

# RNA research strategy for Europe takes shape

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Research into RNA, a molecule found in every cell of our bodies, could lead to remarkable advances in the treatment of diseases such as cancer and diabetes, a meeting organised by the European Science Foundation was told.

The conference, held at the institute of Parasitología y Biomedicina "López-Neyra", CSIC in Granada, Spain, on 23 February 2009, was part of an ESF initiative to develop a coherent strategy for RNA research in Europe in recognition of the potential of RNA to result in new approaches to treating human diseases.

For many years it was believed that RNA's sole function in cells was to transmit genetic information from DNA during the manufacture of proteins - the cell's workhorse molecules. However, in recent years it has become clear that RNA has many more sophisticated functions and that there are more types of RNA than previously known.

The field exploded into activity with the discovery in 1998 by US researchers Andrew Fire and Craig Mello of a phenomenon called RNA interference, meaning that genes can be 'silenced' by RNA. This discovery, for which Fire and Mello were awarded the Nobel Prize in 2006, revolutionised the way scientists think about how genetic information is controlled in cells, and has opened the possibility of using gene silencing as a therapy where rogue genes cause disease.

"Research into RNA has great promise for both basic science and

biotechnology and medicine," said the meeting's chairman, Professor Lars Thelander of Umeå University in Sweden. "Most pharmaceutical companies now have RNA projects, but the field is still in its early days and it could be another ten years before we see products appearing in the clinics."

Professor Thomas Cech of the Howard Hughes Medical Institute in the US told the meeting how he discovered that RNA could also act as a biological catalyst - something that it was previously thought was the preserve of proteins representing a wonderful example of the versatility of RNA function. The discovery gave rise to new ideas about how life on Earth might have started and resulted in Professor Cech being awarded a Nobel Prize in 1989.

The Granada "Consensus Conference" was organised by ESF as part of a 'Forward Look' entitled 'RNA World: a new frontier in biomedical research' aimed at developing a strategy for research in RNA over the next ten years. Three earlier workshops had examined various aspects of RNA research to identify where gaps in our knowledge lie and what is required to plug these gaps and fulfil the promise that RNA holds. Forward Looks are a key part of ESF's work, examining important areas of science and technology in consultation with leading scientists and policy makers to develop a strategic framework for research.

A Forward Look report on RNA research is due to be published later this year, detailing the scientific questions that need to be answered and giving politicians and policy makers the information they need when deciding where to direct research funding to ensure that Europe remains globally competitive in this key area of emerging science.

Source: European Science Foundation

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