



RECETOX NEWSLETTER

The RECETOX NEWSLETTER is a quarterly newsletter by the Research Centre for Toxic Compounds in the Environment (RECETOX), Brno, Czech Republic.

Learn,
discover,
prove
and apply



RECETOX is an independent REsearch CEntre for TOXic Compounds in the Environment operating within the Faculty of Science, Masaryk University, Brno, Czech Republic. The Centre fulfills three roles: an academic institution providing university education, a research institution working on transformation of research into practical applications and a body supporting implementation of the Stockholm Convention on Persistent Organic Pollutants (POPs) and sound chemicals management in general, nationally and internationally.

In this issue

- Our international mobility
- New cooperation and projects
- Contest awards
- Activities of the Regional Centre



Editorial

Dear readers of this quarterly RECETOX newsletter,

2015 flew away like a flock of birds, but some events were pretty memorable. Such as how much we worked to submit numerous project applications and procurement orders and calls for services (and how many they were!). We have succeeded several times. For example, we were granted five new projects in the call at the Czech Science Foundation as well as support for a proof of concept project from the Centre for Technology Transfer at Masaryk University, and four projects of the Development Fund of Masaryk University. In addition, we received an institutional cooperation project with the Norwegian University of Life Sciences in Oslo and one Horizon 2020 project. Some more are hopefully in the pipeline. Moreover, we launched a new longitudinal biomonitoring survey following mothers and newborns, we became involved in the European Human Biomonitoring Initiative – a platform for researching the relationship between human exposure to chemicals and health, and continued our long-term cooperation with the United Nations Environment Programme and with several Czech ministries.

This issue lists feedback of seven RECETOX staff stemming from their international mobility projects supported by Norwegian funds and EEA grants. We take stock of progress in implementation of the Da Vinci project promoting cooperation with Norway in processing of monitoring data from various sources. Finally, an overview of past and forthcoming events and courses at RECETOX is summarized in a brief section.

We wish you pleasant reading and all success at work and private life in 2016, including plenty of health as well as joy and the right timing for winter vacations.

Katka Šebková
on behalf of all editors in this issue

PS - The RECETOX newsletter is also available automatically if registered through www.recetox.muni.cz or NEWSLETTER@RECETOX.MUNI.CZ. It is published in English and Czech. The next issue will be released in April/May 2016.



Calendar of Events

- 10–12 November 2015 **Exhibition at the GEO Ministerial Summit**, Mexico City, Mexico
- 14–16 December 2015 **6th meeting of the PCB Elimination Network Advisory Group**, RECETOX premises, Brno, Czech Republic
- 10–15 January 2016 **Steering Committee meeting for PCB inventory and elimination plan project in Ukraine**, Kiev, Ukraine
- 25–27 January 2016 **Inception Workshop for UNEP/GEF project on Implementation of the Global Monitoring Plan of POPs in Asia**, Hanoi, Vietnam
- 23 and 26 January 2016 **Open Door Days – Faculty of Science, Masaryk University, Bohunice University Campus**, Brno, Czech Republic
- 3–4 February 2016 **Central and Eastern Europe and Central Asia Consultations for early implementation of the Minamata Convention on Mercury and preparation for INC7 meeting**, RECETOX premises, Brno, Czech Republic
- 8–12 February 2016 **Training workshop on “Development of a Plan for Global Monitoring of Human Exposure to and Environmental Concentrations of Mercury**, Ljubljana, Slovenia
- 11 February 2016 **RECETOX Ball**, Brno, Czech Republic
- 24–29 February 2016 **First meeting of the Effectiveness Evaluation Committee under the Stockholm Convention**, Geneva, Switzerland
- 9–15 March 2016 **7th meeting of the Intergovernmental Negotiating Committee (INC7), Minamata Convention on Mercury**, Dead Sea, Jordan
- April 2016 **One week training in support of GEF/UNEP capacity building project supporting Global Monitoring Plan of POPs in Africa**, University of Nairobi, Kenya
- spring 2016 **Training for laboratory experts from fYRoM**, RECETOX premises, Brno, Czech Republic
- June 2016 **12th International Summer School on Toxic Compounds**, RECETOX premises, Brno, Czech Republic
- 25–30 June 2016 **4th Summer School of Protein Engineering, Loschmidt Laboratories**, RECETOX, Brno, Czech Republic



