

Bilaga

Forsknings-samarbete Uppsala universitet – Indien

Kay Svensson 2010-08-30

Sammanställning som svar på förfrågan från utbildningsdepartementet inför sk Joint Committee med representanter för Indiens utbildningsministerium med anledning av avtal om forskningssamarbete Sverige-Indien.

Projekten förtecknade i den ordning de rapporterats.

1. Project title

Linnaeus-Palme student and teacher exchange programme (Gunnel Cederlöf)

2 teachers and 2 students per department and year may visit the partner university. Students for a period of 15 weeks, teachers for a period of 21 days.

Partners in India (University and Department)

Calcutta University, Department of History

Budget (annual or for the whole project)

2010/2011: 266,499 SEK

Duration of the project

5 years with renewed application each year and a possibility of extension

2. Project title

The research network Ecology and Society (Gunnel Cederlöf)

A network for the purpose of generating favourable conditions for research collaboration and support for research students in the field of environmental studies in the cities of Uppsala and Delhi. Researchers at ten university and research institutes participate, in Delhi primarily from Delhi University, Jawaharlal Nehru University and Ambedkar University.

Partners in India (University and Department)

The network is based in individual researchers, not in institutions as such. Coordinator in Delhi: Prof. Mahesh Rangarajan, Delhi University. Coordinator in Uppsala: Assoc. Prof. Gunnel Cederlöf, Uppsala University.

Budget (annual or for the whole project)

75,000 SEK, planning grant

Duration of the project

2008-2010. Prolongation will follow, funding is still to be secured.

3. Project title:

Bengali Vaishnavism in the Modern Period: the history of the Gaudiya Math (Ferdinando Sardella, Uppsala University)

Description: Bengal Vaishnavism has produced new religious and social movements during the 19th and 20th century— among others as a result of the colonial presence of Britain—and it has now become a global phenomenon. The project investigates the little known history and development in India and Europe of the most widely known of its modern institutions.

Partner in India: Jadavpur University in Kolkata.

Budget: Total projected budget: 1 500 000 SEK

Duration 4 years (ongoing)

4. Project title:

Molecular analysis of methicillin resistant *Staphylococcus aureus* in India (Göte Swedberg)

Objectives: To characterize the molecular basis of methicillin resistant *S. aureus* (MRSA) in India in order to devise diagnostic methods to study the distribution and spread of resistant bacteria in hospitals as well as in the community. **Methodology:** Methicillin resistant isolates will be analysed by Pulse Field Gel Electrophoresis (PFGE) and Multilocus Sequence Typing (MLST). The influence of *fem* (factors for methicillin resistance) genes will be analysed by molecular cloning, mutagenesis studies and determination of peptidoglycan structure. **Significance:** Understanding the molecular basis of resistance will help in identifying spread of resistant bacteria in the community and devise sensible ways of using available antibiotics. **Mode of co-operation:** Collection and PFGE analysis of samples will be done in India. MLST analysis will initially be performed in Sweden as well as the molecular analysis of *fem* genes. Molecular biology techniques will be introduced and used in the Indian lab during the project. Regular workshops will be held alternating between India and Sweden.

Gayathri Arakere, Research Fellow, Sir Dorabji Tata Centre for Research in Tropical Diseases, Indian Institute of Science Campus, Bangalore 560012 India

Duration and budget;

2004: Planning grant 75 000 SEK

2005-2007: 200 000 SEK per year

5 Project title

BioCO₂: An integrated multidisciplinary project using solar energy for production of renewable hydrogen combined with CO₂ capture, to address global warming and energy production (Peter Lindblad)

A Joint Norwegian- Indian-Swedish Project Project (presently funded 2009-2011)

Partners

1. Bioforsk - the Norwegian Institute for Agricultural and Environmental Research, Ås, Norway
2. Biohydrogen Production Laboratory, Department of Biotechnology, Indian Institute of Technology, Kharagpur, India
3. Fotomol - the Department of Photochemistry and Molecular Science at the Ångström Laboratories, Uppsala University, Sweden

Project summary

The project is a co-operation between the Indian Institute of Technology, Kharagpur, Bioforsk - the Norwegian Institute for Agricultural and Environmental and Fotomol - the Department of Photochemistry and Molecular Science at the Ångström Laboratories, Uppsala University, Sweden.

