

Naturvetarkonferensen arrangeras av DiaNa- projektet (Dialog för Naturvetare och teknologer). Syftet med DiaNa är att erbjuda studenter på Naturvetarprogrammet och civilingenjörsprogrammen i bioteknik och bioinformatik, ämnesintegrerad kommunikationsträning. Vi arbetar med muntlig och skriftlig presentation och grupparbeten.

Naturvetarkonferensen ger i år för fjärde året i rad möjligheten att höra spännande föredrag från andra ämnesområden och samtidigt ett tillfälle att träna på att hålla en presentation inför en större publik. Nästa år kanske det är dags för Dig att anta utmaningen!

*Läs mer om DiaNa projektet på vår hemsida:
<http://www.ibg.uu.se/diana/>*



**Program och sammanfattningar
Naturvetarkonferensen
14 oktober 2009**

*Programme and abstracts
The Science Conference
Oct 14 2009*



Foto: Samuel Svensäter

Location: Ekmansalen, EBC

Opening session

12.30-13.15 Registration, pick up your name tag

13.15-14.00 Mattias Klum

Session 1

14.10-14.30 **Neural stem cells – properties and applications .**

Margarita Bartish

14.30-14.45 **Laboratory Diagnosis Approach For Autoimmune Disorders-A Study in India.**

Kailash Singh

14.45-15.00 **Northern Pakistan.**

Johannes Petrone

15.00-15.15 Break, refreshments are served outside of Ekmansalen

Session 2

15.15-15.30 **Climate changer and a tale of Sundarban, Bangladesh.**

Tarikul Islam

15.30-15.45 **A new route to carbon monoxide adducts of heme proteins.**

Zoltan Kis

15.45-16.00 **Billingen – Home from a geological perspective .**

Johan Magnusson

16.00-16.15 Break

Session 3

16.15-16.30 **Smallpox: Medicine's Great Triumph.**

Miriam Ramliden

16.30-16.45 **Hydrothermal Processin of Biomass - Development of Analytical Tools.**

Mikael Fridén

16.45-17.00 Concluding remarks

Smallpox: Medicine's Great Triumph

Miriam Ramliden

Smallpox, an infectious disease caused by the variola virus, was one of the most common and destructive diseases throughout human history. In the 20th century alone it is thought that smallpox was responsible for over 300 million deaths, despite the early invention of a smallpox vaccine. Finally, in 1979, after an exhaustive vaccination campaign, the World Health Organization declared smallpox to be completely eradicated, making it the first and only disease to have been successfully exterminated worldwide. The smallpox vaccination program demonstrates the level of commitment and innovation needed to effectively rid the world of widespread infectious diseases, and brings to light both the hope for further eradication programs, as well as the challenges such programs would face.

Session 3 16.15-16.30

Hydrothermal Processin of Biomass - Development of Analytical Tools

Mikael Fridén

Session 3 16.30-16.45

Billingen – Home from a geological perspective

Johan Magnusson

Billingen is a plateau mountain. This large scale sedimentary structure was created by the deposition of various kinds of sediment, in a deep sea environment, and the intrusion of lava. The lava breaks up vertically through the horizontal deposition layers. It floats out on top of them and forms a protective hat or lid, thus protecting the softer layers underneath it from erosion once the sea disappears from around it. Thanks to the protective “hat” on top of the mountain, Billingen has rich deposits of limestone, sandstone and alum shale. The former two being traditionally quarried for building materials and the later coming more and more in focus because of the high levels of uranium which can be found in it. In fact the alum shale in Billingen is actually home to the biggest uranium deposit in Sweden. However, being located in a densely populated heavily cultivated area, all plans on mining for the metal is currently suspended indefinitely.

