



## Thematic Actions

### Coordinating Universities for the Proposal: UCM and UPM

<b>Title of Action</b>	<b>Creation of an Advanced Platform for Pre-clinical Development</b>		
<b>Participating partners</b>	UCM, UPM	<b>Other participants</b>	CIEMAT, CSIC-CIB
<b>Personnel involved (indicate institution)</b>	UCM, UPM		
<b>Start date</b>	1-1-2010	<b>End date</b>	31-12-2012
<b>Cluster</b>	i-Health (i-Medicine)	<b>Other clusters</b>	
<b>Areas of action</b>	Research / Teaching Improvement and EHEA Deployment / Knowledge Transfer		
<b>Location</b>	Moncloa Campus and other		
<b>Infrastructures involved</b>			
<b>Keywords</b>	Therapeutic targets; Molecular biomarkers; Diagnostic targets; Toxicity; Prevalent pathologies; Omics technologies		
<p><b>Objectives:</b></p> <p>As a central axis of the <b>i-Medicine</b> strand of action, the second action aims to establish an advanced platform for pre-clinical development. This platform will be based in a laboratory of disease models, and will be aimed at identifying and validating therapeutic targets as well as molecular and imaging biomarkers, and carrying out efficacy and safety studies, in close collaboration with <b>i-Maging</b> and actions 2 and 3 of <b>i-Medicine</b>. In addition, this platform will interact closely with the Genomics and Proteomics Central Facility for the identification and validation of pathogenic mechanisms, diagnostic and therapeutic targets and biomarkers, resulting from the application of omics technology.</p>			
<p><b>Description of the action:</b></p> <p>The action is structured in two interrelated core axes:</p> <ul style="list-style-type: none"> <li>- <b>Disease models platform for efficacy and safety evaluation</b> (Core Group: Faculty of Medicine, UCM): This new facility will be equipped with an operating theatres for carrying out surgery under strict monitoring, animal recovery rooms, necropsy rooms for tissue sampling, clinical pathology and microbiology labs, animal rooms for long-term stays, etc. The facility will also house a cell culture room equipped with laminar flow hoods, incubators, dissection hoods, etc. The facility will be located next to the <b>i-Maging</b> Biomedical Imaging laboratories thus allowing a close monitoring of the animal models as well as the validation of new nanomagnetic markers and radioactive tracers resulting from <b>i-Maging</b> activities.</li> </ul> <p>Services offered will include:</p> <ol style="list-style-type: none"> <li>1. Well-established models of the most prevalent pathologies (cancer, cardiovascular diseases and stroke, neurodegenerative diseases, inflammatory diseases, infectious diseases).</li> <li>2. Development of new in vivo and in vitro models in close collaboration with the Genomics and Proteomics Facility and with Action 1 of <b>i-Medicine</b>.</li> <li>3. In vivo and in vitro safety evaluation systems, focused on toxicity in organic systems, genetic toxicity, reproductive and development toxicity, carcinogenicity, pharmacogenomics, etc.</li> </ol> <p>These services will be offered to the different users in order to assist them in the search for pathogenic mechanisms, the identification and validation of imaging and molecular biomarkers, the identification and validation of therapeutic targets, new therapies and biopharmaceutical systems. The validation of new diagnostic and pharmacological strategies generated in the different strands of action of <b>i-Health</b> is also of paramount importance. In this context, this platform will be responsible for the evaluation of clinical efficacy and the safety of new drugs and pharmaceutical strategies deriving from <b>i-Medicine</b> Action 1.</p> <ul style="list-style-type: none"> <li>- <b>Genomics, Proteomics and Bioinformatics Core Facility</b> (Core Groups: CAI-UCM y UPM): This facility is already provided by a Research Support Centre of the Moncloa Campus, and will be recruited in this action to provide support to the Disease Models Platform through the identification of therapeutic and diagnostic targets from the application of omics technology.</li> </ul>			



Title of Action	Creation of an Advanced Platform for Pre-clinical Development
<p><b>Key planned results:</b></p> <p>Acquisition of knowledge, providing a remarkable improvement of the scientific output of the Campus members.</p> <ul style="list-style-type: none"><li>• Delivery of knowledge to the industrial sector. Patents on new drugs and pharmaceutical technology.</li><li>• Fostering the development of better medicines (drugs and drug formulations), including advanced, innovative therapies.</li><li>• Attracting R&amp;D biomedical investment from the pharmaceutical sector into the Campus.</li><li>• Stimulating the economical development and competitiveness of our environment.</li><li>• Training of competitive professionals for the biopharmaceutical sector. Improvement of the career prospects of our graduates.</li></ul>	
<p><b>Rationale for the action:</b></p> <p>This action will provide support to different basic and clinical research groups, aiming to improve the scientific and technological competitiveness of the Campus in the field of biomedicine. Other crucial goals of this action are to enhance our knowledge on pathogenic mechanisms, to contribute to the development of therapeutic and diagnostic strategies, thus strengthening innovation capabilities and the transfer of knowledge to the pharmaceutical sector. In Spain, few initiatives such as this one tackle the diagnosis and treatment of the most prevalent pathologies in a holistic fashion. Such an ambitious approach, although very feasible in a first-class environment such as the Moncloa Campus, is uncommon among public research institutions in Spain, and will contribute greatly to fostering excellence in this Campus.</p>	
<p><b>International aspects:</b></p> <p>This action addresses several European guidelines on the needs and priorities of the 7<sup>th</sup> Framework Programme of the European Commission, and the Innovative Medicines Initiative of the European Federation of Pharmaceutical Industries and Associations (EFPIA). Several of the participating groups possessing the know-how required for the action are partners of different EU-funded grants and have a solid track record of cooperation with leading international research groups.</p>	
<p><b>Planned impact:</b></p> <p>Several actors will benefit from this action, such as European citizens, Spanish and international researchers, biosanitary professionals and students.</p> <p>Planned impacts are:</p> <ul style="list-style-type: none"><li>• Increasing the competitiveness of the Moncloa Campus, transferring knowledge to the industrial sector through patents, transfer contracts, publications and the diffusion of knowledge.</li><li>• Improving health and quality of life.</li><li>• New career prospects and job creation in R&amp;D centres and companies.</li><li>• Boosting the innovative capacity of Spanish and European biopharmaceutical industries and businesses.</li><li>• Innovation in teaching and higher education, with opportunities for PhD Theses, Master's degrees, etc.</li></ul>	