

<u>TITLE</u>	Mechanistic principles underlying dynamics of plant growth compensation by low temperatures (Eol -TSP2-10)
<u>RESEARCHER PROFILE</u>	Postdoctoral: First Stage Researcher (R1) or Recognised Researcher (R2)
<u>TYPE OF CONTRACT</u>	Temporary contract of 2 years
<u>IP</u>	Krzysztof Wabnik
<u>GROUP INFORMATION</u>	http://www.cbgp.upm.es/index.php/es/informacion-cientifica/csbgp/synthetic-biology-of-plant-signaling-circuits
<u>OFFER DETAILS</u>	<p>Plant growth is achieved by stem cell division followed by differentiation, however little is known about how stem cell activity is regulated by the environment and upon stress response. Shoot (SAM) and root (RAM) apical meristems are normally exposed to different temperatures during day, as soil temperature is below than above air and roots grow underground. Despite this temperature difference shoot and root growth is coordinated and compensated. In addition, plant growth is slowed down by cold. The molecular mechanisms are unknown.</p> <p>We propose to investigate the role of a homeodomain cold sensitive transcription factor (COLD) in the regulation and compensation of growth upon decreasing temperatures. We will follow a synergistic multidisciplinary approach that combines genetics, time-lapse live cell imaging and spatio-temporal computational models. We will address effect of COLD in stem cell regulators and stem cell division and differentiation in the SAM and the RAM upon a range of temperatures. We will also model shoot-root growth using quantitatively measures of cell division, elongation, stem cell regulators activation/repression and COLD induction and movement. Predictions from data-driven computer models will guide experiments to reveal minimal mechanistic components underlying plant growth compensation upon root-to-shoot differential exposure and growth retardation in response to cold.</p>
<u>MAIN RESPONSABILITIES</u>	Generate fluorescent reporters and targeted inducible expression constructs in specific stem cells mutant background of <i>A. Thaliana</i> . Perform time lapse confocal microscopy studies and image processing using state-of-the-arts software.
<u>SPECIFIC OFFER REQUIREMENTS</u>	Applications should contain a detailed CV, at least two recommendation letters from recent supervisors and a motivation letter explainig both interest in the project and candidate suitability for the advertised position
<u>REQUIRED QUALIFICATIONS</u>	PhD in Molecular or Developmental Biology or related discipline. An International research experience is highly desirable. Expertise in molecular genetics, confocal microscopy and image processing and image analysis software such as ImageJ. A knowledge of basic programming/scripting is a plus. The ability to work independently on the project, self-organization and writing skills will be valued. Excellent level of English is required
<u>ELIGIBILITY CRITERIA</u>	By educational level