



## **Major Boost for European Zebrafish Research**

**European Commission awards 12 million Euros to study zebrafish models for human development and disease**

The European Commission has awarded an unprecedented 12 million Euros for zebrafish research to a consortium of 15 European institutions, led by the Max Planck Institute for Developmental Biology. The ZF-MODELS consortium hopes to establish zebrafish models for human diseases, discover genes that will lead to the identification of new drug targets and gain fundamental insights into human development.



**Fig. 1:** *Zebrafish may not look much like humans, but their genes and the way they function are very similar. So similar in fact, that zebrafish can be very good models for human diseases.*

*Image: Max Planck Institute for Developmental Biology*

The zebrafish, a popular aquarium fish, is ideally suited to study the fundamental processes underlying embryonic development and the genetic basis of diseases. In recent years it has become one of the favourite model organisms of academic scientists and the biotech industry, and deciphering of its genome is already underway.

In the face of strong transatlantic competition, the European Commission has now decided to boost European zebrafish research by making it a flagship project of its 6th Framework Programme. The Integrated Project, ZF-MODELS, will bring together 15 leading European research institutions

Max Planck Society  
for the Advancement of Science  
Press and Public Relations Department

Hofgartenstraße 8  
D-80539 Munich

PO Box 10 10 62  
D-80084 Munich  
E-mail: [presse@mpg-gv.mpg.de](mailto:presse@mpg-gv.mpg.de)  
Internet: [www.mpg.de](http://www.mpg.de)

**Responsibility for content:**  
Dr. Bernd Wirsing (-1276)

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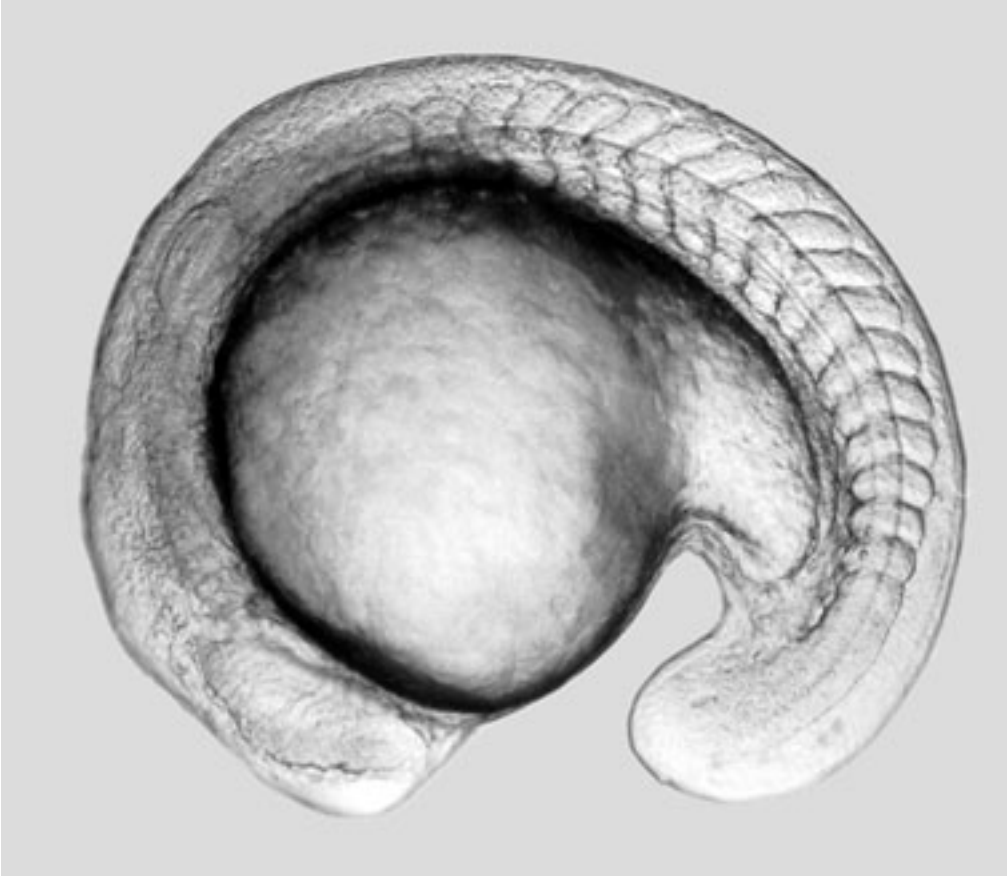
(see list below). Over five years, these institutions will receive a total budget of 12,400,000 Euros. 12,000,000 Euros will be contributed by the European Commission and 400,000 Euros by the Swiss National Science Foundation.

The partners of the ZF-MODELS project will join forces to work towards a common goal: to gain new insights into the genetic control of fundamental biological processes relevant for human disease, such as development, physiology and behaviour. The results, they hope, will form a basis for the development of new or improved therapies. Targets of the project will be common diseases such as cancer, neurodegenerative diseases, muscular dystrophies, eye diseases and behavioural disorders, as well as resistance to infections and wound healing.

