049/jimmunol.1202703. Epub 2013 Jan 23.

J Biol Chem. 2012 Jul 13;287(29):24641-8. doi: 10.1074/jbc.M112.360925. Epub 2012 May 30.

J Immunol. 2011 Apr 15;186(8):4819-27. doi: 10.4049/jimmunol.1002424. Epub 2011 Mar 14

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## **Additional Information**

### **INSTITUTION**

University of Maryland, Baltimore

### **PATENT STATUS**

U.S Patent 8,940,703, issued January 27, 2015

### **LICENSE STATUS**

Available for licensing

### **CATEGORIES**

- Research Tools, Antibodies, & Reagents
- Platforms
- Therapeutics
- Biologics

### **INVESTIGATOR(S)**

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