The project concept outlined in the following combines production of H₂ using solar energy with

Carbon Dioxide (CO₂) fixation from flue gas, and production of algal biomass comprised of high value biomolecules as a by-product. The project will use, in an integrated manner, different areas of algae technology to capture CO₂ and produce renewable bioenergy in a novel biological process that produces hydrogen directly from solar energy. The potential for subsequent use of the obtained green algal and cyanobacterial biomass will be explored for purposes such as various industrial applications, including health food, aquaculture/ animal feed, fertiliser, and production of renewable biofuels such as biodiesel, bioethanol and methane. After the hydrogen production process, the algal biomass may contain large amounts of valuable components that may be extracted for pharmaceutical and industrial purposes, which hence may have a considerable commercial-financial value added to the concept potential.

The project also addresses bioenergy technology in relation to the rural energy needs in India. It will use an integrated approach wherein different stakeholders will be encouraged to take up the ownership right from the beginning of the project.

The main project goals will be achieved by:

1. Constructing and running operational photobioreactor(s) in India aiming at demonstrating the full potential of the outlined concept as described in the following.
2. Addressing the question of quantities of CO₂ to be sequestered from power plants (e.g. NTPC) or other local industrial activities and outline the biological systems needed to recycle CO₂ produced (Andhra Pradesh/Karnataka states).
3. Using selected microalgal species in the photobioreactors to determine the capacity of photobiological CO₂ fixation/sequestration. Perform real experiments in the developed photobioreactors mimicking larger full-scale systems.
4. Setting up photobiological H₂ production units using both green algae and cyanobacteria to determine capacities and limitations.
5. Exploring possibilities for process optimisation of hydrogen production from green algae and cyanobacteria at genomic and proteomic levels.
6. Exploring experimentally the content and possible uses of the obtained algal biomass for (a) health food and animal feed, and (b) health promoting biomolecules.
7. Explore feasibility and financial viability of the proposed technology at local level, and develop strategies for implementing similar bioenergy projects in other areas of India, which includes stakeholder participation.

Tidsperiod (detta kontrakt): 2009-2011

6 Project title

Cooperation on environmental displacement (Ashok Swain, Professor of Peace and Conflict Research, Uppsala University, Director, Uppsala Center for Sustainable Development)

I have long standing cooperation on environmental displacement issues with Indian Universities since 1995 with Sida support. Funding is guaranteed till end of this year. Collaborating institutions in India are: Jawaharlal Nehru University, New Delhi and Utkal University, Bhubaneswar.

7 Project title:

Theoretical studies on quantum dots First principles electronic structure calculations, magnetism, transport properties of nanomaterials (Biplab Sanyal)

Partners in India: Prof. Dilip G. Kanhere, Dept. of Physics, University of Pune; Prof. Abhijit Mookerjee, S. N. Bose National Center for Basic Sciences, Kolkata

Budget: 200 KSEK/year for 3 years (a total of 600 KSEK) Duration of the project: 2009 to 2011
Granting agency: VR/SIDA under Swedish Research Links programme P.I. (Sweden): Dr. Biplab

Sanyal Co-P.I. (Sweden): Prof. Olle Eriksson, Dr. Jonas Fransson, Dr. Susanne Mirbt

8 Project title:

Dynamics of correlated electron systems Joint theoretical and experimental studies of correlated electron systems, their spin and lattice dynamics (Olle Eriksson & Biplab Sanyal)

Partners in India: Prof. D. D. Sarma, Solid State and Structural Chemistry Unit, Indian Institute of Science, Bangalore

Budget: 710 KSEK (total for 3 years)

Duration of the project: 2010 to 2012

Granting agency: VR/SIDA under Swedish Research Links programme P.I. (Sweden): Prof. Olle Eriksson Co-P.I. (Sweden): Dr. Biplab Sanyal

9 Project title:

MOdeling NAnoMaterials Intelligently (MONAMI) Computational modeling of nanomaterials (spin and lattice dynamics, strong electron correlations, electron transport, complex magnetism etc.) (Olle Eriksson)

Partners in India: Prof. Indra Dasgupta (coordinator), Prof. Debashis Mukherjee, Indian Association for the Cultivation of Science, Kolkata; Prof. Tanusri Saha-Dasgupta, S. N. Bose National Center for Basic Sciences, Kolkata; Prof. Swapan Ghosh, Bhaba Atomic Research Center, Mumbai; Prof. Chandan Dasgupta, Prof. Prabal Maiti, Indian Institute of Science, Bangalore; Prof. Srikanth Sastry, JNCASR, Bangalore

