MOL2NET, 2016, Vol. 2, 08; doi: 10.3390/mol2net-02-08011
http://sciforum.net/conference/mol2net-02/ufi-qosyc

UFI-QOSYC 1st Young Scientist Workshop

Organized by the Department of Organic Chemistry II

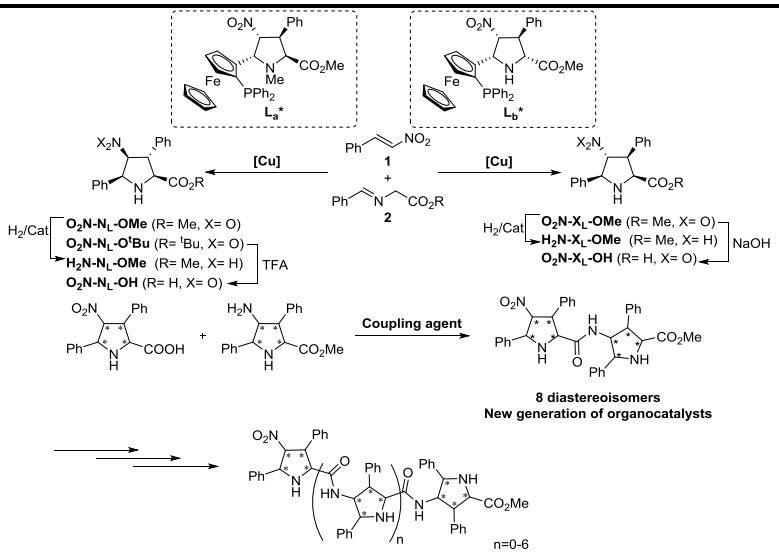
SciForum MOL2NET

Dimers derived from densely substituted unnatural prolines as precursors of γ-peptides and their use in organocatalysis

Maddalen Agirre, Mª de Gracia Retamosa, Andrea Ruiz-Olalla and Fernando P. Cossío*

Departamento de Química Orgánica I, Universidad del País Vasco-Euskal Herriko Unibertsitatea and Donostia International Physics Center (DIPC), Pº Manuel de Lardizabal 3, 20018 San Sebastián-Donostia, Spain
maddalen.agirre@ehu.es

The synthesis of novel hybrid ferrocenylpyrrolidine ligands $\mathbf{L_a}^*$ and $\mathbf{L_b}^*$ via [3+2] cycloadditions has been described by our group.[1] Both ligands in turn provided densely substituted unnatural L- and D- proline derivatives in a stereodivergent manner. The powerful feature of having nitro and ester groups gives the opportunity to orthogonally synthesize different γ-proline oligopeptides with different substitution patterns and chiral centers. Supported by the efficiency of Proline-based organocatalysts in numerous chemical transformations, our densely substituted pyrrolidine derivatives have been used in aldol reactions with good results.[1,2] In this communication, we present our results on the structure/activity relationship of the new generation of oligomeric catalysts. The main conclusion is that in the case of the γ-dipeptides, the stereochemistry of the aldol adducts depends on both monomeric units in a nearly additive manner.



1. Conde, E., Bello, D., de Cózar, A., Sánchez, M., Vázquez, M. A., Cossío, F. P., *Chem. Sci.* **2012**, *3*, 1486-1491.
2. Retamosa, M.G., de Cózar, A., Sánchez, M., Miranda, J.I., Sansano, J.M., Castelló, L.M., Nájera, C., Jiménez, A.I., Sayago, F.J., Cativiela, C., Cossío, F.P., *Chem. Sci.*, Submitted.