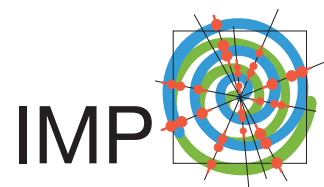


# IMP Press Release

embargoed until 13<sup>th</sup> July 2004, 12 am



Research Institute of Molecular Pathology

*Vienna, 13<sup>th</sup> July 2004*

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## *Checking Mitosis on a European Scale*

The European Commission has launched "MitoCheck", a multinational research project on cell cycle regulation. The IMP (Research Institute of Molecular Pathology) in Vienna coordinates the project.

The European Commission is providing eight and a half million Euro over the next four years to MitoCheck, the largest integrated research project on cell cycle control within the 6th Framework Programme (FP6) of the European Union. Leading scientists from eleven research institutes, universities and industry in Austria, Germany, UK, Italy and France join forces in this scheme. They contribute a wide range of expertise in molecular and cell biology, biochemistry, modern microscopy techniques, proteomics, bio-informatics and clinical pathology to embark on a fundamental question: how is mitosis regulated?

Cell division or Mitosis is one of the fundamental processes of life. It is of vital importance for cells to make sure everything goes right every time they divide. Mistakes during cell division contribute to cancer and, if occurred during reproduction, are a leading cause of infertility and mental retardation. However, it is still poorly understood how cells coordinate the many disparate but inter-locking processes during mitosis. One of the well established facts is that protein kinases - a certain type of enzymes - play a major role. Their importance has even been recognized by a Nobel Prize in 2001. The question that remains is exactly which molecules are altered by those kinases and how.

The Integrated Project MitoCheck has been designed to close this gap through a major European research effort. The aims of the project are to systematically hunt for genes and proteins crucial for mitosis, to define how these proteins are changed by phosphorylation - which is what kinases do - and to assess whether mitotic kinases have any diagnostic or therapeutic potential in cancer treatment. Along the way, it will be necessary to develop advanced technologies to address those questions in an efficient and highly automated way. After all, there are several 10 000 proteins to look at.

Project coordinator Jan-Michael Peters of the IMP is optimistic: "We have set very ambitious goals, which no single research partner could have tackled alone. By bringing together a group of excellent European scientists who contribute expertise in rather diverse areas, we can hope to solve a complex biological puzzle."

The technologies that will be established by the consortium will also be useful for future projects in other areas of cell biology. The initiative will therefore have an impact on European biological research well beyond the cell cycle community. In detail, the following technologies will be applied by MitoCheck:

**RNA interference** will be used to measure the effect on mitosis of depleting each and every mammalian gene one by one.

**Automated microscopy** will be developed to screen the results and to identify genes whose loss results in blocking mitosis.

**Mass spectrometry** is carried out to characterise the phosphorylation status of mitotic proteins.

**Chemical biology** uses specific, small molecules which inhibit mitotic kinases selectively to confirm their role in cell division.

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### **Links:**

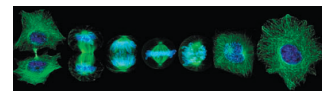
IMP Website  
<http://www.imp.univie.ac.at/>

Mitocheck Website  
<http://www.mitocheck.org>

FP6 Website  
[http://europa.eu.int/comm/research/fp6/index\\_en.html](http://europa.eu.int/comm/research/fp6/index_en.html)



*The MitoCheck project is funded by the European Commission within its FP6 Programme, under the thematic area "Life sciences, genomics and biotechnology for health".*



*A human cell divides in a process called mitosis  
Photo: Toru Hirota © IMP*



*Dr. Jan-Michael Peters, the project coordinator, with Dr. Yan Sun, the project manager of "MitoCheck"  
Photo: Georg Lembergh © IMP*

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In order to strengthen the scientific and technological basis in Europe and to enhance its international competitiveness, i.e. to create a "European Research Area" (ERA), the European Union launched the FP6, the main financial and legal action at EU level, to fund and promote research and technological development with a budget of 17.5 billion Euro for the period of 2002-2006. Transnationality, integration and interdisciplinarity are the predominant features of all the FP6 projects, among which MitoCheck stands.

The IMP is a basic research institute in Vienna, Austria. Its main sponsor is Boehringer Ingelheim International, headquartered in Germany. With over 200 employees from 28 different nations, the IMP is a Center of Excellence in the life sciences and the core unit of the Campus Vienna Bio-center. Research at the IMP aims at elucidating the molecular basis of normal development and disease.

## *MitoCheck Partners*

- Research Institute of Molecular Pathology (IMP), Vienna, Austria
- European Molecular Biology Laboratory (EMBL), Heidelberg, Germany
- Deutsches Krebsforschungszentrum (DKFZ), Heidelberg, Germany
- Leica Microsystems Heidelberg GmbH, Mannheim, Germany
- Max Planck Institute of Molecular Cell Biology and Genetics (CBG), Dresden, Germany
- Gene Bridges GmbH (Gene Bridges), Dresden, Germany
- European Institute of Oncology (EIO), Milan, Italy
- Centre de Recherches de Biochimie Macromoléculaire (CNRS), Paris, France
- Clare Hall Laboratories, Cancer Research UK (CHL-CRUK), London, UK
- Department of Pathology, University College London (UCL), London, UK
- Wellcome Trust Sanger Institute (Sanger), Cambridge, UK



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