SYNTHESIS OF PENEM ANTIBIOTICS

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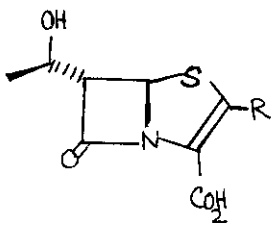
Penems are a novel class of β-lactam antibiotics possessing great activity against gram positive and gram negative organisms. They also possess activity against β-lactamases producing strains. Since the discovery of an orally active penem, SCH 29482, (1), in our laboratories, we have devised novel synthetic routes for the preparation of penems which allowed us to prepare (1) in large quantities required for clinical trial. These methodologies were also useful for the preparation of analogs of the general structure (2) required for determination of the structure-activity relationships in this important class of antibiotics. In this lecture a summary of the new synthetic routes for penems and their possible mechanisms will be presented. Microbiological activities of the penems also will be discussed.



(1) R = $-SCH_2CH_3$

(2) R = OTHER ORGANIC SUBSTITUTION