

1. Interested institution:

The Spanish National Research Council (CSIC)- C/ Serrano 117, 28006, Madrid (Spain)

www.csic.es

Instituto de Síntesis Química y Catálisis Homogénea

Facultad de Ciencias, Universidad de Zaragoza

C/ Pedro Cerbuna, 12 - 50009 Zaragoza

<http://www.isqch.unizar-csic.es/ISQCHportal/>

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 organisation 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

Research area: Enantioselective organometallic catalysis

Enantioselective catalysis is a research area of great academic, industrial and social interest. As a model example, about 63% of the new small-molecule drugs that were approved in the decade 2000-2009 by the Food and Drug Administration contained at least one stereogenic centre, and of the chiral compounds, the 85% were single enantiomer drugs. Using metal complexes as catalysts is the most powerful and versatile strategy to produce enantioenriched molecules. The scientific reports, as well as, the number of highly reputed research groups on the area have increased explosively during the last years.

Our research team pursues the development of new enantioselective catalytic systems for a range of organic processes. The catalytic precursors will be chiral organometallic complexes in which the metal (usually Rh, Ir, Ru or Os) was a stereogenic centre bearing enantiopure ligands. For the metallic species, two types of catalytic actuation can be envisaged. On the one hand, the metallic catalyst could act as a Lewis acid activating the electrophile through coordination. On the other, a metallic compound bearing acidic X-H functionalities (X= O, N, S) could act as electrophile activator through either hydrogen bond or Brønsted acid catalysis. Due to their novelty, particular attention will be paid to the development of catalyst of the latter type. For them, the acronym LBA (Lewis acid assisted Brønsted acid) catalyst has been coined. Within LBA catalyst, the catalytic activity relies on the M–XH functionality and the stereoelectronic control will be provided by the chiral metallic moieties.

Special attention will be paid to the study of the organometallic intermediates involved in catalysis to obtain a deeper insight into the mechanisms of the processes and about the origin of the achieved enantioselectivity.

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*

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7. *Applications: documents to be submitted and deadlines*

Curriculum Vitae
Letter of motivation
At least two recommendation forms
Deadline: June, 30th 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](#)