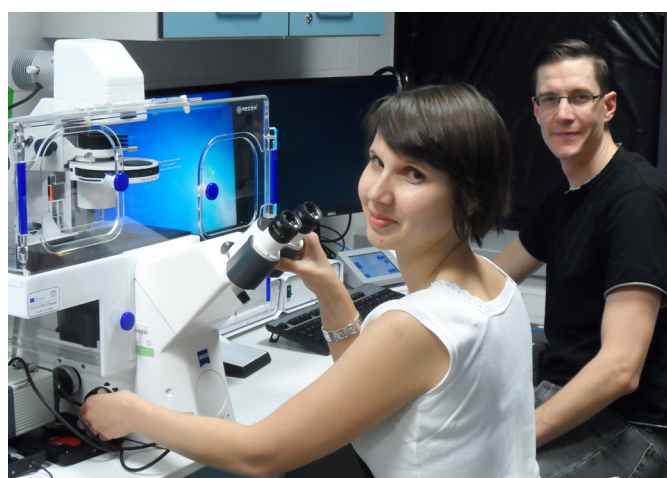
Our cooperation

New cooperation with Austria

RECETOX researchers fostered a new cooperation with the University of Wien, particularly with Dr. Melanie Kah, Department of Environmental Geosciences. Dr. Kah is the leading expert in the emerging topic of nanopesticides. She lectured at RECETOX on 26 and 27 November 2015 and met students and researchers. Future close collaboration of

the two departments was identified and structured as Dr. Hofman's team (Hofman, Trávníčková, Vašíčková and Bielská) also deals with nanopesticides. A joint project will be prepared simultaneously with efforts to further test a proof of concept.

New group and new projects



Iva Sovadinová and Pavel Babica

We were quite successful in bidding for new projects in the end of 2015. Two out of five projects supported by the Czech Science Foundation granted to RECETOX centre will be implemented by Pavel Babica, PhD and Iva Sovadinová, PhD. Both of them returned to RECETOX from a post-doc in the United States of America.

Recently, a new team, SECANTOX (Stem Cells and Tissue Homeostasis in Toxicity), was established aiming at a deeper understanding of how the environmental toxicants or diet change the metabolism of tissue(s), and how such disorders affect/induce negative health symptoms. SECANTOX will be a core team in implementing the new three-year projects that are introduced below. More information on the team can be found on their website: secantox.weebly.com.

Iva will implement a three-year project "Gap junctional intercellular communication as a target of endocrine disruptors in testicular cells" (from 2016 to 2018). The project examines in detail the role of gap junctional intercellular communication (GJIC) in male reproductive toxicity. She will evaluate the activity of relevant environmental contaminants and their mixtures preventing GJIC in key testicular cells and will study the specific molecular mechanisms leading to the closure of this important type of intercellular communication. Results are expected to help explain the health risks of endocrine disruptors and their effects on the male reproductive

system. This project allows Iva to continue her research after maternity and parental leave, strengthens her scientific career and supports establishment of her own research team. Two promising young researchers, post-docs Petra Macíková and Soňa Smetanová, will participate in the project with Iva. Petra returns to the RECETOX centre after almost a year long internship supported by DAAD, DEG and BI Funds. Petra will be involved in most of the experiments studying target chemicals in the environment and their male reproductive toxicity. Soňa will focus on identification and evaluation/assessment of in vitro biokinetics of studied target compounds.

The newsletter asked Iva two questions: **Is this your first individual project? And, do you look forward to setting up of your team?**

Iva responded: "I was the main investigator of a SoMoPro (South Moravian Programme for Distinguished Researchers) grant that supported my re-integration in the Czech Republic upon the return from my post-doc in the US. This Czech Science Foundation project is thematically linked to my earlier project by for example using the newly introduced methods and cell models and by further development of the topic dealt in with in the grant. I am delighted that my proposal was supported by the Czech Science Foundation, so the issue of contaminants and the effects of endocrine disruptors on male reproductive system can be further investigated in detail."

