Novel infection fighter

June 15 2018

Hospital-acquired infections are a serious threat to patient lives, especially with the rise of antibiotic-resistant bacteria. One drug that may prove helpful in the fight against these infections is monophosphoryl Lipid A (MPLA).

MPLA stimulates the immune system to help fight off invaders like bacteria or fungi. It is already used clinically to help make vaccines more effective, but little is known about how it works.

Reporting recently in the *Journal of Immunology*, Edward Sherwood, MD, PhD, Julia Bohannon, PhD, and colleagues showed in a mouse model that MPLA protects against bacterial and fungal infections by altering the metabolism of immune cells called macrophages.

These alterations allow macrophages to produce more energy in the form of ATP, which fuels their ability to respond to and "eat" more pathogens, thus clearing the infection rapidly and effectively. MPLA accomplishes this in part by increasing activation of the metabolic signaling protein mTOR in macrophages.

This study indicates that MPLA may be a powerful new tool for fighting antibiotic-resistant infections.

More information: Benjamin A. Fensterheim et al. The TLR4 Agonist Monophosphoryl Lipid A Drives Broad Resistance to Infection via Dynamic Reprogramming of Macrophage Metabolism, *The Journal of Immunology* (2018). DOI: 10.4049/jimmunol.1800085

Provided by Vanderbilt University