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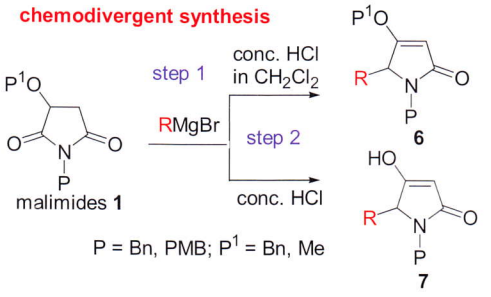
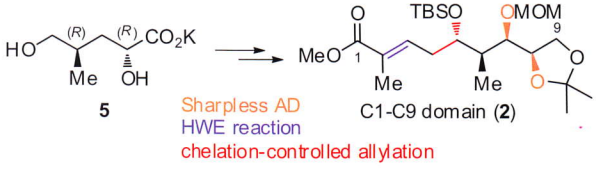
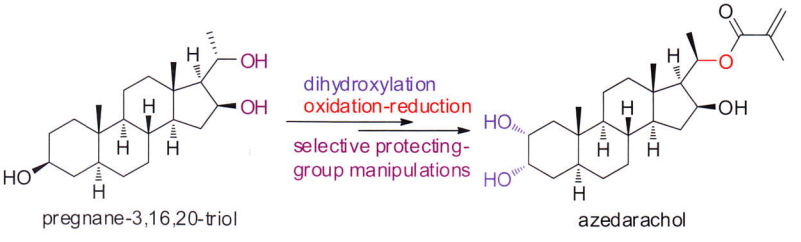
FULL PAPERS



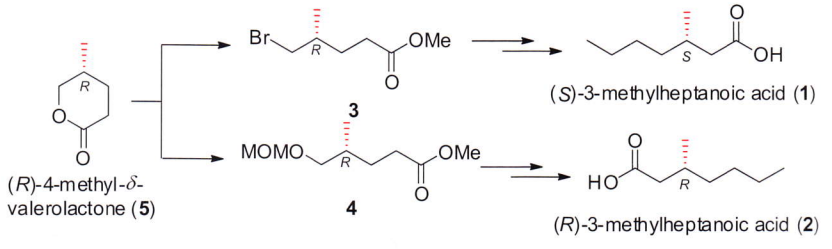
A versatile and divergent two-step transformation of malimides to racemic tetramates and tetramic acids is described. The method consists of Grignard reagent addition with malimides, and concentrated HCl-promoted chemoselective transformations of the latter.



Herein we describe a synthesis of C1—C9 domain **2** of the proposed structure of didemnaketal A, a natural product with important bioactivities, from potassium (2*R*,4*R*)-2,5-dihydroxy-4-methylpentanoate **5**. Sharpless asymmetric dihydroxylation introduced the chiral vicinal diol and chelation-controlled allylation established another chiral OH.



Described herein is a semisynthesis of azedarachol from pregnanetriol, which featured a symbiotic elimination/deprotection process, an oxidation/reduction procedure for reversing C20 configuration, and a dehydration-dihydroxylation process to introduce 2,3-*cis*-diol. This synthesis also discloses some interesting selectivities of 16,20-diol unit.



Both enantiomers of 3-methylheptanoic acid have been synthesized from chiral methyl molecules which were derived from (*R*)-4-methyl-δ-valerolactone (**5**). A wide variety of chiral 3-methyl alkanoic acids can also be synthesized by the methods described herein.

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