BAGADILICO News

May, 2011

Cultural Team launches nationwide survey on HD

In the coming weeks Bagadilico's Cutltural Team will launch a survey on Huntington's and other hereditary diseases. The survey will focus on personal experiences as well as societal aspects on how research should be directed. Andrea Wiszmeg has helped phrase the questions in the survey.

What is the survey about?
Well, you could say that our SIFO survey has two parts; firstly it concerns questions on how the personal sphere can be affected by genetic research and genetic technologies, secondly it will look into the social aspects on how we believe that research should be coordinated and implemented.

What personal views are you most curious about?
We will try to study attitudes toward genetic testing for inherited diseases, depending on whether they show risk or fact of falling ill, and whether a cure or other alleviating drugs are available or not. Here, we will also discuss problems connected to the complex interplay of lifestyle factors in several of the diseases where you can now test for increased risks. We also ask to what extent you would worry if you learned that you are at some risk of becoming ill, and to what extent you would be willing to adjust your lifestyle.

What kind of questions concerning societal aspects will you raise?
Here, we are interested in finding out which groups people think should have control over hereditary disease research and its applications, and which group in society that should have the greatest influence. We are also asking questions on genetic testing. For example, what people think about private companies offering genetic testing.

What do you think the survey might show?
What we hope to get out of the survey is a deeper perspective on the complex questions raised by the new knowledge available today on genetic heritage and what we can and should do with that information.

News in brief

BMC INFOBOARDS - A NEW WAY TO COMMUNICATE

Since mid-May Bagadilico have access to the info-screens placed outside Segerfalksalen and the BMC reception desk. This gives us a new opportunity to promote Bagadilico events and news items. If you have information that you feel could benefit from exposure through this information channel, please contact me (Jens.Persson@med.lu.se) and I will help you get your message across.

MARTIN LUNDBLAD RECEIVES 175.000 SEK GRANT

Martin Lundblad has just received a one-year 175.000 SEK grant from Segerfalksstiftelsen to develop a new technology that will measure signaling pathways in the brain. The money will go towards acquiring new laser equipment to be used for optogenetics, a new laser method that stimulates and reads the actions of specific nerve cells. The goal is to merge this new method with an electronic measuring technique, amperometry, that Martin Lundblad has been using extensively in his lab. The optogenetic laser technology offers acute precision in which nerve cells you choose to stimulate and allows scientists to follow the circuits of certain neurotransmitters through signaling pathways in the brain.

- This method is very hot right now and it enables us to perform experiments that have been impossible with existing techniques. I believe I will be the first person to connect the optogenetic method with amperometry in my upcoming experiments, says Martin Lundblad from his laboratory.

When the two technologies have been successfully merged Martin Lundblad will use them in a series of studies. The first study will be focused on how alpha-synuclein, a protein that is strongly indicated as a key factor in the pathology of Parkinson's disease, alters dopamine neurotransmission. In the future this combination of techniques will also be used to monitor neurotransmission in conditions such as L-DOPA induced dyskinesia. In these studies the full potential of the technique to strictly separate different neural pathways and to study how they interact will be taken advantage of.

BAGADILICO'S INTRODUCES INTRANET IN JUNE

In June Bagadilico will launch the new intranet solution SharePoint. Through Microsoft's popular web platform you will be able to keep track of internal news and events within our research environment. Many Bagadilicans have expressed a need to be able to take part in the "behind-the-scenes" processes that shape the direction of Bagadilico. With this instrument we hope to offer transparency and easier access to the important decisions that shape the future of our research environment. Board- and General meeting minutes will be easily accessed at the website.

The Bagadilico intranet also aims to bring research groups closer together. With a few easy clicks you will be able to follow research project timelines and milestone updates in all four Work Packages. Our wish is that the Bagadilico intranet will not only be a one-way communication tool. The long-term aspiration is that it will be a place where scientific discussion is sparked, a natural platform for sharing documents and ideas.

Shortly you'll receive e-mail notification on how to log on to your account.

Parkinson Café

2011

Talking about Talking

On April 27th it was once again time for a Parkinson's Café in Lund. About 50 people had given up a warm early summer evening to listen to and discuss with two of Bagadilico's researchers. The topics of the day ranged from café guests' bike tips to new research findings that could lead to future therapies for Parkinson's disease.

The two invited speakers highlighted the interdisciplinary breadth gathered under the Bagadilico umbrella. Research leader Angela Cenci Nilsson had come to speak on forefront research in her field of expertise, dyskinesias. The evening's second speaker was language Professor Merle Horne. Her lecture on Parkinson's impact on language aroused many people's curiosity and resulted in nodding heads all around the room. The Parkinson Café was broadcast live on the web and the concluding Q&A-session offered engaged café guests around the country an opportunity to participate in the discussion.

Foto: Jens Persson

SHARING PARKINSON'S. Café guests were not afraid to share their experiences. The personal stories gave a deeper insight into life with Parkinson's.

Professor Angela Cenci-Nilsson kick-started the café talking about various trends in Parkinson research. What are the key directions in the research carried out today? How can we understand the background of the disease, symptom development and effects of various standard medications? The answers were given in a popular science journey through basic Parkinson research and the participants were given food for thought before Professor Cenci-Nilsson switched over to her main research focus at BMC, the development of new therapies to alleviate side effects of L-Dopa.

Together with her colleagues in the laboratory at the Basal Ganglia Pathophysiology Unit, she has been a world leader in research on the movement symptoms produced by L-dopa medication, symptoms that most Parkinson's patients at some point will experience. The research group's development of mouse models for dyskinesia have opened up the research field and led to several clinical trials worldwide.

