



PRESS RELEASE

James Briscoe awarded 2008 EMBO Gold Medal

Researcher establishes a paradigm shift in the regulation of neuronal cell development



Heidelberg, 10 July 2008 –

The European Molecular Biology Organization (EMBO) announced that James Briscoe of the Medical Research Council's National Institute for Medical Research will receive the prestigious EMBO Gold Medal for 2008.

Briscoe receives the award in recognition of his discovery that cells integrate time of exposure and concentration of a morphogen to subsequently mount a graded response.

Awarded annually, the EMBO Gold Medal recognises the outstanding contributions of young researchers in the molecular life sciences. Widely regarded as the most prestigious award of its kind in Europe, the Gold Medal highlights the high standards of Europe's best scientists.

"James Briscoe has revolutionized our understanding of the specification of cell identity in a given spatial setting," said Hermann Bujard, EMBO Executive Director. "His work exemplifies how talented scientists are advancing the field of molecular biology."

Four years at Columbia University in New York as a postdoc in Thomas Jessell's lab laid the foundation for Briscoe's career as a developmental biologist. James says he "learned" developmental biology from working alongside Jessell and a "great" postdoc in the lab at the time, Johan Ericson.

While at Columbia University, Briscoe began to unravel the control mechanisms of neuronal cell identity in the ventral neural tube – a research theme sustained in his own lab at NIMR since taking up a group leader position in 2000. Specifically, the Briscoe lab studies the central role of the morphogen Sonic Hedgehog (Shh) to specify the position and subtype identity of neurons in the ventral spinal cord.

"We want to understand how neurons – nerve cells – are arranged in the spinal cord," explains the EMBO Gold Medal winner for audiences other than his peers. "Specifically we are looking at the molecular basis of how different neuronal cells are organized in a developing embryo as a result of signals received from an important

molecule called Sonic Hedgehog, or Shh, that is secreted from a particular region in the spinal cord."

Briscoe and his group discovered a novel mechanism that allows cells to integrate the time of exposure and the concentration of the morphogen Shh to subsequently mount a graded response. In other words, different concentrations of the morphogen activate a signal within the receiving cell for different periods of times. Cells in turn respond to different durations of the signal by activating different genes and therefore becoming different types of nerve cells.

"The discovery that concentration is effectively converted into time is a major shift in our understanding of how a graded signal acts to regulate genes," stated David Wilkinson, Head of Genetics and Development at NIMR, in his nomination of Briscoe for the EMBO Gold Medal.

James Briscoe's contribution to the understanding of how cell identity is specified in a given spatial setting has established a new paradigm that may also apply in many

other contexts. In addition to Shh, a number of other secreted molecules – members of different protein families – have also been implicated in acting as morphogens to pattern other tissues. “It is possible that other morphogens could use a similar mechanism to control cells, for example early in embryo development during gastrulation,” explains the Gold Medal winner.

“James’s discoveries have revealed general principles that may apply to many other contexts in which graded signals and downstream transcription factors control cell identity,” confirmed David Wilkinson.

Robb Krumlauf, former Head of Division at NIMR who helped to

recruit Briscoe to the institute, points out his outstanding qualities at the bench: “At NIMR James rapidly established an independent and creative line of research in his own group. His work is highly rigorous, hits the heart of a problem, and continues to be timely and of wide general interest.”

Jim Smith of the Gurdon Institute agrees with Krumlauf that Briscoe’s work “has been remarkably creative and imaginative while retaining characteristic levels of careful experimentation and scholarship.”

On hearing the news of the EMBO Gold Medal Briscoe referred to the success of his team of researchers: “I have been very fortunate working with very talented

and smart people. They taught me a lot, supported me fantastically, and made many significant contributions.”

In 2000, James Briscoe was selected to benefit from the highly competitive EMBO Young Investigator Programme, then in its first year and now renowned for its scientific excellence.

James Briscoe will receive the EMBO Gold Medal and an award of 10,000 euro on 6 September 2008 at the EMBO Members Workshop, Frontiers of Molecular Biology, in Tampere, Finland.

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About EMBO

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Leading peer-reviewed journals – *The EMBO Journal*, *EMBO reports* and *Molecular Systems Biology* – span a broad spectrum of topics of molecular biology and reflect how science is shaping the world. A new journal from early 2009, *EMBO Molecular Medicine*, will publish original research offering molecular insight into the cellular and systemic processes underlying human disease.

EMBO-sponsored training and networking activities impact thousands of scientists every year, promoting collaboration in all areas of molecular biology – within Europe and worldwide.

EMBO is renowned for the quality and funding of these programmes and activities that include *EMBO Courses and Workshops*, *EMBO Long- and Short-term Fellowships*, *EMBO Young Investigator Programme*, *EMBO Science & Society Programme*, *EMBO Installation Grants* and *EMBO Women in Science*.

Annual awards, such as the *EMBO Gold Medal* and the *EMBO Award for Communication in the Life Sciences*, recognise significant contributions of European researchers to the advancement of science.

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