

The research group “**Isoprenoid metabolism in tomato: Involvement in development and stress response**” is inviting applications for a **4-year PhD position** funded by the Spanish Ministerio de Ciencia, Innovación y Universidades at the **Centre for Research in Agricultural Genomics (CRAG)**, Barcelona (Spain), to start around **spring 2019**. The CRAG is an independent organization established as a Consortium of four main research institutions: the Spanish National Research Council (CSIC), Institute of Agrifood Research and Technology (IRTA), Autonomous University of Barcelona (UAB), and University of Barcelona (UB).

We are looking for **highly motivated and enthusiastic students** interested in modern, multidisciplinary **plant sciences, encompassing experimental, bioinformatic and theoretical approaches**. The doctoral project included in this call is: **The role of glycosylated sterols in the tomato stress response. Molecular bases and agronomical application** (AGL2017-88842-R).

**Research project:**

*The intensive greenhouse cultivation of tomato makes this valuable crop highly susceptible to fungal, bacterial and viral infections. Field tomato growth can also be hampered by adverse conditions like drought or extreme temperatures. The development of pest and abiotic stress resistant tomato varieties is thus a major challenge in sustainable agriculture. Unlike other plants, tomato has a very high content of steryl glucosides (SGs) and acylated SGs. Free and glycosylated sterols play essential roles in maintaining membrane structure and function and it has been proposed that they might be involved in modulating the responses to different types of stress. The characterization of the four tomato SGT isozymes involved in SG biosynthesis in a previous project, allows us to undertake this new interdisciplinary project intended to elucidate the specific contribution of each SGT in tomato SG biosynthesis, using modelling tools and genetic approaches. Moreover, wide-genome and metabolomic analyses will help us to elucidate the role of glycosylated sterols in plant development and adaptation to biotic and abiotic stress, and the mechanism by which these metabolites exert their effects. On the other hand, given the essential role that plant cell membranes and free sterols play in virus replication in the infected cells, the role of SGs in plant virus replication will also be investigated, thus opening up the possibility of identifying a new target to improve resistance to this class of pathogens. Efficient protocols to transform commercial tomato cultivars will also be implemented to transfer the alleles of interest identified in Micro-Tom to these cultivars.*

**Highly qualified candidates holding or about to obtain an MSc or equivalent degree in biology, biochemistry, biotechnology, or related fields are encouraged to apply.** We offer excellent facilities to perform cutting-edge research, and an enhanced doctoral training and support program. At present, 60 doctoral students from 20 different countries are working on a full doctoral research project at CRAG. Research at CRAG encompasses **basic science in plant development, physiology, metabolism and genetics; bioinformatics and genomics of plants and farm animals; and applied projects developed together with Agbio, Biotech, and Breeding companies.** CRAG is located at the campus of the Universidad Autónoma de Barcelona (UAB), and currently hosts 200 members from across the world in its facilities inaugurated in 2011: an ample and well-equipped building designed for modern plant biology and genomics research. CRAG received in 2015 the “Severo Ochoa Center of Excellence” Award, and the “Human Resources Excellence in Research” accreditation.

For more information about the research group, visit:

<https://www.cragenomica.es/research-groups/isoprenoid-metabolism-in-tomato-involvement-in-development-and-stress-response>

Candidates should contact Profs. Teresa Altabella ([taltabella@ub.edu](mailto:taltabella@ub.edu)) or Albert Ferrer ([albertferrer@ub.edu](mailto:albertferrer@ub.edu)) before October 15<sup>th</sup>.