To reach its aims the project will use advanced scientific tools that have only recently been developed by zebrafish researchers, and apply them on a massive scale and in an integrated fashion. Highlights of the project will include:

- Mutagenesis projects that will bring together scientists from all over Europe to examine zebrafish carrying genetic mutations. In addition to the mutants with defects in early development identified in previous projects, a focus will be on mutations that affect the adult fish, since these are of special interest for human diseases.
- The analysis of the activity (expression) of tens of thousands of zebrafish genes on gene chips (microarrays) that will help to understand how they regulate each other's activity during normal development, and how this regulation is disturbed in mutants.
- The generation of thousands of fish expressing Green Fluorescent Protein (GFP) controlled by the enhancer sequences of specific genes. Under UV light, tissues of these fish will light up indicating wherever the respective gene is active.
- A facility to knock-out genes that will provide European researchers with zebrafish mutants for specific genes on demand. This will let them study genes of particular interest for which no mutant is found in the mutagenesis projects. The knock-out fish will be suitable as models for human diseases and the development of therapies.
- A European zebrafish database that will integrate all project data in a three-dimensional anatomical atlas of zebrafish development, linked with the relevant gene activities. This database will be accessible through the project web site ([www.zf-models.org](http://www.zf-models.org)) and will be open to scientists and the interested public world-wide.

The funding of the ZF-MODELS project by the European Commission comes at a crucial stage. The integration of the major European zebrafish labs in this project will further increase the competitive position of European zebrafish research. The substantial funding granted to the project will allow the creation and integration of the necessary critical mass of multidisciplinary expertise and excellence needed to tackle the ambitious objectives of the project.



**Fig. 2:** *The transparency of the embryos and their very rapid development are just two of the advantages of the zebrafish.*

*Image: Max Planck Institute for Developmental Biology*

The project is coordinated by the Max Planck Institute for Developmental Biology in Tübingen, Germany. Dr. Robert Geisler is the project's Scientific Coordinator, Dr. Ralf Dahm is the Project Manager and Nobel Laureate Prof. Christiane Nüsslein-Volhard chairs the project's Executive Committee.

The project officially began on January, 1st 2004 and will be kicked-off with a meeting of the partners to be held at the Max Planck Institute for Developmental Biology in Tübingen from February, 14th-15th 2004.

#### **Partners of ZF-MODELS Integrated Project**

Max Planck Society for the Advancement of Science  
Munich, Germany

Max Planck Institute for Developmental Biology  
Tübingen, Germany  
Contact: Dr. Robert Geisler (Scientific Coordinator)  
Phone: +49-7071-601443  
Email: robert.geisler@tuebingen.mpg.de

Max Planck Institute of Molecular Cell Biology and Genetics  
Dresden, Germany

Contact: Prof. Michael Brand  
Phone: +49-351-2102514  
Email: brand@mpi-cbg.de

Max Planck Institute for Immune Biology  
Freiburg, Germany  
Contact: Dr. Matthias Hammerschmidt  
Phone: +49-761-5108495  
Email: hammerschmid@immunbio.mpg.de

Genome Research Ltd  
The Wellcome Trust Sanger Institute  
Cambridge, United Kingdom  
Contact: Dr. Jane Rogers  
Phone: +44-1223-494938  
Email: jrh@sanger.ac.uk

Institute de Génétique et de Biologie Moléculaire et Cellulaire  
Illkirch, France  
Contact: Dr. Christine Thisse  
Phone: +33-388-653360  
Email: thisse@igbmc.u-strasbg.fr

Hubrecht Laboratory, Netherlands Institute for Developmental Biology  
Utrecht, The Netherlands  
Contact: Prof. Ronald Plasterk  
Phone: +31-30-2121963  
Email: plasterk@niob.knaw.nl

The University of Sheffield  
Sheffield, United Kingdom  
Contact: Prof. Philip Ingham  
Phone: +44-114-2222710  
Email: p.w.ingham@sheffield.ac.uk

University College London  
London, United Kingdom  
Contact: Prof. Stephen Wilson  
Phone: +44-20-76793348  
Email: s.wilson@ucl.ac.uk

Institut National de la Santé et de la Recherche Médicale  
Paris, France  
Contact: Dr. Frédéric Rosa  
Phone: +33-1-44323978  
Email: rosa@wotan.ens.fr

Albert-Ludwigs-Universität Freiburg  
Freiburg, Germany  
Contact: Prof. Wolfgang Driever  
Phone: +49-761-2032587  
Email: driever@biologie.uni-freiburg.de

University of Bergen  
Bergen, Norway  
Contact: Dr. Thomas Becker

Phone: +47-5-5584338  
Email: tom.becker@sars.no

Universita' degli Studi di Padova  
Padova, Italy  
Contact: Prof. Francesco Argenton  
Phone: +39-49-8276229  
Email: francesco.argenton@unipd.it

GSF-National Research Center for Environment and Health  
Neuherberg, Germany  
Contact: Dr. Laure Bally-Cuif  
Phone: +49-89-31873562  
Email: bally@gsf.de

Institut Pasteur  
Paris, France  
Contact: Dr. Philippe Herbomel  
Phone: +33-1-44389529  
Email: herbomel@pasteur.fr

Leiden University  
Leiden, The Netherlands  
Contact: Prof. Herman Spaink  
Phone: +31-71-5275055  
Email: spaink@rulbim.leidenuniv.nl

ETH - Swiss Federal Institute of Technology, Zurich  
Zurich, Switzerland  
Contact: Prof. Stephan Neuhaus  
Phone: +41-1-6353288  
Email: neuhaus@hifo.unizh.ch

Forschungszentrum Karlsruhe GmbH  
Eggenstein-Leopoldshafen, Germany  
Contact: Prof. Uwe Strähle  
Phone: +49-7247-823291  
Email: uwe.straehle@itg.fzk.de

### **Related Links:**

[1] [Project Website](#)

### **Contact:**

Dr. Ralf Dahm - Project Manager  
[Max Planck Institute for Developmental Biology, Tuebingen](#)  
Tel.: +49 7071 601-444  
Fax: +49 7071 601-448  
E-mail: [ralf.dahm@tuebingen.mpg.de](mailto:ralf.dahm@tuebingen.mpg.de)