Budget: 930,000 EUROS (total)

Duration of the project: 2009-2012

Granting agency: EU commission and Dept. of Science and Technology, India Coordinator (EU): Prof. Olle Eriksson EU partner countries: Sweden, Germany, Netherlands, Austria

10 Project title:

Magnetism in organic materials Computational modeling of organometallic molecules, networks, molecular electronics (Peter Oppeneer & Biplab Sanyal)

Partners in India: Prof. Tanusri Saha-Dasgupta, S. N. Bose National Center for Basic Sciences, Kolkata

Budget: 730 KSEK (total for 3 years)

Duration of the project: 2010 to 2012

Granting agency: VR/SIDA under Swedish Research Links programme P.I. (Sweden): Prof. Peter Oppeneer Co-P.I. (Sweden): Dr. Biplab Sanyal

11 Project title:

Towards a fundamental understanding of advanced magnetic materials Joint experimental and theoretical investigations on magnetic materials (alloys, oxides, multilayers etc.) (Olof Karis Biplab Sanyal)

Partners in India: Prof. D. D. Sarma, Solid State and Structural Chemistry Unit, Indian Institute of Science, Bangalore; Prof. Sushanta Dattagupta, Indian Institute of Science and Educational Research, Kolkata

Budget: 2 MSEK (total for 4 years)

Duration of the project: 2008 to 2012

P.I. (Sweden): Dr. Olof Karis

Co-P.I. (Sweden): Dr. Biplab Sanyal

12 Project title:

A joint theoretical and experimental study of diluted magnetic semiconductors Combined theoretical and experimental studies on spintronic materials (diluted magnetic semiconductors, Heusler alloys) (Lars Nordström & Biplab Sanyal)

Partners in India: Prof. Indra Dasgupta, Indian Association for the Cultivation of Science, Kolkata;
Prof. K. G. Suresh, Indian Institute of Technology, Bombay

Budget: 600 KSEK (total for 3 years)

Duration of the project: 2007 to 2009

Granting agency: VR/SIDA under Swedish Research Links programme P.I. (Sweden): Dr. Lars Nordström Co-P.I. (Sweden): Dr. Biplab Sanyal

13 Project title:

Theoretical and experimental investigations on magnetic alloys Combined theoretical and experimental studies on magnetic random alloys (Olle Eriksson & Biplab Sanyal)

Partners in India: Prof. Abhijit Mookerjee, Dr. Pratip Mukhopadhyay, S. N. Bose National Center for Basic Sciences, Kolkata

Budget: 600 KSEK (total for 3 years)

Duration of the project: 2006 to 2008

Granting agency: VR/SIDA under Swedish Research Links programme P.I. (Sweden): Prof. Olle Eriksson Co-P.I. (Sweden): Dr. Biplab Sanyal

14 Project title

TOLEDO- Tolerance and Democracy (Sten Widmalm)

TOLEDO is intended to shed light on what determines levels of tolerance and intolerance among citizens who live in areas that differ in measures of economic prosperity or in degree of ethnic pluralism, or in states in differing positions on the continuum from authoritarian rule to democracy.

Partners in India (University and Department)

No university as partner. We do, however, work with a number of NGOs such as Samarthan, Priya, Unnati, Institute of Social Science.

Budget (annual or for the whole project)

About SEK 2,2 million per year.

Duration of the project

4 years.

15 Project title

Assessing the Impact of Training on Indian Self Help Groups (Ranjula Swain)

Microfinance has enabled a positive change in the lives of the poor, by allowing over 65 million poor people around the world to receive small loans without collateral, build up assets, and buy insurance.

The Indian Self Help Groups Bank Linkage Program

(SHG) is one of largest and fastest growing microfinance program in the world, reaching up to 45 million households. The policy makers have proclaimed SHGs as “the most potent initiative ... for delivering financial services to the poor in a sustainable manner.” This project conducts a comprehensive study on the impact of microfinance using the SHG case.

With IIT the collaboration is mostly in the form of invited lectures.

