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The brain researcher Dr. James Poulet receives the 2013 Paul Ehrlich and Ludwig Darmstaedter Prize for Young Researchers

Sensory perception results in precise motor responses. James Poulet is studying how the brain processes sensory stimuli that trigger behavioural responses.

FRANKFURT am MAIN. The €60,000 Paul Ehrlich and Ludwig Darmstaedter Prize for Young Researchers is awarded this year to Dr. James Poulet, a brain researcher working in Berlin. The young British scientist has received the award because, as the Scientific Council of the Paul Ehrlich Foundation states, "his research furthers our understanding of the neuronal basis of behavior." The award ceremony will take place today, the 159th birthday of Paul Ehrlich, in the Paulskirche, Frankfurt.

Sensory perceptions result in very precise behavior. We see something and we reach for it. We smell something and we turn up our nose. James Poulet is studying what happens in the cerebral cortex of the mouse when sensory stimuli and motor behavior are interlinked, how the processes influence each other, and which neurons, synapses, and neuronal networks are involved in these responses. To do so, he is using new optical, behavioural and electrophysiological methods, for which the Scientific Council reserves its special praise. "Poulet's work is also of crucial significance for the development of artificial limbs and prostheses," the Council wrote in explaining its decision.

Poulet, who is currently Group Head at the Max Delbrück Center for Molecular Medicine, Berlin-Buch and also works within the NeuroCure Excellence Cluster, has gained attention for his many articles published in prominent scientific journals. He showed why male crickets

do not become deaf when they invite females of the species to mate by rhythmically rubbing their forewings together. The chirping we know from warm summer nights is, for the crickets, as loud as a chain saw. The male crickets very specifically "turn down", or inhibit, the neurons responsible for hearing as soon as they begin to chirp and then remove the inhibition as soon as they stop chirping. By switching back and forth between "on" and "off", the crickets protect themselves against deafness but yet are still able to hear the approach of a predator or a rival. Poulet has also identified the neurons that are responsible for this internal feedback process. The process exemplifies how living beings discriminate between self-generated sensory stimuli and external stimuli. A similar feedback loop is activated to ensure that we don't damage our own hearing when we shout and that we are unable to tickle ourselves. James Poulet is furthermore interested in what is generally known as brain states. An example is the transition from dozing to being wide awake. These states are part of the brain's normal functioning. Poulet is investigating how they come about and what their role is in the interlinking of sensory perception and motor behavior.

Short biography of Dr. James Poulet

James Poulet, born in 1975, first studied biology at the University of Bristol and then completed his doctorate in the Department of Zoology at Cambridge University. In 2005 he moved to the Brain Mind Institute at the École Polytechnique Fédérale in Lausanne, Switzerland. Since 2009 he has been Group Head at the Max Delbrück Center for Molecular Medicine, Berlin-Buch and also works at the NeuroCure Excellence Cluster. Poulet has published in very prominent scientific journals, including several articles in Nature, Science and Nature Neuroscience. He has won the Gedge Prize of Cambridge University, the Rolleston Memorial Prize of Oxford University and the Young Investigator Award of the International Society for Neuroethology. In 2010 Poulet received one of the coveted European Research Council Starting Grants, which are awarded only to the very best young scientists.

Paul Ehrlich and Ludwig Darmstaedter Prize for Young Researchers

The Paul Ehrlich and Ludwig Darmstaedter Prize for Young Researchers, awarded for the first time in 2006, is conferred once a year by the Paul Ehrlich Foundation on a young investigator working in Germany for his or her outstanding achievements in the field of biomedical research. The prize money must be used for research purposes. University faculty members and leading scientists at German research institutions are eligible for nomination. The selection of the prizewinner is made by the Scientific Council on a proposal by the eight-person selection committee.

The Paul Ehrlich Foundation

The Paul Ehrlich Foundation is a legally dependent foundation of the Association of Friends and Sponsors of the Goethe University, Frankfurt. The Honorary Chairman of the Foundation, which

was established by Hedwig Ehrlich in 1929, is the German Federal President, who also appoints the elected members of the Scientific Council and the Board of Trustees. The Chair of the Association of Friends and Sponsors of the Goethe University is at the same time the Chair of the Scientific Council of the Paul Ehrlich Foundation. The current Chair of both bodies is Professor Wilhelm Bender. The Chancellor of the Goethe University is an *ex officio* member of the Board of Trustees of the Paul Ehrlich Foundation.

Further information

You can obtain the full resume, selected publications, the list of publications and a photograph of the prizewinner from the Press Office of the Paul Ehrlich Foundation (c/o Dr. Hildegard Kaulen, phone: +49 06122/52718, email: Paul-Ehrlich-Stiftung@pvw.uni-frankfurt.de) and at www.paul-ehrlich-stiftung.de.