



## PhD in Medicinal Chemistry

**Titre:** Design, synthesis and biological evaluation of RNA ligands targeting the SAM-I/IV riboswitch

**Key words:** RNA, RNA ligands, non-coding RNAs, binding, inhibition

**Scientific Director:** Dr. Maria Duca, PhD, CNRS Research Director (<http://univ-cotedazur.fr/mariaduca>)

**PhD start date:** February 2025

**Host laboratory:** Université Côte d'Azur - Institut de Chimie de Nice

**Project:** The SAM-I/IV riboswitch belongs to a class of riboswitches that specifically binds to S-adenosylmethionine (SAM), a cofactor used in many kinds of methylation reactions. During the development of the project, we aim to perform the structure-based design of new ligands specific for this riboswitch using the available crystal structures as well as taking advantage of the different analogues of SAM available in the literature for other scopes in addition to the hits discovered here. We will perform the synthesis of different series of RNA binders bearing suitable physico-chemical properties for prokaryote targeting and evaluate their affinity and selectivity using fluorescence-based biochemical assays available in the laboratory (the latter will also be done for other RNA targets). The biological evaluation of the most promising compounds in bacteria will then be performed during secondments at München University of Applied Sciences (MUAS). We thus expect to obtain active compounds suitable for further lead optimization but also to increase our knowledge about RNA targeting and biological function thanks to these important chemical biology tools.

**Candidate profile:** the candidate must have a strong knowledge of organic chemistry, and must have obtained his/her M2 in organic chemistry, medicinal chemistry or chemical biology within the last 2 years. Candidates must also be highly motivated and interested in projects at the chemistry-biology interface.

**To apply:** send a CV (with contacts of at least two previous supervisors) and a cover letter describing your scientific interests and career plans, in English or French, to [maria.duca@univ-cotedazur.fr](mailto:maria.duca@univ-cotedazur.fr)

**Location:** Institut de Chimie de Nice (ICN), Faculté des Sciences, 28 avenue Valrose, 06100 Nice, France (<http://univ-cotedazur.fr/tna>)