Partners in India (University and Department):

1. Dr. Kishore Goswami

Department of Humanities and Social Science Indian Institute of Technology, Kharagpur, West Bengal

2. Prof. Adel Varghese

The Microfinance Centre

The Institute for Financial Management and Research (IFMR), Chennai

Duration of the project

2008-2011

16 Project title

Replikations maskineriet i *Helicobacter pylori*: Montering och kontrol

The aims of the project were: a) intracellular localization of the replication machinery in *H. pylori* cells during growth and in quiescence; b) characterization of the role of replicative helicase DnaB *in vitro* and *in vivo*; c) identification of the replication machines' components involved in restart of stalled forks. (Santanu Dasgupta)

2. Partners in India (University and Department): Dr. Suman K. Dhar, Associate Professor Special Centre for Molecular Medicine, Jawaharlal Nehru University, New Delhi, India.

3. Budget (annual or for the whole project): SEK 550 000/-

4. Duration of the project: 3 years (20070101 - 20091231)

17 Project title

Comparative genomics and sporulation in mycobacteria (Leif Kirsebom)

Extensive clinical research and recent investigations into the molecular biology of host pathogen

interactions notwithstanding, very little is known about the genetic and physiological basis for pathogenicity, virulence and prolonged persistence in latent state. Since mycobacterial strains can be classified easily on the basis of their growth rates (slow and fast), pathogenicity and dormancy (only the slow growers fall in this group), whole genome comparisons might provide us with clues, both evolutionary and metabolically, for genetics basis for such distinctions. Our collaboration with the Bioinformatics Centre, Life Sciences Department, JNU, New Delhi, India would allow us to test the genomic divergences for their roles in mycobacterial physiology and pathogenicity, if any. The Delhi laboratory would identify the divergent genes from whole genome comparison among various mycobacterial strains and we would characterize the roles of those genes in mycobacterial metabolism in vitro and in vivo. We have recently, for the first time, established the as yet undetected sporulation properties for mycobacteria growing in vitro. Identifying this process as a possible adaptation into persistent non-replicating phase inside the host would open up a new area of investigation in mycobacterial physiology and host-bacterial interaction providing new targets of diagnostic-, drug- and vaccine-design.

Partners in India

Dr Alok Bhattacharya
Jawaharlal Nehru University
School of Life Sciences
Jawaharlal Nehru University
110067 New Delhi, India

Budget

Total 700 kkr

Duration of the project

2010, 2011 and 2012

18 Project title

Ribosome assisted protein folding and its implication in misfolding diseases

(Suparna Sanyal)

Partners in India (University and Department) - Prof. Chanchal DasGupta, Department of Biophysics, Molecular Biology and Genetics, University of Calcutta,

Budget (annual or for the whole project) - kSEK 150 + 150 + 85

Funding from - VR-SIDA

Duration of the project - 2008, 2009, 2010

19 Project title

Predicting, preventing and diagnosing antibiotic resistance (Måns Ehrenberg)

Partners in India (University and Department) - Prof. Umesh Varshney, Department of Microbiology and Cell Biology, Indian Institute of Science, BANGALORE

Budget (annual or for the whole project) - Total 4.8 Mkr

Funding from - VINNOVA /DBT-INDIA

Duration of the project - 2009 July to 2012 June

Måns Ehrenberg is the main PI from Swedish side for this project.

20 Project title

A. Neurochemical and Neuropahysiological Assessment of CNS Injury and Repair

The project is aimed to find out neurochemical and neurophysiological changes in the brain and spinal cord after injury and to study the effects of various drugs to reduce the brain and spinal cord damage. The methods of injury include hyperthermia, nanoparticles, neurotoxins, ischemia, trauma. (Lars Wiklund)

B. Co-morbidity factors influence pathophysiology of CNS injury & Repair

In this projects co-morbidity factors, e.g., hypertension, diabetes, psychostimulants, nanoparticles etc were used to find whether these factors are altering the basic course of disease progression following trauma, hyperthermia or ischemia in the CNS and how drug treatment could be adjusted to have better neuroproteccion. (Lars Wiklund)

Partner in India: Dr Mrs. Ranjana Patnaik Ph D, Banaras Hindu University, School of Biomedical engineering, Department of Biomaterials, Varanasi-221005, Uttar Pradesh, India

Annual Budget (from India) Approx 900k Indian Rs., from Sweden SEK 50000:-

Duration : Currently 4 years

21 Project title (Staffan Johansson)

Rajesh Gupta - postdoc från Indien har arbetat i min forskningsgrupp sedan november 2008.

