**IN FOCUS**

This spring, a study on a protective protein, the sigma-1 receptor, caught a lot of attention. It also raised a number of questions, not least within the Parkinson patient community. How close are we to a clinical treatment? Could such a treatment be applied to other diseases? This November BAGADILCO hosts a Parkinson Café that aims to answer these questions. Our researchers will explain the key elements of the journey from an experimental discovery to the finished product, a clinical treatment benefitting patients.

Angela Cenci Nilsson - Interpreting results from animal models

Angela will initialize talk about the importance of animal testing and animal models for Parkinson’s research. She will then focus on the notable study on the Sigma-1 receptor that was published in the spring. Angela will explain the different parts of the article and also touch upon the projects that are now under way as a result of these research findings.

Håkan Widner - The journey from experimental discovery to the patient

Håkan will discuss how Parkinson’s research can realize experimental results in disease models so that they can be applied to patients, that is, how to “translate” good results in animal models to produce the same results in humans. Additionally, Håkan will talk about two potential approaches for bringing a treatment with the sigma-1 receptor towards clinical studies, one observational study and one interventional study.

The Café will take place November 20 in Belfragesalen at BMC, 18-20.30. The talks will be held in Swedish. **Confirm your participation by emailing; Jens.Persson@med.lu.se**

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**CALENDAR PICKS**

1. **Nov 3rd, Invited Lecture Series**  
   Transcriptional basis for neuronal diversity in the mouse forebrain  
   Speaker: Jens Hjerling-Leffler

2. **Dec 4th, Invited Lecture Series**  
   Dissection of neural circuits controlling motivated behavior  
   Speaker: Konstantinos Meletis, PhD, Karolinska Institutet.

3. **Dec 11th, Invited Lecture Series**  
   MDMA beyond its abuse potential  
   Speaker: Micaela Morelli, The University of Cagliari, Italy.

4. **WP leader meetings**  
   12 November; 12-13; BMC I1309  
   9 December; 14.30-15.30; Ystad Saltsjöbaden

**BAG NEWS PICKS**

1. **BAG scientists score big in PD Foundation grant announcement -** For full list of recipients [CLICK HERE](#)

2. **SRC’s general call decision sees grants go to BAG researchers**  
   For full list of recipients [CLICK HERE](#)

3. **Ulrich Pfisterer makes doctor**  
   On September 19th Ulrich successfully defended his thesis: Direct Conversion of Human Fibroblasts to Induced Neurons

4. **Alexander Santillo mounts successful defence**  
   For the thesis - [CLICK HERE](#)
Being at the helm of a sprawling research environment can often be an unenviable task. As Ban Ki-Moon and his predecessors at the UN headquarters well know, negotiating diplomatic solutions guided by the lowest common denominator is not exactly a popularity contest. This September, Johan Jakobsson stepped into the role of BAGADILICO’s new Coordinator. His youthful appearance - he is about to reach the five-year mark as a group leader - is a rather suitable symbol for the BAGADILICO that has emerged over the past few years. The Linnaeus environment has been instrumental in facilitating a generational shift in the area of neuroscience at Lund University, especially within Parkinson’s and Huntington’s research. As we now come out on the other side of a cathartic half-time evaluation process that helped iron out some of the previous differences within BAGADILICO, Johan Jakobsson believes there is every reason to look to the future with newfound confidence.

Taking the pulse on BAGADILICO today, what is your feeling?

- We’ve now just come from a big process with the half-time evaluation which I believe on the whole has been very positive for BAGADILICO. The way our research environment is working now, I don’t think there has been as optimistic a feeling throughout ever before. The sense I get from PIs today is very positive.

How has the environment developed in the past couple of years?

- First and foremost, we have broadened our research lines and slightly changed the profile within the different groups. Meanwhile, new groups have joined our ranks. Also, we have the half-time report which has meant that we have turned every stone within the environment and really brought to the surface what is good and bad, what we should focus on and how we can best tackle the joint tasks ahead. Moments in the evaluation process may have been painful but in the end it it has been truly valuable and I think we all realize now what is needed for the future.

Looking at the future, where should our main focus be directed?

- There is today a stronger identity within BAGADILICO,
that we are a research environment aiming towards excellence in Parkinson’s and Huntington’s, and we have clearly defined our areas of expertise and know what needs to be done in the future to reach our goals. On the other hand, of course, there is a lot of uncertainty about the future as to what Lund’s neuroscience profile should be. This really comes from us having had very strong researchers such as Olle Lindvall, Anders Björklund and Patrik Brundin, whose influence naturally will begin to fade. From this a change will come and we need a new discussion about where we want to go, both in terms of research as well as organizationally. I think we can already see that in the future we will be working together more, a stronger emphasis on collaborative research.

