

## **Consensus document on European brain research**

Jes Olesen, Mary G Baker, Tamas Freund, Monica di Luca, Julien Mendlewicz, Ian Ragan, Manfred Westphal

### **Executive summary**

Brain disease psychiatric and neurologic disease combined represents a considerable social and economic burden in Europe. Data collected by the World Health Organization (WHO) suggest that brain diseases are responsible for 35% of Europe's total disease burden. An analysis of all health economic studies of brain diseases in Europe, published by the European Brain Council (EBC) in June 2005, estimated the total cost of brain disease in Europe in 2004 to be J386 billion. That burden is set to grow, mainly due to the fact that the European population is ageing.

Investment in brain sciences does not match that burden now, let alone in the future. Brain research received only 8% of the life science budget in the European Commission's Fifth Framework Programme, which represents less than 0.01% of the annual cost of brain disorders for that period. Over the last decade, Europe has been losing ground to the USA and Japan in terms of both basic and clinical research. Many of Europe's young researchers are taking up posts in the USA and staying there. Big pharmaceutical companies are fleeing Europe for the USA, taking their drug development programmes with them.

Research in the brain sciences now holds the promise of therapies that halt and even reverse neurodegeneration, of better diagnostic tools, neural prostheses for the paralysed and individual, thereby eliminating or reducing side effects. Our growing understanding of the normal brain could lead to better prevention of brain disease and to more effective teaching methods. The need for innovative treatments has never been greater, and Europe boasts clusters of excellent researchers in biotechnology who could collaborate with brain scientists and the pharmaceutical industry to realise this promise.

But if Europe is to seize these opportunities and meet the challenge of brain disease, it needs to go forward on the basis of greater collaboration between countries, greater collaboration between industry, academia and patient organisations, and increased investment in the brain sciences. The EBC was formed in 2002 to bring together scientists, clinicians, the pharmaceutical industry, charities and patient organisations from all over Europe to campaign for these goals. It takes a novel, bottom-up approach to research policy, and in developing this consensus document, it aims to promote a greater and more focused effort in this area, to improve public understanding of the brain sciences and above all, to support brain research as a priority under the European Commission's Seventh Framework Programme (FP7, 2007–2013).

The research programme outlined here was first conceived by the EBC board. An outline was sent to all member organisations and a number of individual experts for comments. Following that, a table of contents was developed.

The 45 research themes were written by groups of experts from across Europe who represent a wide range of disciplines. Each one contains a proposal for future research on a specific brain-related theme which the EBC believes could form the basis of one or more integrated projects or strategic targeted research projects (STREP) funded under FP7. The EBC has deliberately focused on the

major diseases and then described the basic research needed to understand and treat or perhaps even cure those diseases. The programme is therefore constructed “from man to molecule” and not the other way round, with equal importance attached to basic and clinical research.

The EBC suggests that each of the proposed integrated projects or STREP should be awarded a budget in the order of J10 to 15 million. In addition, brain research should be treated as an important element of many other parts of FP7, such as the European Research Council and research programmes on information technology and the causes of violence. Any research programme that concerns human behaviour should, by definition, take account of brain research. The EBC envisages that the priority for brain research it proposes at the European level will translate into higher priority for brain research at the national level, and this document may also serve as a starting point for the development of national consensus programmes. It seems likely that consensus conferences on brain research in Europe may further develop the themes and ideas discussed here. An EBC task force may also be established to further the consensus process.

In general, increasing funding in the brain sciences would bring enormous economic returns by lightening the burden on healthcare systems and increasing the productivity of affected individuals — and might easily pay for