

PRESS RELEASE



EMBO Gold Medal 2011 awarded to **Simon Boulton**

***Groundbreaking research on DNA repair,
genome integrity and cancer***

**Heidelberg, Germany,
20 April 2011** – The European Molecular Biology Organization (EMBO) today announced Simon Boulton of Cancer Research UK's London Research Institute, Clare Hall Laboratories as the winner of the 2011 EMBO Gold Medal. Awarded annually, the EMBO Gold Medal recognizes the outstanding contributions of young researchers in the molecular life sciences

Boulton receives the award in recognition of his groundbreaking research on DNA repair mechanisms. The election committee was particularly impressed by his pioneering role in establishing the nematode worm, *C. elegans*, as a model system to study genome instability.

"I am delighted and honoured to receive such a prestigious award," said Boulton upon hearing the news.

Throughout his career, 38-year-old Boulton and his research team have exploited the experimental strengths of several complementary systems, including *C. elegans* and mouse

genetics, proteomics in mammalian cells and *in vitro* biochemistry. Some of their most important discoveries have come from contrasting the results obtained in different systems and cellular contexts. Boulton's PhD supervisor Stephen P. Jackson described him as an "absolutely outstanding scientist" and praised his unique combination of approaches that allowed him to make seminal contributions to the field encompassing DNA repair, genome instability and cancer.

Simon Boulton's research highlights include:

- Discovering the gene RTEL1 as an anti-recombinase that impacts on genome stability and cancer and counteracts toxic recombination, which is also required in meiosis to execute non-crossover repair.
- Discovering the PBZ motif and establishing that ALC1 (Amplified in Liver Cancer 1) is a poly(ADP-ribose)-activated chromatin-remodelling enzyme required for DNA repair. Poly (ADP-ribosylation) (PAR) is a post-translational modification of proteins that play an

important role in mediating protein interactions and the recruitment of specific protein targets. These results provided new insights into the mechanisms by which PAR regulates DNA repair.

- Discovering that the *Fanconi Anemia* proteins FANCM and FAAP24 are required for checkpoint-kinase signalling (ATR) in response to DNA damage and establishing that DNA repair defects of *Fanconi Anemia* cells can be suppressed by blocking error prone repair by non-homologous end joining.

Potential opportunities for cancer treatment

These discoveries gave rise to novel therapeutic approaches. Boulton's laboratory demonstrated that cells that over-express the ALC1 enzyme are highly susceptible to eradication by the chemotherapeutic *Bleomycin*. Since ALC1 is amplified in over 50 percent of human liver cancers, these findings may have important implications for liver cancer treatment.

The prizewinner also showed that DNA repair defects of *Fanconi Anemia* cells can be suppressed by blocking non-homologous end joining (NHEJ). This observation raises the possibility that NHEJ inhibitors could be used to suppress cancer predisposition in *Fanconi Anemia* patients.

Career stages

The UK-born scientist started his quest to investigate mechanisms of DNA repair while studying for his PhD at the University of Cambridge from 1994-1998. He describes his first exposure to the highly competitive world-class research environment in Cambridge as “extremely influential”. Boulton also recognizes that establishing his own research group at the world-renowned Cancer Research UK’s London Research Institute (LRI), Clare Hall Laboratories in 2002 was a key step in his scientific career.

Boulton, while still a young researcher, has been recognized with awards from both UK and international organizations, including the Colworth Medal from the Biochemistry Society and the Eppendorf/Nature Award. He became an EMBO Young Investigator in 2007 and an EMBO Member in 2009. This year he

received a Wolfson Research Merit Award from the Royal Society and an Advanced Investigator Award from the ERC.

Simon Boulton will receive the EMBO Gold Medal and an award of 10,000 euros on 12 September 2011 at *The EMBO Meeting* in Vienna where he will give a lecture about his research.

For interviews

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About EMBO

The European Molecular Biology Organization (EMBO) promotes excellence in molecular life sciences in Europe by recognizing and fostering talented scientists. Since 1964, leading scientists are elected annually to become EMBO Members based on proven excellence in research. Members number almost 1500 today. Fifty-five scientists from the EMBO membership have received the Nobel Prize.

Four leading peer-reviewed journals – *The EMBO Journal*, *EMBO reports*, *Molecular Systems Biology* and *EMBO Molecular Medicine* – span a broad spectrum of topics of molecular biology and reflect how science is shaping the world.

EMBO funding, training and networking activities impact thousands of scientists every year, promoting collaboration in all areas of molecular biology – within its 27 member states, in Europe and neighbouring countries, and worldwide.

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