- If Lund is to maintain its strong role in the future it will be extremely important to cooperate unconditionally without any prestige or conflict, and I think this is where we’ve landed now. We have to identify our areas of strength and how best to utilize each other’s expertise to achieve success. This is a development that is already underway, one that has been helped through the existence of BAGADILICO.

What do you personally hope to bring to the table as Coordinator?

- What I think is really important is that the young researchers, post-docs and graduate students, play a prominent role within BAGADILICO, that they feel involved, that they feel that the different events and arrangements are also aimed at them and that BAGADILICO becomes a natural meeting point for them.

- I also wish that BAGADILICO can help recruit new researchers to the environment that can add new expertise in key areas. In my view, new blood is always needed to revitalize a research environment.

How would you describe your leadership style?

- Im still a young research leader, my current group was formed in 2010 and I hope that I have developed a lot since then. I believe it is important that each individual is independent. Being a researcher is to a large degree an independent and autonomous profession, and therefore it is important that each researcher takes on an independent role within a group. The same goes for BAGADILICO really, we are a large collection of independent individuals. You can’t really control such a large group, you to try to get a feel for where the wind is blowing and from there guide towards some form of consensus. One advantage for me is maybe that my line of research is not among the most central within BAGADILICO. This could perhaps help me to see things from an outside perspective, which might be something positive.

What made you accept the role of Coordinator?

- Quite simply, I thought it would be fun, an exciting challenge. It is also an opportunity to test my leadership skills and perhaps I can add something in the form of pragmatism and diplomacy. Usually, I’m a rather pragmatic person.

What are the main challenges in the coming years?

- We need to find a way to permanent the investments made by BAGADILICO in expertise and equipment, our technical platforms for example. These platforms have been very important to tie together research groups within in the network.

When BAGADILICO take stock in 2018, what do you hope will be the lasting effects of the environment?

- I hope we will have contributed to the fact that neuroscience in Lund, especially research on PD and HD, will continue to be very strong areas of research here. And I do believe this will be the case. So far, I think that BAGADILICO has enabled a generational shift and a renewal of the research groups in Lund. Several new groups have emerged and they have benefited greatly from BAGADILICO. They have received funding for different projects and the have utilized the technical platforms which has boosted their ability to perform the research they want. To this end, BAGADILICO’s resources have been put to good use and I hope we can carry on down this path, bringing in even more research groups. Ideally, we would be able to bring in 3-4 new groups who can contribute with new expertise.

Could you briefly describe your own lines of research?

- I have one project that involves microRNA and its role in neurodegenerative diseases, mainly PD and HD. Another project deals with microRNA and its role in psychiatric disorders. Yet another research line is focused on microRNA and its role in cancer of the brain, brain tumors. Then we also have some slightly more experimental projects dealing with transcriptional regulation and how the genome is used in neural stem cells and neurons, basic science really.

What drives you as a scientist?

- Being a scientist is a huge privilege, just to get to be able to have fun on the job is a luxury. In all honesty, this is my hobby, I’ve even stopped playing golf, there’s no time anymore. What I find the most fun about it, this may sound strange, is that each project takes such a long time, it’s a very time-consuming and complex job. There are many different elements that are enjoyable. You never quite know where it takes you, that’s exciting. Also, it’s a creative profession and no two days are ever the same. You rarely feel that anything is routine in this business. Then of course, you get to meet a lot of people, which is another positive.

In the longer perspective, do you have any specific goals with your research?

- I would love it if some of the people in my group get their own labs. I really hope that they will. For myself, I really only want to be able to keep a research group of this size, and that I can focus on research instead of chasing money. We are ten researchers here now and I think that’s a good number, we don’t need to be a bigger group. I’m happy if we can do all the experiments we want.
In the retail business, the term G-force is routinely used to promote “hi-tech” products, whether it be racing gear, clothing or watches with uniquely durable qualities. In May of this year, a group of Parkinson’s researchers chose that same name for a global alliance with real technological prowess. As we stand on the threshold of the first cell transplants in Parkinson’s patients in over a decade, within the EU-financed study TRANSEURO, key actors in the field are taking part in an unusual mobilization. Setting collaboration ahead of competition, progress ahead of ego, the world’s premiere scientists in developing stem cell derived nerve cells for transplantation are joining forces to pick up the baton where TRANSEURO leaves off.
Spanning from Kyoto to Brussels to New York, the alliance comprises four research clusters at the very frontline of their respective research lines. The initiative was born out of an earlier transatlantic collaboration. Breaking with traditional conventions, a previous EU network - focused on stem cell derived dopamine cells - invited an American research group to join their ranks. The outcome of that partnership was so productive that MultiPark’s Malin Parmar and Roger Barker of Cambridge University decided to initiate this rare alliance to help bring the next generation of transplantable cells to fruition.