Session 2 15.45-16.00

Neural stem cells – properties and applications

Margarita Bartish

A common claim in the pool of biological common knowledge is that we are born with a certain fixed amount of brain cells and that a brain cell once lost is lost forever. One is thus discouraged early on by prudent authority figures from drinking, doing drugs and participating in other activities thought to diminish their amounts. As noble and wholesome as the purpose of the propagation of this idea may be, in a strictly biological sense it is not true. The pioneering reports of neurogenesis in an adult organism first appeared in the sixties, when the scientists Altman and Gas using radioactivity labeling demonstrated the formation of new neurons in the hippocampus and the olfactory bulb of a rat brain. This first experimental evidence threatening to overthrow the “no new neurons forming after birth” paradigm penned by the famous neurologist Santiago Ramón y Cajal and persisting for almost 100 years was treated tentatively; however extensive research carried out since then has enabled to firmly conclude that the brain, long thought to be a static, fully differentiated organ is instead a dynamic environment capable of regeneration. Neural stem cells in a human brain were proven to exist by a Swedish scientist in 1998. The implications of this are tremendous – a grasp of the mechanisms regulating neural stem cell fate would enable us to treat neurological injuries, stroke, Parkinson’s disease. An uncanny similarity in characteristics of stem cells and cancer cells raises questions of the role stem cells play in cancer development. Such a grasp is, however, lacking as of today, making neural stem cell research a particularly expansive and attractive research area.

Session 1 14.10-14.30

Laboratory Diagnosis Approach For Autoimmune Disorders-A Study in India

Kailash Singh

Antibodies to β 2-glycoprotein have been reported to have stronger association with clinical antiphospholipid syndrome (APS) than anticardiolipin antibodies (aCL) and lupus anticoagulant (LAC).

Session 1 14.30-14.45

Northern Pakistan

Johannes Petrone

Millions of years of plate tectonics have formed what is now the most impressive mountain chain on Earth. The Himalayas and its sub ranges are still, to this day, rising and will continue to rise for millions of years to come as the Indo-Australian continental plate is pushing in under the Eurasian plate. The Karakoram mountain range in Northern Pakistan, west of the Himalayas, has the highest concentration of peaks exceeding 7000 meters. In 2007 I had the privilege of visiting this unique place. I was taken away by the snow-capped, jagged peaks rising over lush, green valleys. The worlds biggest glaciers outside of the Polar regions can also be found here, its water supporting over a billion people. Unfortunately, Taliban activity in the area has taken its toll on the tourist industry and travelling in the area is not without its risks. I want to give a bit of inside information to the place that, in the end, made me decide to study geology and all the processes shaping our planet.

Session 1 14.45-15.00

Climate changer and a tale of Sundarban, Bangladesh

Tarikul Islam

Sundarban (10,000sq km), the beautiful natural forest is the single piece of largest mangrove in the world. It is situated at the extreme south-western part under Khulna Division in Bangladesh. Currently, it is competing to make a place among the seven natural wonders in the world. It has wider biodiversities in both flora and fauna with many threatening species including most ferocious Royal Bengal Tiger. Despite the higher regeneration and succession capacity, the ecosystem of the Sundarban is responding to the contemporary climate change, global warming and sea level rise. It is anticipated that about 20% of the forest will go under water during next 10-15 years with the ongoing sea level rise.

Session 2 15.15-15.30

A new route to carbon monoxide adducts of heme proteins

Zoltan Kis

Sulfoxylate SO_2H^- (SO_2^{2-}), a strong reducing agent readily produced by hydrolysis of Thiourea dioxide, reacts with ferric myoglobin (Mb) to reversibly produce Fe(II)-Mb, starting from either aerobic or anaerobic conditions. Exposure of Fe(II)-Mb to excess sulfoxylate further produces Fe(II)-CO-Mb. Fe(II)-Mb can be regenerated by reoxidation with ferricyanide at this stage; hemin, rubredoxin and cytochrome c show a similar reactivity towards sulfoxylate. The source of CO is not the protein moiety, nor is it the heme or the thiourea dioxide – but rather CO_2 , via its reaction with sulfoxylate when the latter is used in large excess. These findings provide a convenient single-step route to carbon monoxide heme adducts, without the need to manipulate toxic CO gas.

Session 2 15.30-15.45