

Conferences

International conference “Telomeres and Genome Stability”

30 August - 3 September 2006,
Villars-sur-Ollon, Switzerland
Co-organised by David Shore

This activity attracted a total of five EuroDYNA members, one of whom presented a talk.

This meeting brought together experts in telomere biology with key players in the DNA damage response field for the only international meeting of its kind to be held in 2006. Invited speakers include the co-discoverers of telomerase (Blackburn and Greider), many key figures in human telomerase studies (De Lange, Artandi, Harrington, Lingner, Shay), and some of the major players in the yeast field (Lundblad, Zakian, Cooper). The organisers also attracted leading figures in the DNA damage / checkpoint field (Foiani, Jackson, Krogan and Sjogren).

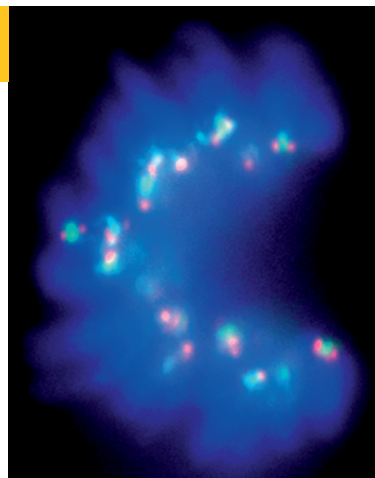
This activity allowed EuroDYNA members to participate in an unusually small, but high-level meeting that covered topics at the cutting edge of telomere biology and DNA damage repair / genome stability. The organisers also arranged for certain speakers who may be of particular interest to EuroDYNA members (e.g. Jackson, Krogan, Sjogren and Foiani) to meet privately with those members at some point during the meeting.

Annual EuroDYNA conference

12 - 14 October 2006, Mendel Center
in Brno, Czech Republic
Organisers: Jan-Michael Peters
and Pavel Kovarik

Annual meetings set the stage for the multidisciplinary EuroDYNA community to identify new opportunities for scientific collaborations and to stimulate each group's area of research.

This year's meeting brings together 58 EuroDYNA members across the nine Collaborative Research Projects. Special emphasis is placed on encouraging the younger researchers to present and discuss their projects with leading experts in the field.



Mitotic view of cultured human cells. DNA is stained in blue, centromeres are red and the chromosome passenger protein, Aurora B is labeled in green.
Micrograph by Erwan Watrin, IMP, Vienna.

EuroDYNA Programme

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CONTACT DETAILS

Dr. Astrid Lunkes, Scientific Coordinator
Jackie McLelland, Administrator
1 quai Lezay-Marnésia I BP 90015
67080 Strasbourg cedex I France
eurodyna@esf.org
www.esf.org/eurodyna

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**EUROPEAN
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SETTING SCIENCE AGENDAS FOR EUROPE

1 quai Lezay-Marnésia I BP 90015
67080 Strasbourg cedex I France
Tel: +33 (0)3 88 76 71 00 | Fax: +33 (0)3 88 37 05 32
www.esf.org

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EUROCORES Programme

European Collaborative Research

EuroDYNA

Dynamic Nuclear Architecture and Chromatin Function

2006 Activities

Networking opportunities – fora for training, discussion and collaboration

One of the major challenges in biology is to understand how the genome orchestrates gene expression of the many thousand genes it encodes. To tackle this issue, the European Science Foundation (ESF) together with national funding agencies from eight European countries has set the stage for 41 research groups to join forces and to coordinate their efforts across Europe within the framework of the European Collaborative Research (EUROCORES) Programme EuroDYNA.

EuroDYNA aims at advancing our knowledge of the control of gene expression in nuclear organisation. To do this the Programme gathers and combines expertise in different fields such as dynamic chromatin structure and nuclear architecture, regulation of gene expression, RNA processing and transport as well as genome surveillance. Latest technologies in molecular biology and biochemistry are employed together with advanced microscopy, structural analysis and computational approaches in order to gain a deeper insight into how the nucleus operates.

There are nine Collaborative Research Projects (CRPs) under the umbrella of EuroDYNA which started their research in 2005. In addition to its multidisciplinary character, the Programme offers a wide range of networking opportunities to the entire EuroDYNA community; providing training possibilities and establishing a platform to stimulate new research initiatives between scientists with related yet slightly different scientific interests, and to promote collaboration with other national and European initiatives.

The following pages provide an overview of the networking activities the EuroDYNA community pursued in 2006.

Training

Summer School “DNA and Chromosomes: Physical and biological approaches”

16 June - 1 July 2006, Cargèse,
Corsica, France
Co-organised by John van Noort

Two EuroDYNA investigators gave lectures and seven EuroDYNA students/postdocs attended the school.

