

Murepavadin - A novel antibiotic overcoming bacterial resistance and its challenging manufacture on large scale

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To fight the growing threat by resistant bacteria the development of new antibiotics with unprecedented mode of action represents a major goal for the pharmaceutical industry. Polyphor's Murepavadin is one of the most advanced and most promising candidates in this field. This late clinical stage drug is a member of the OMPTA class (outer membrane protein targeting antibiotic). It inhibits the outer membrane transporter protein LptD [1] of *Pseudomonas aeruginosa*.

The first part of the talk focuses on the discovery, chemical route scouting, Hit-to-Lead and Lead-to-Candidate development of Murepavadin (POL7080). This 14mer cyclic peptide was discovered and its medicinal chemistry optimization performed by Polyphor. The second part of the talk describes the initial scaling-up, process optimization and GMP manufacturing by Bachem. The currently ongoing Phase 3 study is supplied through the improved future commercial process enabling projected deliveries of >>100kg/y and matching the cost of goods constraints in the anti-infectives market. Emphasis of this part of the talk is on selected breakthrough process solutions.

[1] Srinivas et al., *Science*, **2010** Feb. 19; 327(5968)