Today, the research group focuses on the imbalances that arise in the communication systems between millions of neurons in L-Dopa therapy. When patients develop dyskinesias it is not only the dopamine system that is affected, other neurotransmitters, such as glutamate, are also altered


Foto: Jens Persson

ENGAGED EXPERTS. Merle Horne and Angela Cenci-Nilsson joined the café visitors in a conversation about their respective research areas. The two speakers were peppered with questions throughout the evening

in their functions. When dopamine is no longer able to provide important neural circuits with regular impulses the signal system for glutamate is over-activated. This has proven to be a major contributing factor in the development of dyskinesias.

The new treatments that Professor Cenci-Nilsson spoke about are aiming to block certain nerve cells' receptors for glutamate. Experiments in animal models during the past year have shown promising results.

- Our group has proven, in mouse disease models, that the dyskinesias can be reduced by blocking a specific receptor for glutamate called metabotropic glutamate receptor type 5. We are now in phase 3 trials, and we will probably know in the fall if they've been successful. If this is the case, we will be able to register a new drug for the treatment of dyskinesias.

Speaking with Parkinson's

How speech is affected in Parkinson's disease is still a relatively young research area. Research on Parkinson's has long been directed towards the motor symptoms affecting mainly arms and legs. Language Professor Merle Horne chose to highlight current research that tells the story of how the disease also affects the speech organ muscles, resulting in difficulties to control tones and melody when speaking.

> ***"If we are successful we will be able to register a new drug for the treatment of dyskinesias"***

The motor difficulties that have always characterized the disease also limit the abilities for lip movements, tongue movements and vocal cord movements. Some vowels and pitches are especially difficult to produce, which may lead the listener to misinterpret a person diagnosed with PD, perceiving him or her to be sadder than what is the actual case. Vocal cord movements, like any movements, are controlled from the motor cortex and so the ability to achieve the tones used to describe the elation and enthusiasm can be affected in Parkinson's disease.

Merle Horne also spoke about new research findings that show Parkinson's disease to affect the processing of words whose meaning is associated with bodily movement. For example, words like walk, kick and wave.

The theory is that words linked to a particular movement involve activity in the region of the brain damaged in Parkinson's, the part of the brain that controls our motor skills. Research has now shown that PD patients require more time to say words linked to certain movements.

- Parkinson's patients have in

tests found it harder to recognize action verbs than words representing concrete nouns when their dopamine levels were low. After treatment with L-Dopa the patients revealed no difference in the time it took them to recognize action verbs compared to nouns, said Merle Horne.


Foto: Elsie Esq

CYCLING SOLUTIONS. It has been reported that patients with serious motor symptoms can manage a bike quite easily. One café guest shared his experiences.

Cycling Solutions

The concluding Q&A-session offered a lively discussion. Questions were many and the microphone was passed from visitor to visitor. One participant asked why not all PD patients have dyskinesias.

- It takes a different number of years for different patients to develop dyskinesias. After ten years of treatment, about 90 percent of the patients get the symptoms. However, there is great variation among individuals in how prone they are to develop dyskinesias. The patients carrying the highest risk are young patients who often develop dyskinesias of a more difficult nature. Today, we do not know for sure why this is. One theory is that the imbalance between the different signaling systems is more pronounced in the young brain.

"When you dance the cerebellum will do the dancing and the cerebrum takes care of the talking"

Another issue highlighted was whether there is any medicine available for the balance problems that many of the café visitors seemed to share.

- L-dopa improves balance control. This partly solves the problems related to dopamine deficiency. Later in the disease, other cell groups controlling balance die as well. These cells cannot be treated with L-dopa. The only thing that we know may help in these cases is deep brain stimulation in a particular nucleus in the brainstem. After stimulation with an electrode in this part of the brain patients have shown improvements in balance, but this must be further investigated in larger test groups.

An enthusiastic café guest got to finish off the evening with his own solution on how to solve the balance problem.

- My experience tells me that it's good for us to ride bikes, because then you use the cerebellum and not the striatum. You can be seriously over-medicated and you should still be able to ride your bike. Even dancing is excellent. I often say that when you dance the cerebellum will do the dancing and the cerebrum takes care of the talking.

Bagadilico's Anders Björklund joins research "hall of fame

Lund University brain researcher Anders Björklund has been elected to the National Academy of Sciences in the United States as one of eighteen non-American members for 2011.

As the first Lund University researcher for 35 years to be elected to the esteemed academy, Professor Björklund follows in the footsteps of Albert Einstein and Thomas Edison. The National Academy of Sciences (NAS) works to promote science and technology.

"The NAS is something of the 'hall of fame' of science, and because the selection is made by leading colleagues within life science and biology, I am undeniably pleased and proud", says Anders Björklund.

Anders Björklund has worked at Lund University since the mid-1960s and is most well-known for his groundbreaking experiments which led to nerve cell transplants on Parkinson's patients in 1987. The tests showed for the first time that transplanted brain cells from embryos can survive and function in the brain. The discovery laid the foundation for the successful Parkinson's research at Lund University, which today is at the forefront in the development of new therapies for the disease.

"I can really only make a guess at why I have been elected. It is most likely because I have been involved in the field of regenerative neuroscience, or brain repair, for 40 years and I am probably seen as one of the pioneers in the field"; explains Professor Björklund from his laboratory at the Biomedical Centre at Lund University.

Today, Anders Björklund is head of research at a laboratory that works on developing tailor-made stem cells to replace the brain cells that die in Parkinson's disease. The aim is to give Parkinson's patients a longer and better life.

Being elected to the NAS is an unusual honour for Swedish researchers. Anders Björklund is the ninth, and the second from Lund University after mathematician Lars Hörmander, who was elected in 1976. The new members will be officially elected to the academy next April, at its 149th annual meeting in Washington, DC.

> ***"I have been involved in the field of regenerative neuroscience for 40 years now"***