And the team set up?

"I do quite look forward to it and I believe that with more people we are able to do more work, achieve better results and implement new ideas more. I would like to underline that the project provides more stability to us and strengthens the continuity of our research" says Iva Sovadinová.

Pavel Babica will be co-investigator of a joint project "Importance of Toll-like receptors in intestinal epithelium response to cyanobacterial water bloom" of the Institute of Biophysics (IBP) Czech Academy of Sciences (Dr. Lenka Šindlerová-Švihálková) and RECETOX centre from January 2016 to December 2018. The project focuses on acute inflammatory diseases of the digestive tract, which are often a consequence of exposure to cyanobacteria water bloom and cyanobacteria toxins (e.g. by accidental ingestion of contaminated water during swimming in rivers/ponds and lakes or as a result



of the consumption of inadequately treated drinking water). The cyanobacterial metabolites that cause these diseases or responsible mechanisms have yet not been discovered/uncovered. An excessive activation of so called toll-like receptors (TLR) in intestinal epithelium cells is believed to be a key step for inducing gastroenteritis. While TLRs play an essential role in the recognition of foreign/structures and in the regulation of the inflammatory response, there is limited information on the interaction of TLR with compounds contained in cyanobacteria. The project will therefore aim at examining the interactions of selected cyanobacterial metabolites and of lipopolysaccharide with different types of TLR by using the transgenic cell lines as well as at characterizing the course of the inflammatory response and influence of TLR in in vitro model of the intestinal epithelial cells. The results will help understanding the etiology of digestive tract diseases induced by contact with cyanobacteria water blooms

and will contribute to the identification of the responsible agents and biomolecules, and will bring important information for the treatment of these diseases.

We asked Pavel whether this was his first individual project and he told us: “Yes, this new project is my first one with the Czech Science Foundation support and I am co-investigator here. Upon my return to the Czech Republic while I worked at the Botanical Institute of the Czech Academy of Sciences in Brno, I had one individual re-integration grant by SoMo-Pro and then I was also involved in Kontakt II project that had a smaller team of researchers. In 2014 I became significantly involved in implementation of a Czech Science Foundation project at RECETOX that focusses on effects of cyanotoxins on liver stem cells (investigated by Prof. Luděk Bláha) and I coordinate a number of the research activities there.”

International Mobility at RECETOX aka Far North Study Stays

The March 2015 issue of the newsletter gave information on the planned study stays of our students and researchers supported by EEA Grants and Norwegian funds. The current article gives an overview of feedback when some of them returned from Norway and Iceland. At the same time, we are happy to announce that our international mobility is far from over, and that stays of RECETOX staff in Scandinavia will also continue in 2016, thanks to a new institutional project supported by Norwegian funds. The project promotes cooperation between RECETOX and the Norwegian University of Life Sciences (NMBU) aiming at broadening knowledge through short-term internships and at preparing joint research pro-

jects. For more information about the EEA and Norwegian grants please see this link: <http://eeagrants.org/Who-we-are>. In addition, we also actively utilize other available international mobility options and participate in calls by foundations, organizations and programs, with significant support from the RECETOX project support team.



EEA grants follow up – stays up north

A total of nine RECETOX students and researchers received an individual project from Norwegian funds or EEA Grants to support their mobility in 2015, and seven of them have had their stays in Norway or Iceland. Others will follow in early 2016.

Upon they return, we asked for a brief summary of their stay and a message to others. Find below what they had to say:

Katarína Bányiová: “Thanks to the EEA grant support, I got the opportunity to spend two months in the land of “ice and fire”, at the Faculty of Pharmaceutical Sciences, University of Iceland in Reykjavík. Under the supervision of Professor Thorstein Loftsson and together with his team of post-docs, students and researchers, I acquired practical experience in the field of experimental assessment of the drug absorption through biological membranes and in evaluation of the physico-chemical properties that influence their pharmacokinetics.

