Research Training Contract
6 months, extendible to a PhD position

Glycolipid analogues as stimulators of NKT cell Immune Response
MCS/Laboratory of Medicinal Chemistry, IQAC-CSIC, Barcelona

A 6-month internship contract that can be extended to a PhD position is available for students in the group of Dr Amadeu Llebaria starting in September 2016 to early 2017. After the 6-month training period it may be extended to a full PhD position. The laboratory is in the Pedralbes University area in Barcelona in a CSIC Research Institute.

Our research is focused in the drug discovery and chemical biology. The main goals are the design, synthesis and optimization of compounds active against a pharmaceutical target and the development of novel therapeutics. The student will join the research team in a subject with excellent recent results and to collaborate in the optimization of the molecules for a new class of immunotherapeutics with potential uses in cancer, infective and autoimmune diseases and for vaccine development.

CANDIDATES:
- The required candidates are recently graduated (not before January 2013) chemists, pharmacists or biochemists with knowledge of organic chemistry, synthesis, drug design, computational chemistry and/or biochemistry.
- Academic marks over 2,0 (system 1-4), or over 8 (in qualifications 0-10) are recommended
- Master or DEA finished or expected to be finished during 2016.
- Experience in chemistry laboratory and organic synthesis is valuable.

The project is devoted to molecules with stimulatory activity of the immune response. There are a series of glycolipids (such as alpha-Galactosylceramide, αGC) that are strong stimulators of iNKT cells, a unique subpopulation of T cells with immunomodulatory properties. The very high potency of αGC on iNKT cell stimulation is associated to different side effects and new molecules are necessary to improve its biological properties and modulate the strong induced response. In this context, we have discovered the high activity of aminocyclitol phytoceramides as iNKT cell activators. The student will work in the design, synthesis and characterization of new molecules for NKT stimulation useful for triggering immune response. This singular program combines both chemistry basic research and its drug application.

The student will gain experience in medicinal and biological chemistry, receiving extensive training in the synthesis and characterisation of organic molecules and in the use of key characterization and purification techniques (including NMR spectroscopy, HPLC, HPLC-MS, chromatography, etc.) computational modelling and biological testing. Patent filling is normally performed in the group to protect the results and the student will participate also in this tasks. Transferable skills will also be developed by presenting results at group meetings and at national/international research conferences.

Publications of the group in the project:

Send CV before August 31, 2016:
Dr. Xavier Gregori
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