

## **HALF TIME EVALUATION OF THE SWEDISH BRAIN POWER PROGRAM**

September 2008

### **Recommendation**

There is consensus among the evaluators that the establishment of Swedish Brain Power (SBP) was a wise decision and that the return of the grant already has been substantial. The evaluators would strongly recommend a continuation of the Brain Power program.

The Brain Power initiative is a unique effort to establish a holistic research program in the field of neuroscience. The initiative stands out as a success, even at this early phase of the project period. The research performance in the SBP program is very impressive, both in terms of the number and scientific quality of projects initiated and performance of the participating groups. The SBP program has been successfully disseminated not only in Sweden, but worldwide and is now very well known in the international community of dementia researchers and industries related to diagnosis and treatment of dementia. Other European countries have also taken note of Brain Power and have contacted its leadership with the prospect of launching similar initiatives. Thus, Brain Power has the potential of serving as an international role model in research networking. In the course of less than three years the formation of Brain Power has fostered synergies and interdisciplinary links that have served to strengthen Swedish research in terms of quality as well as impact within the field of neurodegeneration.

There are also some aspects which need to be considered during the second half-time. To gain maximal use and output from the SBP the evaluators recommend that the following points are considered:

- The scientific quality of the program is excellent, but the preclinical cores have recruited the far most PhD and postdoctoral fellows. It would be of great value if the program can further increase focus on clinical research during its next phase, creating a better balance between the cores.
- Translational research will be increasingly important during the remaining part of the SBP. There is a challenge to adequately transfer the truly excellent basic science being done to clinical experiments.
- More randomised controlled trials would be of great value. Areas that significantly could benefit from such trials would be on how to improve care for people with dementia that live in their own homes, on evaluating assistive technology and how to improve primary social and health care services.
- It is too early at this stage to evaluate the effects on health (patient benefit) and social well-being. During the remaining project period it is important that more emphasis is being put on this aspect and the development of the “upper end” of the value chain – at the level of the wards, patients, and their families.
- It is important that a plan is developed for commercialisation, including both collaboration with industry and securing intellectual property rights.
- Transfer of knowledge is an aspect that will be yet more important in the next phase. More emphasis should be placed on this aspect and plans on how to disseminate information should be developed.

- The organisation and leadership of the program seems strong today. It will, however, be important to secure succession for the future.
- Plans must be developed and action taken within the program to ensure that the core competence is maintained and further developed beyond the time frame of the present grant. The program can serve as a unique resource for Swedish research and be pioneering in the field of diagnosis and treatment of neurodegenerative diseases far beyond the end of the current project period.

## **Background**

The Brain Power programme was started as a collaboration between six different Swedish founders; Invest in Sweden Agency, the Knowledge Foundation, the Swedish Foundation for Healthcare Sciences and Allergy Research (the Vårdal Foundation), the Swedish Foundation for Strategic Research, the Knut and Alice Wallenberg Foundation and VINNOVA.

The programme aims to develop a new holistic concept for integration and co-operation within a number of R&D areas that are important for early diagnosis and treatment of neurodegenerative diseases. In 2003 the programme issued a call for applications for funding. From a great number of applicants a consortium led by Professor Bengt Winblad at the Karolinska Institute was selected. This national consortium was allocated SEK 100 million for research on neurodegenerative diseases and started in July 2005.

In agreement with the founders' intentions, the Swedish Brain Power network was organized following a holistic concept with a multidisciplinary, translational approach and a strong ambition to effectively stimulate integration and collaboration between academic research, business enterprise and the health care system. SBP consists of leading researchers in Sweden on neurodegenerative disorders, with a special focus on dementia. The *goal* for the SBP network is to improve early diagnosis, treatment and care of patients affected by neurodegenerative diseases. These often age-related diseases are a growing public health problem worldwide due to increased elderly population. There is a great need for new and more effective treatments for dementia and other neurodegenerative disease and for increased knowledge on how to give the best possible care. Furthermore, even more important is of course to find out the mechanisms behind eg Alzheimer disease, in order to prevent the disease. That also means that there is a growing commercial market for better diagnostic methods and for new drugs.