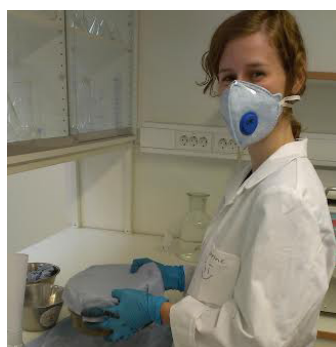
By modification of these methods that pharmacists use on a daily basis, I obtained a useful tool to assess the toxicokinetics of environmental pollutants, which will help us at RECETOX to refine the human health risk assessment. In addition to new scientific findings and experiencing life in a different workplace, I brought back lasting friendships, memories of the severe beauty of the Icelandic landscape and of the warmth and kindness of Icelanders, as well as the desire to come back one day.”

Lucie Bielská: “I visited the Norwegian Geotechnical Institute (NGI, www.ngi.no) in Oslo, Norway in May and June 2015. The aim of the internship was to meet with scientists addressing bioavailability issues and methods of remediation of contaminated sites. I was lucky to cooperate with Professor Gerard Cornelissen and Dr. Sarah Hale who were among the first scientists suggesting the use of biochar (pyrolyzed biomass) as a tool for soil fertility improvement and remediation.

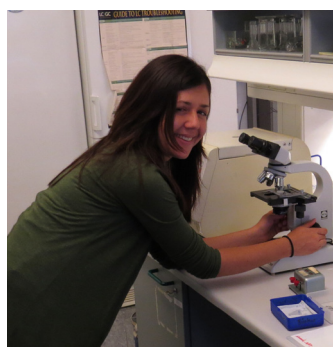


Although NGI is a private institution and therefore not readily receiving fellows within mobility grants, all people were really great and helpful. Thanks to their support, I managed to successfully complete the planned project on biochar and their integrations with organic pollutants. I am also happy that the cooperation between NGI and RECETOX is still ongoing and has been even extended to new areas – toxicity tests on fish embryos performed in RECETOX for NGI samples of contaminated water and passive samplers exposed to these waters as part of the NGI internal project. For those thinking of visiting Norway, I can fully recommend it! Be only aware that everything is really expensive in Norway and when the weather starts being nice, Norwegians tend to massively take holidays. Therefore, if you arrive during summer months, you may be the only one at work.”

Miroslav Brumovský: “I spent two months at the Norwegian University of Life Sciences (NMBU), Department for Chemistry, Biotechnology and Food Sciences in Ås and at the Norwegian Institute for Water Research (NIVA) in Oslo which cooperates with NMBU. Since both institutions are among the leading workplaces in Europe regarding the use of automated seawater sampling technology, I was gaining experience on a novel unmanned system for monitoring polar contaminants aboard ships of opportunity (commercial cargo ships and ferries). This technology represents a significant improvement of current methods for seawater sampling allowing for substantially cheaper and more frequent water sampling. Therefore, this approach can provide a strong support for the cost-effective marine environmental protection. During my stay, I also worked on a scientific paper on the evaluation of a pilot study of unmanned water sampling from a ship of opportunity cruising the North Sea, aimed at detecting a number of contaminants of emerging concern. The scientists



Lucie Bielská with biochar



Anežka Nečasová in the laboratory



Ondřej Mikeš with younger son

I met in Norway were very enthusiastic in their work and provided me with a lot of interesting knowledge that will be very useful for my PhD thesis on marine contaminants. I really enjoyed the stay, not only from a professional/career perspective, but I also fell in love with the beautiful Norwegian nature.”

Mária Chropeňová: “In 2014, our research group implemented the NeedleNet project focused on sampling of pine needles in high mountain areas of Slovakia. Among other results, we found increased concentrations of perfluorinated compounds in ski areas. Therefore, I used the opportunity to travel to Norway through the EEA grants to compare the situation in Slovakia with the north of Europe, moreover in the country that is renowned for skiing. I travelled to a small university town Ås which is dominated by the Norwegian University of Life Sciences. I stayed at the Department of Chemistry, Biotechnology and Food Science where I cooperated with Professor Roland Kallenborn and his research group. The main part of my research stay was sampling pine needles in selected ski areas (e.g. the Olympic site in Lillehammer, ski resorts in Kongsberg and Hafjell, ski jump in Holmenkollen, and forests in Ås used for cross-country skiing). The samples were sent to Recetox for immediate laboratory analysis (Pavlina, thanks!). At the same time, I also worked on a publication, because its preparation was the second part of my job in Norway. In conclusion, the research stay in Norway was a very positive experience. Apart from the possibility to travel to Scandinavia, I also appreciated the professional and personal approach of Prof. Kallenborn and of other university staff. Personally, I spent these two months in very nice, peaceful and inspiring environment in the beautiful countryside of Norway.”

