

# European Alternative Splicing Network



# EURASNET

Alternative splicing increases the coding capacity and the proteome diversity of eukaryotes. Understanding the complex regulation and consequences of alternative splicing and the functions of derived proteins is a major goal for biological and medical research. Defects in the control of alternative splicing frequently cause, or exacerbate, pathological conditions and link to many diseases including various cancers and neurodegenerative conditions.

Leading European laboratories in research on alternative splicing are now united in a European Commission funded Network of Excellence (NoE), EURASNET, the European Alternative Splicing Network. The coordinator of this Network is Reinhard Lührmann, MPI-Göttingen. The original consortium brings together 30 research groups from 25 participating institutions in 13 countries. The partners are involved in alternative splicing research in human, animal, plant and yeast systems. EURASNET has secured ten million Euros in funding for the next five years, within the Framework 6 Program (FP6) of the European Union, for research in alternative splicing.

By integrating wide-ranging expertise of different organisms and functional genomics technologies, the NoE aims to understand the complex regulation of alternative splicing and the consequences, in terms of disease, of any defects or break down in regulation. New knowledge and applications will be generated which will impact human health and well-being.

## EURASNET Objectives

The NoE has three important objectives:

- 1. Pursue an ambitious research program via a Joint Research Program.**
- 2. Integrate young investigators in the field into the Network, via a Young Investigator Program.**
- 3. Disseminate awareness of the importance of alternative splicing among medical practitioners, policy makers and the general public.**

The joint program is organized in 22 work packages covering research, integration and dissemination. The NoE will provide a broad-based research programme and portfolio to promote understanding of the complex regulation of alternative splicing in different systems and will establish an active and vibrant network to share and exchange

information, methods and material among the network partners. Communication of the importance of RNA biology and alternative splicing to policy makers and the general public and to disseminate the results and outcomes of the EURASNET research to the scientific and medical communities is an essential aspect of the programme.

For further information see:  
[www.eurasnet.info](http://www.eurasnet.info)

## The Network



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Human DNA viruses as model

systems to decipher basic

regulatory mechanism

controlling gene expression at

the level of RNAlogenesis and

RNA processing.



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Development of database and

tools for alternative

splicing.



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Alternative splicing evolution,  
primate-specific genomic  
diversity; and the link to genetic  
disorders and cancer.



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Plant SR proteins and their  
impact on alternative splicing  
and plant development.



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Pre-mRNA splicing defects  
involved in the pathogenesis of  
human diseases and their  
possible prevention and  
treatment through recombinant  
DNA procedures.



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Pre mRNA splicing in the yeast  
*Saccharomyces cerevisiae*.



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Deregulation of alternative  
splicing by environmental factors  
and novel mechanisms to  
control pre-mRNA splicing by  
cooperative binding of co-regulatory  
factors.



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Regulation of alternative  
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elements.



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Computational approaches to  
the evolution and functional  
consequences of alternative  
splicing



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mRNA and RNP structure-  
function analysis and the effect of  
pre-mRNA structure on  
alternative splicing.



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Regulation of alternative  
splicing in plants and the link  
between splicing and  
nonsense-mediated decay.



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Trans-acting factors involved in  
the regulation of alternative  
splicing and multiple roles of SR  
proteins in post-transcriptional  
regulation of expression.



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Dynamics of spliceosome  
assembly and recruitment factors to  
transcription sites



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Activator and repressor proteins  
in determining splice site choice  
and the development of methods for  
kinetic analysis of spliceosome dynamics.



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Splicing regulation in plants and  
the connection between proteins  
involved in RNA metabolism  
and abiotic stresses.



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Mechanisms of alternative  
splicing involved in regulation of

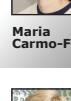
HIV-1 gag medium chain  
and -CoA hydrolase  
(MCAD) mRNA splicing.



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Regulation of alternative  
splicing involving coupling between  
pre-mRNA splicing and co-ordination of  
alternative splicing events.



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Splicing proteins that function in  
3' splice site definition at the  
onset of spliceosome assembly and  
the regulation of SF1 activity.



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Functional organisation of the  
cell nucleus and the mechanism of  
pre-mRNA splicing in  
mammalian cells.



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Structure and function of  
spliceosomal and  
sub-spliceosomal complexes in  
pre-mRNA splicing.



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Organization of pre-mRNA

splicing in the cell nucleus and the  
action of snRNPs in  
co-transcriptional spliceosome  
assembly and alternative  
splicing.



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Manipulation of specific  
alternative splicing events for  
genetic therapeutic approaches for  
genetic and acquired diseases.



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Assembly of stable and dynamic  
protein complexes in splicing  
regulation and the role of RNA  
decay pathways in alternative  
splicing.



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Molecular mechanisms of  
regulated alternative splicing in  
model gene systems and the  
function of splicing regulators.



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Stress-induced transcriptional

and post-transcriptional  
regulation of the acetylcholinesterase (AChE)  
gene and the function of AChE variants.



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Novel regulation of alternative  
splicing by external stimuli and small RNAs.



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RNA-interacting proteins and the molecular mechanisms of  
regulation of alternative splicing  
in humans.



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Tissue-specific and  
developmental site selection and n  
and pairing of 5' and 3' splice sites  
and targeting of splicing factors  
by small chemical molecules.

## Newly joined young investigators :

Didier Auboeuf

Henning Urlaub

Edouard Bertrand

Mihaela Zavolan

Davide Gabellini

- Jim Dahlberg  
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Witold Filipowicz  
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Mario Garcia-Blanco  
(Duke University),  
Adrian Krainer  
(Cold Spring Harbor L.),  
Michael Rosbash  
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Rob Singer  
(Albert Einstein College)  
Joan Steitz  
(Yale University)