More *specific objectives* for the Swedish Brain Power programme are to:

- develop methods to identify neurodegenerative diseases as early as possible
- develop, test and evaluate new drugs or other treatments in the very early stages of the disease
- facilitate integrated research between the leading expertise in the neurodegenerative field in Sweden
- stimulate and facilitate translational research as a collaboration between basic, clinical and caring research
- maintain an international leading position for Swedish neuroscience in order to attract national and international industrial collaboration
- establish an education and technology transfer program, eg supported by internet technology-based infrastructure.

The Swedish Brain Power network includes today approximately 50 ongoing research projects and 80 researchers. For detailed description of the program, including the projects, see summarized report July 2005-june 2008 (attachment 1).

### **Evaluation process**

This evaluation report is based on documents (report July 2005-june 2008; attachment 1) that were made available to the evaluation panel prior to the meeting and on information and discussions during the meeting on the 1th of September in Stockholm. The evaluators were asked to give written evaluations as well as to take part in the meeting the 1th of September (for panel members and meeting attendees, see attachment 2 and 3). The written documentation and oral presentations provided a comprehensive and fully sufficient material for the present evaluation.

### **Evaluation report**

As pointed out below it is important to note that the formation of a consortium as complex as Brain Power is by necessity a slow process and that several years are required to build up the competence, technologies, and collaborative links that are key ingredients of an integrated consortium structure. The panel was impressed to learn that Brain Power already at this stage is able to document a significant output beyond what would be expected by a mere extrapolation of previous work.

Information provided by the Brain Power leadership indicates that 142 out of a total of 253 papers published in the course of the first three years of the project have had significant contribution from the Brain Power Programme. Further, 73 out of the 253 papers are co-authored from two or more of Brain Power's cores. This information attests to the strength of the internal collaborative links.

### *“Added value” and synergies of the Brain Power Program*

Convincing documentation was put forward that the funding has had significant “added value” – i.e., an effect extending beyond what would be expected if an equivalent sum had been divided among the individual member groups. An obvious “added value” is increased communication and scientific exchange between the different research environments – across as well as within the individual disciplines. Increased communication and awareness have been promoted by joint meetings and a common web interface. By bringing the different environments together in this way it has been possible to unleash synergies and reduce redundancies – thus increasing the output from each “krona” spent for research. The interaction between the cores will undoubtedly spawn interdisciplinary research and an increased international impact and visibility.

In terms of synergies the panel sees a major potential in coordinating those biobanks and health registries in Sweden that are relevant to the neuroscience field. Brain Power has concrete plans in this direction and already has managed to join different patient cohorts to increase Sweden's attractiveness as a partner in clinical trials. Much effort has been invested into establishing a joint imaging database and a CSF repository for identifying early markers

of neurodegenerative disease. These resources are already much in demand by foreign research groups and companies, attesting to their scientific value.

#### *Organization and execution plan*

The organisation is excellent with a well implemented execution plan for obtaining the best possible network of researchers from different research fields and different countries. Participants are showing very strong and well-documented commitment.

#### *Access to meeting places and the possibility of working in collaboration*

As indicated above, the consortium has created excellent collaboration, manifested in creative and innovative meeting places. Forms of collaboration have been described in a very convincing manner.

#### *The access of the consortium to relevant infrastructure*

The consortium has access to excellent infrastructure, including relevant databases, biobanks, major equipment, facilities for experimental animals, and patient and experimental material. It has also established contacts and agreements that open for the use of equipment and facilities that are not available within the consortium.

#### *Leadership*

The consortium demonstrates a strong and very credible leadership structure that provides an exceptionally firm ground for coordination of the activities, both scientifically and administratively. Leadership has been documented in a very convincing manner. However, there is no clear succession plan presented. In such a large organisation a plan must be established.

#### *The effects on health (patient benefit) and social well-being*

Three years into the project period it is too early to evaluate the effects on health and social well-being. As pointed out below, it is recommended that Brain Power place more emphasis on this aspect in the remaining part of the project period and that efforts be made to ensure an optimal balance between the relevant cores.

#### *Commercialisation, including collaboration with industry, and securing IPRs*

The consortium has initiated established good collaboration with industry. However, the consortium has not a well-considered plan for the commercialisation of the results from research and development, for ensuring how the rights to the results are to be secured. Such a plan should be initiated in a near future and executed in spring 2009.

