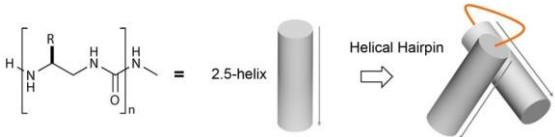


Aquitaine –Karnataka collaboration Scientific Project for Pre-PhD student exchange

Scientific Proposal

Project Title	Synthesis of artificial helical hairpin oligoureia foldamers	
Scientific domain	Organic & peptide chemistry	
Summary (ca. 10 lines)	<p>Significant progress has been made in designing synthetic oligomers with high propensity to fold into regular secondary structures. The elaboration of more sophisticated fully synthetic folded molecular architectures (i.e. tertiary and quaternary folds) resembling biopolymers in terms of size, shape and ideally function by connecting multiple individual folded segments remains a challenge. The aim of this project is to rationally design parallel or anti-parallel helical hairpins. The student will be involved in the synthesis of the target molecules and their structural characterisation in solution (NMR, CD-UV) and in the solid-state (XRD).</p> <div style="text-align: center;">  <p>The diagram illustrates the folding of a 2.5-helix (represented by a grey cylinder) into a Helical Hairpin structure (represented by two grey cylinders joined at one end by an orange hairpin loop).</p> </div>	
Student profile wished	Organic & peptide chemistry	
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Director Name Institute/laboratory/industry	Dr. Erick Dufourc / Dr. Gilles Guichard	
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Timing & duration for project	Up to 6 months	
Representative References	<p>[1] Guichard, G.; Huc, I. Synthetic foldamers. <i>Chem. Commun. (Camb)</i> 2011, 47, 5933-41 ; Fischer, L.; Guichard, G. Folding and self-assembly of aromatic and aliphatic urea oligomers: Towards connecting structure and function. <i>Org. Biomol. Chem.</i> 2010, 8, 3101-3117.</p> <p>[2] Pendem N, Douat C, Claudon P, Laguerre M, Castano S, Desbat B, Cavagnat D, Ennifar E, Kauffmann B, Guichard G. Helix-forming propensity of aliphatic urea oligomers incorporating noncanonical residue substitution patterns. <i>J. Am. Chem. Soc.</i> 2013, 135, 4884-4892.</p>	

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