

1. Interested institution:

Instituto de Síntesis Química y Catálisis Homogénea ISQCH (Zaragoza)

The Spanish National Research Council (CSIC)

C/ Serrano 117, 28006, Madrid (Spain)

www.csic.es

2. Brief Description of the Institution

The Spanish National Research Council (CSIC) is the largest public institution dedicated to research in Spain and the third largest in Europe. Belonging to the Spanish Ministry of Economy and Competitiveness through the Secretary of State for Research, Development and Innovation, its main objective is to develop and promote research that will help bring about scientific and technological progress, and it is prepared to collaborate with Spanish and foreign entities in order to achieve this aim. It has a staff of more than 13,000 employees, among these about 3,300 are permanent researchers and about 4,300 are pre- and post-doctoral researchers. The CSIC has 70 fully own institutes or centres distributed throughout Spain. In addition, it has 53 Joint Research Units with universities or other research institutions. There is also a delegation in Brussels and Rome.

CSIC has considerable experience in both participating and managing R&D projects and training of research personnel. Under the 7th Framework Programme CSIC has signed approximately 700 actions (including 97 coordinated by CSIC and 47 ERC projects). Funding wise, CSIC is listed the 1st organization in Spain and the 5th in Europe in the 7th Framework Programme, with a total FP7 contribution of over 260 million euros. During the first calls of H2020, CSIC has had an intense participation in all programmes. It has been remarkable the participation in certain calls, such as ERC and Marie Curie, as well as in ICT, NMBP and Societal Challenges. In March 2015 CSIC has obtained 90 projects with a total financial contribution of 40 million euros.

3. Please tick the areas of research (as established in Marie Skłodowska Curie Actions)

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| <input checked="" type="checkbox"/> Chemistry (CHE) | <input type="checkbox"/> Environmental Sciences and Geology (ENV) |
| <input type="checkbox"/> Social Sciences and Humanities (SOC) | <input type="checkbox"/> Life Sciences (LIF) |
| <input type="checkbox"/> Economic Sciences (ECO) | <input type="checkbox"/> Mathematics (MAT) |
| <input type="checkbox"/> Information Science and Engineering (ENG) | <input type="checkbox"/> Physics (PHY) |

4. Research / Project Description

In the last decades, a wide and efficient diversity of synthetic methods has emerged allowing the synthesis of even the most challenging molecular scaffold. With the growing concern about sustainable chemistry, the syntheses have gradually turned in an era of "eco-design" of molecules. In this context, the application of catalytic asymmetric methodologies has become a powerful tool in organic synthesis and has had the most significant impact on the progress of this area in the last 30 years, specially the **asymmetric organocatalysis**.

During long time biologically relevant extracts from plants and animals have been employed for specific medicinal indications ranging from anti-inflammation to hepatitis. Currently, plants continue to provide biologically active compounds as well as synthetically challenging targets. In this sense, due to their presence in many biologically active natural products, chiral **indoles** are of high interest in preparative and medicinal chemistry, as well as other appealing heterocycles.

Moreover, recently **spirocyclic oxindoles** have attracted much attention since they are medicinally relevant and architecturally intriguing compounds, present in a great number of natural products and biologically active molecules.

Therefore, the application and development of new efficient methods that allow rapid and easy access to highly functionalized backbones bearing these motives is the aim of considerable efforts and still represents an active challenge.

Based in the abovementioned, the principal aim of this project will be to develop and to apply new approaches to the enantioselective synthesis of novel **indoles**, **spirocycle oxindoles** as well as **other heterocycles**, as attractive intermediates for natural product synthesis. The biological activity previously exhibited by these families of compounds makes its synthesis an appealing challenge.

Additionally, the activity against different cancer cell lines of all synthesized targets will be also studied. In this context, the success of the project should be expected with the experience of the supervisor of this project, Dr. Herrera, in organocatalysis and indole chemistry.

5. Who can apply?

At the deadline for the submission of proposals (10/09/2015), researchers (*):

- shall be in possession of a doctoral degree or have at least four years of full-time equivalent research experience.
- must not have resided or carried out their main activities in the country of Spain for more than 12 months in the 3 years immediately prior to the abovementioned deadline.

6. Contact person

Dr. Raquel P. Herrera raquelph@unizar.es

7. Applications: documents to be submitted and deadlines

The documents to be submitted to the contact person are a CV, letter of motivation and 1 letter of references. All these documents should be submitted before **July, 1st 2015**.

Please note that:

- Deadline of the next call for proposals for Marie Skłodowska – Curie Individual Fellowships is **September, 10th 2015**.
- Oficina Europea is only responsible for the display of the expressions of interests received by the institutions; further contact and information requests will take place directly between the host institutions and the interested researchers.

(*) Further details on the Call and additional eligibility criteria can be found at the [Participants' Portal](#)