

# The Network

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### Credits

#### Pictures:

Dividing Breast Cancer Cells: Steve Gschmeissner / SCIENCE PHOTO LIBRARY  
3D Structure of Spliceosomal Subunits; Cellular Localisation of Splicing Factors:  
Prof. Reinhard Lührmann / MPI, Göttingen

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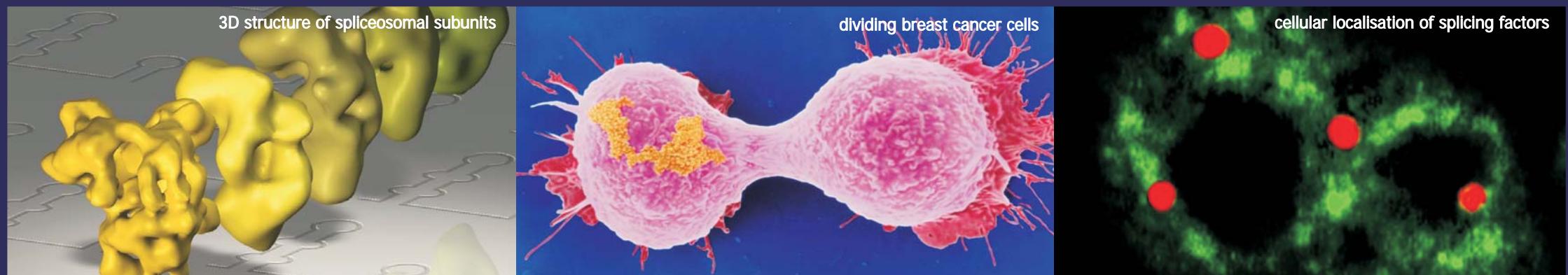
The  
European Alternative  
Splicing Network



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SIXTH FRAMEWORK  
PROGRAMME

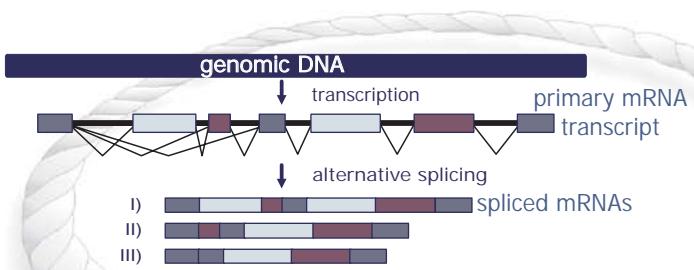




## Alternative Splicing

Alternative splicing is a cellular process by which parts of the primary mRNA transcript are combined in different arrangements.

This produces a range of different proteins and hence functions to create genome diversity and functional complexity in higher eukaryotic organisms.



More than 70% of human genes are alternatively spliced.

The human genome contains only 25,000 genes - however, alternative splicing leads to the production of more than 100,000 proteins.

Most alternative splicing events take place in functionally highly complex tissues like the brain or reproductive organs like the testicles.

## Alternative Splicing and Health

More than two thirds of the human protein-coding genes undergo alternative splicing.

Changes and mis-regulation can have severe effects and cause diseases.

About 15% of mutations connected with disease affect splicing.

Mutations in alternative splicing...

- mutations impede the splicing event completely thus causing severe disease patterns due to the lack of the correct gene product.
- mutations disturbing regulatory pathways lead to the appearance of miss-spliced gene products causing milder but more varied courses of disease.

... and their severe consequences

- Cancer and tumour development  
e.g. breast and ovarian cancer,...
- Cystic Fibrosis
- Neuropathologies  
e.g. Frontotemporal Dementia with Parkinsonism,...
- Myopathologies  
e.g. Duchenne Muscular Dystrophy,...

## European Alternative Splicing Network - EURASNET

A network of excellence to investigate and understand the principles of alternative splicing

The Alternative Splicing Network of Excellence brings together 30 leading research groups and ten Young Investigators, from eleven European countries as well as Israel and Argentina. For a period of five years (2006 - 2010), this consortium has secured ten million Euros in funding within the Framework 6 Program (FP6) of the European Union, for Research in Alternative Splicing (starting January 1<sup>st</sup>, 2006).

Coordinated by Prof. Reinhard Lührmann of the Max Planck Institute for Biophysical Chemistry in Göttingen, Germany, the network has four main objectives:

- elucidate the mechanisms of alternative splicing and the interference with other regulatory processes
- establish a communication platform for the exchange of information, methods and material among the network partners
- support ten "Young Investigators" to establish new research groups
- raise awareness of the importance of alternative splicing among medical practitioners, policy makers and the general public