

Application for a:	Incoming Scheme NEWFELPRO Fellowship for experienced researcher
Proposal Acronym:	Biocat
Proposal Title:	Bioinspired asymmetric catalysis: backdoor induction of chirality using oxazoline based amino acid bioconjugates
Research area(s):	Chemistry CHE
Research sub-disciplines:	Supramolecular chemistry, Catalysis, Coordination chemistry
Category of research:	basic
Duration in months:	24
Keywords:	asymmetric catalysis, bioconjugates, backdoor induction, oxazoline, amino acids, asymmetric alkylation reactions, asymmetric cyclopropanation reactions
Abstract:	<p>This research proposal describes the development of artificial metalloenzyme mimics with a minimal but functional outer-coordination sphere. Bioconjugates of chiral amino acids with oxazoline based nitrogen ligands and their metal complexes with Cu(I) and Pd(II) will be synthesized from simple and inexpensive starting materials using organic, organometallic or inorganic synthetic methods and characterized by various physico-chemical methods. The metal complexes will be used as catalysts in asymmetric cyclopropanation and in asymmetric alkylation reactions.</p> <p>Within the proposed artificial catalysts, the metal centre dominates the chemical activity while the chiral amino acids of the outer-coordination sphere induce the selectivity by "backdoor induction" of chirality to the prochiral catalytic metal. The work proposed herein significantly extends the scope of chirality transmission by "backdoor induction" and narrows the gap between natural enzymes and their synthetic counterparts.</p>
Does this proposal possess any of the sensitive ethical issues detailed in ethical issues table?	No