- When the funding expired from our previous EU-network, where the Americans where integral partners, we felt that it would be a major loss to end our collaborations which had been so valuable. I work closely with Roger Barker of Cambridge and we strongly believe that it is through open partnerships that we can really move the field forward. Some aspects of scientific competition can be truly counterproductive, says Malin Parmar.

Present at the alliance’s first meeting, in London in May, were the two hosting EU networks, TRANSEURO and NeuroStemCellRepair, and the U.S. research group lead by Lorenz Studer as well as representatives from the world-renowned Center for iPS cell Research and Application lead by Jun Takahashi. TRANSEURO has laid the groundwork for this alliance in the past decade. Over the last eight years it has gathered all European expertise on fetal cell based transplants for Parkinson’s disease. From the outset the network has promoted a culture of cooperation, not only within Europe’s borders. The members of G-Force now hope to build on that culture as the field, in all likelihood, will move on from fetal cell based treatments to transplants with stem cell derived dopamine cells in the coming years.

The concept of a stronger climate of collaboration was really born out of necessity. Scientists are beginning to realize that the complex nature of cell therapies, especially relating to the brain, requires an open and cooperative research environment. Getting stem cells to become functioning dopamine cells, the method of delivering them to a specific target and learning how to get them to integrate in the brain are all extremely complicated processes. The sharing of ideas and data can not only speed up progress in the field but also help researchers avoid pursuing costly dead ends.

- The different research programs will of course still be independent of one another but we have established areas where it will be useful to cooperate. For example, we have come to the conclusion that we should develop criteria by which to test the quality of the cells prior to transplantation. Similarly, we will coordinate how to evaluate the effects of the treatment in patients after transplantation, says Malin Parmar.

On historical merit alone, Lund University enjoys a lot of influence in this particular research field. Anders Björklund has not only been responsible for some of the major scientific advances here, he has also fostered a culture of collegiality and cooperation on a global scale. That goodwill track-record is now being put to use by Malin Parmar as she helps to usher in a new era of cooperation with the aim of accelerating the development of new therapies for people with Parkinson’s.

- It is undoubtedly the case that Lund has a strong reputation in this field which has helped pave the way for us. Hand in hand with his scientific advances in the 1980s, Anders Björklund created friends rather than enemies, which won him respect the world over. So, when Lund initiates something like this, it carries some weight. In the same way that one can inherit people’s enemies you can also inherit trust, and I have inherited the trust that Anders has built up within the field.
The so-called Braak's hypothesis proposes that the disease process begins in the digestive tract and in the brain's center of smell. The theory is supported by the fact that symptoms associated with digestion and smell occur very early on in the disease.

BAGADILICO researchers at Lund University have previously mapped the spread of Parkinson's in the brain. The disease progression is believed to be driven by a misfolded protein that clumps together and "infects" neighboring cells. Professor Jia-Yi Li's research team has now been able to track this process further, from the gut to the brain in rat models. The experiment shows how the toxic protein, alpha-synuclein, is transported from one cell to another before ultimately reaching the brain's movement center, giving rise to the characteristic movement disorders in Parkinson's disease.

- We have now been able to prove that the disease process actually can travel from the peripheral nervous system to the central nervous system, in this case from the wall of the gut to the brain. In the longer term, this may give us new therapeutic targets to try to slow or stop the disease at an earlier stage, says Professor Jia-Yi Li, research group leader for Neural Plasticity and Repair at Lund University.

The research team will now carry out further studies in which the mechanisms behind the transport of the harmful protein will be examined in detail. The current study suggests that the protein is transferred during nerve cell communication. It is at this point of interaction that the researchers want to intervene in order to put a stop to the further spread of the disease.

DISPUTED THEORY ON PARKINSON’S STRENGTHENED

Parkinson’s disease is strongly linked to the degeneration of the brain’s movement center. In the last decade, the question of where the disease begins has led researchers to a different part of the human anatomy. In 2003, the German neuropathologist Heiko Braak presented a theory suggesting that the disease begins in the gut and spreads to the brain. The idea has since, despite vocal critics, gained a lot of ground. BAGADILICO researchers at Lund University now present the first direct evidence that the disease can actually migrate from the gut to the brain.

TEXT: JENS PERSSON