



## Thematic Actions

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

<b>Title of Action</b>	<b>Creation of the Technical Unit for the Development of New Drugs and Pharmaceutical Technology</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 others		
<b>Infrastructures involved</b>			
<b>Keywords</b>	Medicinal Chemistry; Pharmaceutical technologies; Cell and gene therapy		
<p><b>Objectives:</b></p> <p>Included in the <b>i-Medicine</b> strand of action, this first action intends to create a Technical Unit for the development of new drugs and pharmaceutical technologies, based upon a centralised management of teams and core facilities. This Unit would efficiently provide scientific services and advice tailored to the different needs of the Campus researchers, graduate students and external users, and would therefore include different technical sections:</p> <ol style="list-style-type: none"> <li>Medicinal chemistry,</li> <li>Development of pharmaceutical technologies,</li> <li>Cell and gene therapy. Another important objective of this action is to promote the discovery of new drugs and the development of better medicines in order to improve health and to increase the innovative capacities of the European biopharmaceutical market.</li> </ol>			
<p><b>Description of the action:</b></p> <p>This action will offer services for the development of new drugs and pharmaceutical technologies to the Moncloa Campus, bringing together the expertise of several research groups in the field. To this end, the action is structured in different sections, teaming up groups that are currently dispersed and independent groups, thanks to a centralised management system in order to offer a portfolio of comprehensive services including technology, equipment and advice support for the users.</p> <p><b>Medicinal Chemistry Section</b> (Core group: Faculty of Chemical Sciences UCM): Computational chemistry (target identification and selection of lead compounds using computational methods from quantitative structure-activity relationships, etc.), synthesis (synthesis laboratories, HPLC, MS, ... for the preparation, purification and characterisation of new molecules and libraries of compounds), high-throughput screening (structural studies, computational methodologies and in vitro screening of libraries of compounds for the identification of bioactive molecules).</p> <p><b>Section for the Development of Advanced Pharmaceutical Technologies</b> (Core group: Faculty of Pharmaceutical Sciences, UCM): Tailored design and preparation of pharmaceutical technologies aimed at the development of advanced diagnostic and drug delivery systems (nanoconjugates and nanoparticles for biomedical imaging; conjugation and inclusion in nanoparticles/liposomes; biofunctionalisation to target these formulations towards specific locations selected by the users; pharmacokinetic optimisation tailored to individual needs, etc.)</p> <p><b>Section for Gene Transfer, Transgenesis and Pluripotent Cells Technology</b> (Core Group: Faculty of Biological Sciences): Technological unit for the development of therapeutic tools based on viral vectors for gene transfer, knock-out/in transgenic animals and cell lines, and management and manipulation of pluripotent cells.</p>			



<b>Title of Action</b>	<b>Creation of the Technical Unit for the Development of New Drugs and Pharmaceutical Technology</b>
<p><b>Key planned results:</b></p> <ul style="list-style-type: none"><li>• Consolidation of the Technical Unit, interconnected and managed through a website that will serve as a liaisons tool with the Campus.</li><li>• Acquisition of knowledge, providing a remarkable improvement in the scientific output of the Campus members.</li><li>• Delivery of knowledge to the industrial sector. Patents on new drugs and pharmaceutical technologies.</li><li>• Fostering the development of better medicines (drugs and drug formulations), including advanced, innovative therapies.</li><li>• Attracting R&amp;D in biomedical investment from the pharmaceutical sector into the Campus.</li><li>• Boosting 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 allow the coordination of different research groups currently working on the design of new drugs, therapeutic strategies and pharmaceutical technologies in order to offer a core facility equipped to improve the scientific and technological competitiveness of the Campus. Furthermore, a key goal of this action is to provide an impetus to the discovery of new drugs and better medicines with possibilities of exploitation in the pharmaceutical sector, therefore enhancing the innovative capacity of the 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>	