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## **CiQUS** Lecture



Prof. Maria J. Macias Structural insights into TGF beta signaling

ESEARCH WEDICINE

FONDO EUROPEO DE DESENVOLVEMENTO REXIONAL PO FEDER Galicia 2014-202 - Unha maneira de facer Europa

Friday, March 10, 2023 12:15 pm - CiQUS Seminar Room

ICREA

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## Biosketch:

María graduated in Chemistry in 1989 and obtained the PhD in 1993, in the field of Organic Chemistry and Natural Products (Universidad of Salamanca). In 1993, she moved to the EMBL in Heidelberg as a Post-doctoral researcher in structural biology, in the group of Prof. Hartmut Oschkinat. During this time, she characterized the structures of several key signaling protein domains (PH and WW domains) and of the double stranded RNA binding domain, —the first of their kind—. Their results revealed how these domains adopted new folds, with implications on their interactions with ligands and function. They also succeeded in the de novo design of a WW domain, and developed a protocol for the determination of protein structures in solution.

In 1998, she started her career as an independent scientist, at the EMBL in Heidelberg, thanks to a Staff Scientist position that she won in a competitive call. In 2002, she moved to the IRB Barcelona upon winning an ICREA research professor position where she has been working since. Over the last decade, a large part of her lab has been devoted to clarifying the role of Smad transcription factors in TGF $\beta$  signaling. Their long-term aim is to illustrate (with our structures) the complete picture of how full-length Smad complexes transmit TGF- $\beta$  signaling, regulate gene expression and cell fate. In collaboration with the gynecological oncology group Santa Creu i Sant Pau Hospital, Barcelona, theyalso aim to determine the probability of relapse and metastasis of gynecological Cancer patients using artificial intelligence and data from biopsies as well as data deposited in public data bases.

Prof. Macias also participate in the project CALIPER: Linking research and innovation for gender equality in the fields of research. Funded by H2020\_EU.

Research fields (key words):

Structural and Computational Biology • Signaling • Smad proteins • Drug design •Gynecological Cancer markers • Folding