UNIVERSIDAD POLITÉCNICA DE MADRID

**Expression of Interest – UPM Supervisor**

# Marie Skłodowska Curie Action –Postdoctoral Fellowship 2024 (MSCA-PF-2024)

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| **Contact Person/Scientist in charge** **Name** | **Joaquin** |
| **Surname** | **Medina** |
| **Email** | joaquin.medina@upm.es |
| **Department /Institute /Centre** **Name** | Centro de Biotecnología y Genómica de Plantas (**CBGP**)<br>UPM – INIA/CSIC. |
| **Address** | Parque Científico y Tecnológico de la U.P.M. Campus de Montegancedo, 28223. Madrid. |
| **Province** | Madrid |
| **Research Area** | **Life Sciences (LIF)** |
| **Brief description of the Centre/Research Group** | The candidate will join to the host group of Joaquin Medina located at the "Centro de Biotecnología y Genómica de Plantas" (UPM, INIA-CSIC (CBGP); https://www.cbgp.upm.es / index.php/es/). Recently nominated, as a Center of Scientific Excellence by the Severo Ochoa Program. The CBGP integrates researchers of UPM and CSIC-INIA institutions.<br><br>The CBGP is a well-known plant science centre with all the facilities required to conduct research at a level that is competitive and visible around the globe. Additionally, the CBGP keeps in regular contact with the agri-business sector, which makes it easier for scientists who are interested in working with companies in the agricultural industry or developing skills in economic areas. Detailed information on the CBGP can be found at: www.cbgp.upm.es.<br><br>The Medina`s lab has been at the CBGP for over ten years, during which time it has conducted large-scale, internationally recognized research in the fields of plant responses to nutrient and water limitation. The Research team use a variety of methodological techniques to accomplish their objectives, including transcriptomics (RNA-seq), metabolomics, live cell imaging, general molecular biology, and plant genetics. |
| **Project description** | Plant roots often encounter a variety of nutritional conditions in both natural and agricultural environments. To improve nutrient use efficiency and plant breeding programs, it is important to understand how a plant functions as an integrated system. It senses this heterogeneous nutrient environment in its roots and communicates this information systemically to shoots, which then arranges resources to allow shoot and root growth in the nutrient-rich spots.<br>The ability to distinguish between local and systemic signals enables a sophisticated systems-wide integration of the N-deprivation signals, which in turn enables plants to adapt to nutrient deprivation by improving nutrient partitioning and root-foraging in the nutrient-rich zone of the soil. From the standpoint of plant breeding, comprehending the molecular underpinnings of this kind of adaptation to a changing nutrient environment is essential for enhancing the efficiency of nutrient or water absorption and utilization, as well as for minimizing the significant negative effects of fertilizers on the environment and |

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| | economy. Our aim is to investigate the molecular bases of Nutrient root forage responses though a phenotypic and molecular analysis. We have established a high-throughput analysis platform that allows the monitoring of plants responses to different nutrient limitations as a useful tool. Currently, we are working on the molecular characterization of different regulators involved in nitrogen stress responses. |
| **Applications: documents to be submitted and deadlines** | Candidates who wish to apply please send a complete CV and a detailed *letter of motivation to* joaquin.medina@upm.es |