The aim of the school was primarily to integrate the various biological and physical approaches used to study DNA and chromosomes by (i) providing a comprehensive and state-of-the-art set of lectures and (ii) facilitating the communication between researchers from different disciplines. Twenty invited lecturers chosen among the leading experts in their field gave extensive courses. The audience consisted of biologists, biophysicists and physicists at an advanced PhD student/post-doctoral level. Each speaker was asked to lecture over a two-day period, starting with a thorough introductory course followed by a more specialized seminar on a related subject. The relatively long time slots for each lecturer allowed the speakers to provide the very bases of their fields but also to give an account of the latest advances and a discussion of open questions. Participants presented their work in the form of

posters or selected oral presentations. Communication between members of different disciplines, and between young researchers and leading experts, fostered the development of new collaborations.

Views of some EuroDYNA participants

“The impact of the summer school upon my project will be significant. The meeting enabled me to make many new contacts with researchers working in areas related to my own. Of particular interest were some participants from two chromosome segregation labs based in Vienna and Edinburgh. I intend to stay in contact with these people to discuss potential collaboration and the sharing of reagents. This will be of significant benefit to the progress of my EuroDYNA project. Additionally, many lectures revealed new angles from which to approach my investigations. Specifically, the lectures concerning nucleosome compaction and attachment to DNA suggested structural alterations in condensing chromatin which I hope to identify by SEM.”

*Fiona Gardiner (Allen group), Structural Cell Biology,
Paterson Institute for Cancer Research, Wilmslow Road,
Withington, Manchester M20 4BX, UK*

“Attending the School had an obvious positive impact for developing my personal research projects devoted to the different aspects of the initiation of the nucleotide excision DNA repair (NER). Firstly, my new knowledge of physical approaches to the investigation of the DNA-protein interactions allowed

me to attempt to introduce a new methodology to address interaction of the damaged DNA recognizing proteins with UV-damaged DNA. Secondly, networking with the scientists attending the School led to an idea of a mutual grant application.”

*Sergey Alekseev (Vermeulen group), Genetics, Erasmus
Medical Center, Dr. Molewaterplein 50, PO
Box 1738, Rotterdam 3000 DR, NL*

“During the school we asked one of the lecturers whether he could provide us with a DNA plasmid containing repeats of 601 nucleosome positioning sequences; this led to a collaboration with the group of Daniela Rhodes in Cambridge who will supply us with reconstituted chromatin fibers.”

*Maarten Kruithof (van Noort group), Physics of Life
Processes, Leiden Institute of Physics, Leiden
University, Niels Bohrweg 2, Leiden 2333 CA, NL*

Topical workshops

“Impact of stress on chromatin dynamics and global gene transcription in yeast and mammals”

3 July 2006, Vienna

Organised by David Shore and Pavel Kovarik

This activity brought together EuroDYNA members of the two Collaborative Research Projects (CRPs) which focus on stress-induced global changes in gene expression.

The aim of the workshop was to facilitate the development and establishment of new techniques, and to work out new or most plausible hypothesis for the elucidation of the stress-mediated global changes in gene expression.

The molecular basis of the stress-regulated global changes in transcription is still not entirely clear. A joint approach of the yeast and mammalian

research groups, headed by David Shore and Pavel Kovarik respectively, was initiated. The techniques of purification of protein complexes and their subsequent mass-spec analysis or the dissection of components of the general transcriptional machinery that are regulated by stress particularly require a multi-party discussion of people involved.

Brief reports on the current state of research within the individual groups were followed by very open and informal bilateral and multilateral talks. Specifically, most recent data on the mechanism of osmostress-regulated gene transcription in yeast and inflammation-induced gene transcription in mammalian cells were presented and discussed. A novel technique to study short-lived protein-protein interactions in vivo, that was developed in the lab of Gustav Ammerer very recently, was presented and its potential in advancing the partners projects discussed. The outcome of this workshop is extensive collaborations between the various groups of these two CRPs.

“Biologists meet physicists”– a cross-EUROCORES activity

27 September 2006, Brussels

Organised by ESF

Seven investigators – with three EuroDYNA and four SONS experts – took part in this activity.

With biology becoming increasingly interdisciplinary, ESF organised a one-day brainstorming meeting for investigators of EuroDYNA and SONS (Self-organised Nanostructures) interested in, and working at the interface of molecular biology and physics.

Such a small meeting is a platform to exchange information, expose participants to new ideas, directions and methods, with the potential to stimulate new research initiatives.