"The role of anchorage-independent cell cycle progression in tumorigenesis."

Anchorage-independent growth is a characteristic feature of cancer cells. However, it is unclear whether it represents a cause or a consequence of tumorigenesis, and the underlying molecular mechanisms of anchorage-independent growth are unknown. We have found that two alternative mechanisms that differ at the completion of cytokinesis can drive growth in suspension culture. True anchorage-independent cells can complete cytokinesis in suspension coordinated with karyokinesis. In contrast, pseudo anchorage-independent cells progress in the cell cycle while maintaining a cytokinesis-blocked structure. Their cytokinesis completion is dependent on fibronectin assembly and can occur uncoupled from karyokinesis. Importantly, pseudo anchorage-independent cells are prone to generate chromosomal instability due to cytokinesis dysfunction. Our data explains how the pseudo anchorage-independent growth can initiate the tumorigenic processes *in vivo*.

During the spring 2008 I was invited by CSIR to discuss possible research collaborations with researchers at Hyderabad (CCMB), Kolkata (IICB) and Mumbai (ACTREC). A joint research proposal was written, but we have been unable to realize our plans due to difficulties in finding funding and solutions allowing PhD students and postdocs to share there time between India and Sweden. (See attached visit report and proposed short research plan).

Partners in India (University and Department): Non. Rajesh Gupta obtained his PhD at Centre for Cellular and Molecular Biology (CCMB), Hyderabad, INDIA.

Budget (annual or for the whole project): Stipend 240.000 SEK/year payed by my grant from the Swedish Cancer Foundation.

Duration of the project: Two years (081101-101031) unless we can find funding for continued salary.

21 B project title

Report to CSIR

During the period of March 29th to April 12th this year I was visiting three research institutes in India with support from the “Distinguished Foreign Scientist Scheme” of CSIR. The purpose of the visit was to explore possibilities for collaborative research on cancer cell biology. The main host for my visit was Dr. Gopal Pande at CCMB, Hyderabad, and the whole first week was spent at CCMB. Most of this time was used for discussions with Dr. Pande and his group members on research projects where we share common interests. I also met with the Institute Director Lalji Singh and 10 other senior scientists at CCMB and learned about their work. I gave a department lecture (“Integrin signaling via PI3 kinase”) on April 3rd. During the second week I visited IICB at Kolkata (April 7-8th) and ACTREC at Mumbai (April 8-10th) where I was hosted by Dr. Chitra Mandal and Dr. Surekha Zingde, respectively. At both institutes I was informed about the ongoing research projects by a large numbers of group leaders. I also gave lectures at these institutes. Finally, I returned to Hyderabad for concluding discussions with Dr. Pande. For me the Indian visit turned out to be very valuable, and I hope and believe that it gave positive input also to the Indian institutes. Concrete plans for collaborative work between Dr. Pande’s and my laboratories have now been established (Appendix 2). In addition, personal contacts have been made with more than thirty scientists and a number of postdocs/PhD students (Appendix 1); several of these contacts have potential for development into direct collaborations. I want to emphasize that the whole visit, in addition to the scientific exchange, was arranged in a perfect way regarding timing, transportations, accommodation etc., and I greatly enjoyed the hospitality I met at all three institutes. The economical support from CSIR that made the visit possible is also much appreciated.

22 Project title

Functional annotation of the noncoding portion of the mammalian genome

Summary of the proposed project

Accumulating evidence over the last decade has presented us with the intriguing observation that the majority of eukaryotic genomes are pervasively transcribed to encode a complex network of small and long noncoding RNAs (ncRNAs). Long ncRNAs (>100 bp in length) are of particular interest, as they were once thought to be restricted to housekeeping functions and are now linked to a wide variety of biological functions related to physiology, embryology, and development. NcRNAs have been implicated in gene regulation at the transcriptional and post transcriptional level. Emerging evidence indicate that a subset of long ncRNAs mediate their biological functions by using chromatin as a substrate to index the genetic information encoded in the genome. Also, there is a growing appreciation for ncRNAs in disease as their deregulation may underlie or be a marker for many complex diseases. Moreover, several recent genome-wide association studies have mapped disease susceptible loci to noncoding portions of the human genome, indicating that ncRNAs could have potential roles in disease development.

