

# RESEARCH PROJECT

 Institute  
Life Technologies

## Novel tools against catheter-biofilm: Head-to-sidechain peptidomimetics.

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**Description** The therapy of life-threatening infections significantly weakened by the global spread of antibiotic resistance has prompted a need for the development of novel, effective, and safe antibiotics. Novel antibacterial agents with unprecedented mechanisms of action, which are devoid of pre-existing cross-resistances, are therefore of the highest interest. Natural products from soil bacteria, have served as a very promising source of new structural leads in this area, in particular the cyclodipeptides (CDP). Naturally occurring CDP's, peptides that contain one or more ester bonds in addition to the amide bonds, belong to a class of biologically active compounds or promising lead structures for the development of novel synthetically derived drugs. CDP's are capable like natural peptides, to interact with numerous proteins and show a large panel of alternative activities (antitumor, anthelmintic, insecticidal, antibiotic, antifungal, immunosuppressant, anti-inflammatory and antimalarial). As an alternative to isolation and purification of the natural CDP's, which is seriously limited by low recovery, our laboratory optimized a versatile, compatible with a wide set of amino-acid derivatives, micro-wave assisted solid-phase approach to produce linear non-natural CDP precursors and tested for activity by MIC assays.

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