Bacterial resistance has become a major public health problem. In recent years, there have been frequent publications regarding the “super bugs” or multidrug resistant bacteria, while there has been little increase in the development of new antibiotics. Naturally occurring peptides and proteins make good potential starting points for the design and synthesis of biologically active peptidomimetics. By applying the protein epitope mimetic (PEM) approach, molecules based upon a series of b-hairpin-shaped host defense peptides, such as protegrin I (PG-1), were synthesized and screened for antibacterial activity. The OMPTAs (outer membrane protein targeting antibiotics) are a new class of antibiotics being developed for the treatment of serious Gram-negative infections. Murepavadin represents the first member of the OMPTA, is pathogen specific and is in Phase 3 development for the treatment of HABP/VABP due to Pseudomonas aeruginosa. More recently, this approach has been expanded and now includes molecules with a broad-spectrum Gram negative activity. The discovery and activity of the OMPTA antibiotics will be discussed.

Recent publications:

- Antimicrobial Activity of Murepavadin Tested against Clinical Isolates of Pseudomonas aeruginosa from the United States, Europe, and China. Sader HS, Dale GE, Rhomberg PR, Flamm RK. Antimicrob Agents Chemother. 2018

Contact: P.VIOLLIER & P. LINDER