Our proposed research concerns functional significance of ncRNAs in chromatin structure regulation in normal and cancer cells, uses state of the art next generation sequencing technology in combination with functional analyses in transgenic mouse models. Since increasing number of genome-wide association studies have mapped disease mutations to noncoding portion of the genome, characterization of ncRNAs using high-throughput sequencing on genome-wide scale and their functional characterization in human cells and transgenic mouse models would enable us to

realize the potential role of ncRNA in human disease. Similarly, characterization of ncRNAs associated with both active and inactive chromatin compartments using ChRIP (chromatin RNA immunoprecipitation) coupled with high-throughput sequencing technology in normal and tumor cells is an effort aimed at functional annotation of the noncoding portion of the human genome in normal development and disease. Discovery of cell cycle regulated coding and ncRNAs that are altered in tumor cells could also lead to identification of novel markers of disease, and may in the long run suggest new ways for treatment.

Partners

The proposed scientific proposal will be addressed in collaboration with two established labs in india.

1. Chandrasekhar Kanduri
Department of Genetics and Pathology
Rudbeck laboratory
Uppsala University
Dag Hammarskölds väg 20
S-75185
Uppsala
Email: kanduri.chandrasekhar@genpat.uu.se

My lab is primarily interested in addressing the functional role of long ncRNAs in the maintenance of chromatin structure in normal development and disease. My lab has significantly contributed toward understanding of the mechanisms by which long ncRNAs regulate chromatin structure to regulate gene transcription. My lab is also working to establish novel noncoding RNA signatures that not only distinguish brain tumors from normal tissues, but can also differentiate histotypes or molecular subtypes with altered genetic pathways.

2. M.R Satyanarayan Rao (MRS Rao)
Chromatin Biology Lab
Molecular Biology and Genetics Unit (MBGU)
Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR)
Bangalore, India.
Email: mrsrao@jncasr.ac.in

He is currently director of the multidisciplinary institute, Jawaharlal Nehru centre for Advanced Scientific Research (JNCASR), Bangalore, India. He is one of the authorities in chromatin biology from India. His research interests include: systems biology; noncoding RNAs in development and differentiation, and chromatin structure & function. His lab has state of the art technology to address various issues concerning the noncoding RNAs. Collaboration with his group will immensely benefit the project.

3. Dr Subramaniam Ganesh (S.Ganesh)
Department of Biological Sciences and Bioengineering,
Indian Institute of Technology,
Kalyanpur, Kanpur 208016, UP, India.
Email: sganesh@iitk.ac.in

He leads a group at the prestigious Indian Institute of Technology, Kanpur (IITK), India. His research focus has been neurodegenerative disorders, and he aims at understanding the biology of the disease process, and uncovering modulators of cytotoxicity of disease associated proteins with the ultimate aim in developing therapeutic and intervention strategies. Towards this goal he recently started a project to explore the role of ncRNAs in the physiological stress response and in neurodegenerative pathways. His lab has high-end facilities and expertise to address neurodegenerative disease mechanism. Collaboration with his group would be of greatly help in addressing the disease relevance of ncRNAs.

Budget

The approximate budget for the proposed project is 1.5 million SEK per year and the project duration is about 5 years.

23 Project title :

Light metal hydrides as Hydrogen Storage Materials for Environmental Friendly Applications
(Rajeev Ahuja)

Abstract : Our energy-hungry world has become increasingly depending on new methods to store and convert energy for new, environmentally friendly modes of transportation and electrical energy generation as well as for portable electronics . Mobility - the transport of people and goods - is a socio economic reality that will surely increase in the coming years. It should be safe, economic and reasonably clean. A lot of energy is lost through friction (for cars about 10 kWh per 100 km) and low-efficiency energy conversion. Vehicles can be run either by connecting them to a continuous supply of energy or by storing energy on board. Hydrogen would be ideal as a synthetic fuel because it is lightweight, highly abundant and its oxidation product (water) is environmentally benign. However, the storage remains a problem for this highly desirable development. Here we present a proposal where we focus on the search for innovative materials with high hydrogen-storage capacity. We propose to perform theoretical and experimental studies of such materials, with the purpose to identify and improve the most important materials parameters. From the gained knowledge, we will invent materials which will enable improved devices and constructions. Hence we propose to focus new activities in the study of materials of significance in energy applications. This type of research have national importance for any country and they address two of the critical issues for a new hydrogen economy.

