

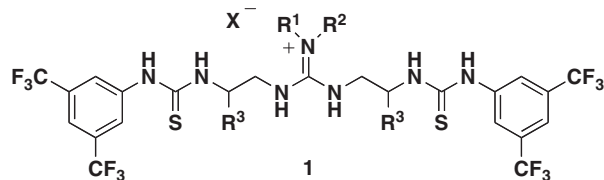
S39-2 Development of Enantiodivergent Catalysis

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We recently have developed organocatalyst **1** having guanidinium-thiourea functional groups connected with structurally flexible chiral spacer. These two functional groups of guanidine and thiourea were designed to activate nucleophiles and electrophile, respectively.

One of a derivative of **1** having long alkyl chain in R¹ catalyzed asymmetric nitroaldol reaction under the water-containing biphasic conditions. In this reaction, catalytic activity (reactivity and enantioselectivity) was controlled by the mode of self-organized assembly of **1** to form a chiral surfactant.¹ Besides, under the self-unassembled mode of conditions, **1** is expected to have a variety of conformations through the flipping of its flexible chiral spacer. In this paper, our efforts for the control of one of those multiple conformations of **1** depending upon the reaction conditions will be discussed as an example for the asymmetric Mannich-type reaction.



1) Y. Sohtome, N. Takemura, K. Takada, R. Takagi, T. Iguchi, K. Nagasawa, *Chem. Asian J.*, **2**, 1150 (2007).