### *Information dissemination - transfer of knowledge*

The consortium describes a plan for the transfer of knowledge at several levels, between, for example, preclinical and clinical research and from clinical research into the clinics. It also describes a sound plan for transfer between various research disciplines, from research to patients, to care organisations in a broad interpretation of the term, to the commercial world, and to the general public. A major part of this plan has been implemented but more emphasis should be placed on this aspect in the years ahead (see “Challenges”, below).

### *Challenges*

The panel was impressed by the large number of transgenic animal models that have been developed under the Brain Power umbrella. These will undoubtedly serve as an important resource for the basic research environment but also be instrumental in promoting the development of biomarkers. The quality of the basic research component is very strong. However, there is a challenge to adequately translate the achievements from basic science to clinical experiments and thereby into improved diagnosis and therapy to the benefit of the patients. It is therefore recommended that an increased emphasis be put on translational research to better couple animal models to disease.

One of the unique features and challenges of the Brain Power program is its declared intention to bring progress out to the individual patients – in the wards or in their homes. The success in this direction is likely to impact heavily on the success of the Brain Power program at large. Acknowledging that outreach to patients and the community is a slow and complex process the panel recommends that more resources are spent on this aspect. More emphasis on outreach would also help make the Brain Power concept known to a broader audience and help secure support for the extension of the Brain Power program.

The panel is of the unanimous opinion that in order to harvest from the substantial investment in the Brain Power program, adequate steps must be taken to ensure that the core competence is maintained and further developed beyond the time frame of the present grant. This is a major challenge. The scope of the Brain Power consortium is unique and hence there is no precedence that could serve as a recipe on which to build. This means that the establishment of a well functioning network is bound to be a time demanding process but it also implies that the network – once in full operation – will serve as a unique resource for Swedish research in many years to come – and far beyond the end of the current project period. It is imperative that the future of Swedish Brain Power be defined, as undue uncertainties regarding the future funding situation will negatively impact on the consortium’s ability to recruit and maintain strategic personnel. The funding of Swedish Brain Power is for two more years. It is important that the board as well as the steering committee and executive committee make a strong commitment to find further funding after the 5-year period. This does not necessarily mean that Swedish Brain Power should be continued in its present form: if funding is secured beyond the current contract period one should use the opportunity to restructure or make adjustments to the program based on the outcome of the final expert evaluation.

Finally, a notable challenge is the requirement to reach an optimal balance between the need to preserve the holistic concept – so critical for the program’s success – and the need to nurture those projects and infrastructure initiatives that hold the greatest promise in regard to

quality and international impact. It was not clear to the panel to what extent the economical flexibility of the consortium was utilized to ensure an optimal balance in this regard. It is the recommendation of the panel that future reports be better focused on this important success factor.

*Conclusions*

There is consensus among the evaluators that the establishment of Swedish Brain Power (SBP) was a wise decision and that the return of the grant already has been substantial. The evaluators would strongly recommend a continuation of the Brain Power program for the rest of the program period.

Swedish Brain Power is a unique and ambitious initiative that aims at building a value chain, from basic research to patients and the society. Substantial added values are already starting to emerge, and if the consortium stays on its successful course it will provide Swedish research with a competitive edge for many years to come. It is essential that a foresight analysis be performed so as to ensure that the consortium be tuned to the challenges ahead – particularly when it comes to the need to compete and collaborate on European and Nordic levels. In particular, the panel sees a significant potential for a closer interaction between the Nordic countries in regard to pooling and harmonization of patient cohorts and biobank resources. It would seem logical that Brain Power takes the lead to realize this potential.

Given the fact that the design of a “holistic” network in neuroscience is uncharted territory the panel was impressed to see the progress that have been made in the short time that has elapsed since Brain Power was initiated. The success obviously depends on the dynamic and competent leadership and governance that has been put in place for this network. The panel is convinced that Swedish Brain Power will develop into model that other countries will be striving to match.

Place: ..... *Stockholm* .....

Date: ..... *1/10-2008* .....

*Claes Wilhelmsson*  
Claes Wilhelmsson  
Chairperson for the evaluation panel

*Attachment 1: Swedish Brain Power Report July 2005-June 2008*



*Attachment 2: Evaluation Panel*



Evaluation panel.doc

*Attachment 3: Evaluation meeting Sept 1 2008, Agenda and Participants*



Agenda Sept 1,  
2008, Brain Power Ha