Partner in India : Prof. O.N.Srivastava at HTSC and CMR Materials & Hydrogen Energy Center, Physics Department, Banaras Hindu University (BHU), 221 005 Varanasi, India.

Budget (annual or for the whole project) : 450,000 SEK

Duration of the project : 2008-2011

Funded by VR-SIDA

24 Project title

Postdoc - Rajeev Ahuja

On other project on Hydrogen Storage, We have got a postdoc funded by Swedish Institute this month. She is going to start in September. She is from University of Pune in India. We are going to have close collaboration with their group (Prof. S. Pal) at Pune.

Budget : 180,000 SEK
Duration of the project : 2010-11

Funded by Swedish Institute

25 Project title
Cooperation (Rajeev Ahuja)

We are also working with group of Prof. B.L.Ahuja at University of Udaipur in India on Compton profiles.

We are working Prof. A.K.Singh at National Aeronautical Lab. (NAL) on high pressure studies on metals.

Besides this we have good contact at University of Roorkee now I.I.T. Roorkee with Prof. I.S.Tyagi.

26 Project title
Antituberculosis drug discovery

We are involved in the same two EU-financed integrated Projects that Professor Alwyn Jones have described. However, we are responsible for the medicinal chemistry activities while they are focused on molecular biology and structural biology. We collaborate on drug discovery projects with AstraZeneca, India.

Partners in India (University and Department) AstraZeneca India, Private Limited, Bellary Road, Hebbal Bangalore 560024, India

Budget (annual or for the whole project) Alwyn Jones group is the main recipient of the EU money but we also receive some of this money. We also use faculty money and grants from different foundations to finance this project.

Total budget 2010: 2.1 MSEK

Duration of the project

Since 2005 and ongoing. We are part of the FP7 project, More Medicines for Tuberculosis, which will start 2011-0201 and will last 5 years, 2011-2015.

27 project title
INSTEK (Lars-Christer Lundin)

Uppsala University is actively involved in the Swedish initiative INSTEK (Network for Indo-Swedish Cooperation on Technical Research and Education), a network of Swedish universities. Instec is working to set up an Indian partner network aiming at building a bridge head in India for strategic long-term research cooperation.

A Swedish-Indian workshop on sustainable cities has been held in Kochi and research cooperation discussion have been held during Instec delegation visits to universities and research institutes in New Delhi, Pune, Hyderabad, Chennai and Thiruvannantapuram. Seminars at selected universities, University of Pune, BMS college of Engineering, Bangalore, and Anna University, Chennai, are planned for October 2010, involving presentations of Swedish research and education on advanced and PhD levels, as a basis for intensified cooperation.

Funding has been obtained from Formas, Vinnova and Ericsson but the main funding so far has come from the participating Swedish universities and Indian universities. The Uppsala University representative in Instec is Prof L-C Lundin, Dept of Earth Sciences.

28 Project title

To research mindfulness in relation to develop a curriculum for medical schools in “Cultural Competency including a Gender Perspective in Medicine”. (Carin Muhr)

Abstract: The overall aim is to research mindfulness in relation to developing a curriculum for medical schools with the course “Cultural Competency including a Gender Perspective in Medicine” (CC course) in an international project combining research and higher education. The partners represent experienced researchers and teachers with a broad competency in medicine and humanities building up a team of excellence. The educational part includes three-week-long CC courses to be held at the different partner universities. Mindfulness training of the students will take part in advance during a four-month period to these CC courses and will be researched and assessed during these courses. The hypothesis is that mindfulness is effective in achieving cultural competency in the actual process of learning this competency and a valuable method in the curriculum. The curriculum will be developed and continuously assessed and adjusted for improvement. Distance education will be developed to guarantee well-functioning communication and to provide sustainability.

Participating partners:

Foreign main partner: Professor Vinod Shah, Christian Medical College, Vellore, India and Tarab Institute International, Dehradun, India.

Further Collaborating universities: Universidad San Martín de Porres, Lima, Peru, St George’s University, Grenada, University of the West, Timișoara, Romania
University of Missouri, Kansas City, USA.

Project leader: Associate Professor Carin Muhr, Dept of medical sciences, Uppsala University, Sweden.

Budget: Grants from STINT - Swedish Foundation for International Research and Higher Education will be applied for in Dec 2010, to cover travel and living costs for professors and students participating in the project. Other possible funds will also be searched for.