Ondřej Mikeš: “I spent spring and summer at National Institute of Public Health in Oslo, Norway to learn typical approaches used in the interpretation of epidemiological data. All my colleagues in Norway were from the Division of Environmental Medicine involved in a huge modern Norwegian cohort MoBa (Mother-Child). I am already using the expertise gained in evaluation of data from the ELSPAC cohort study and will use them also for the TNG study organized by RECETOX. In conclusion, I learned how to handle large epidemiological datasets, how to work with SPSS to evaluate such data and how to be careful with interpretation of the health outcomes, and prepared a joint publication with contributions from both Norwegian and Czech colleagues. Moreover, I have been in Norway with my family and we were also able to take a few trips into the “wilderness” – to the extent it can be done with one- and three-year-old children. I can recommend Norway from both work and traveling perspective, however should I travel with my family again, I’d rather choose other sources of mobility support. Norwegian grant pro-



jects are ideal support for individual short-term stays of about one month.”

Anežka Nečasová: “Within my two-month long internship at the Institute of Basic Medical Sciences at the University in Oslo, Norway I contributed to Professor Collins’ epidemiological study focused on the DNA damage biomarkers looking for links between nutrition and colorectal cancer incidence. I tried to identify to what extent diet is a factor in limiting cancer recurrence and comorbidity in cancer patients after surgery. Overall, I would say that my main professional benefit was learning the new optimized high-throughput method Comet assay, which allows detection of oxidative DNA damage using human lymphocytes of peripheral blood and thus is a useful tool for human biomonitoring studies. I will use the expertise not only in genotoxicity screening studies of environmental pollutants but also in broader studies focused on individuals and their health outcomes associated with environmental pollutants exposure. I am very grateful for the opportunity to spend two months at a renowned university and also in a beautiful country. Preparing the project application for the mobility grant took a bit of time, but reward for the effort was great. Therefore, I would like to say to all students and younger colleagues: be active and exploit any

opportunities to travel and get new skills and expertise, and find new contacts for future collaboration in research – it is worth it!”

Lucia Škulcová: “In May–June 2015, I was a part of the research team at the Norwegian Geotechnical Institute (NGI) in Oslo. I carried on my own experiment focused on assessment of the soil contamination by pesticides and sorption properties of biochar. The experiment was linked to the current research project of Professor Gerard Cornelissen and his co-workers, who have worked on biochar for a long time. While the main purpose of the stay was to increase my skills and knowledge in soil bioavailability assessment, the main task was to learn new procedures and methods. Perhaps the most important experience was the opportunity to learn and try out the use of new material such as biochar. My main output is to transfer the acquired theoretical knowledge into the standard operation procedure manual. The biochar research has continued after my return from Oslo. Results of the experiments (performed at both NGI and RECETOX) will be used in a joint article with Prof. Gerard Cornelissen and contribute to the better understanding and use of biochar for contaminated soil remediation.”

Da Vinci Project – Progress in Implementation

The DA VINCI project: DAta Visualisation, INterpretation and Comparison Improvements for organic pollutants in long-term monitoring networks is a joint project between RECETOX and the Norwegian Institute for Air Research, NILU. One main objective of the project is to better understand and characterize different air sampling techniques (such as passive and active sampling) and particularly, understand what the options and limitations are when comparing data from different monitoring networks. The most recent work on the project has focused on two areas: understanding whether chemicals can degrade within an active air sampling during the sample collection, and understanding how differences in the types of passive air samplers used around the world can affect the comparability of results.

Two research trips to NILU have been undertaken in autumn 2015 to help answer these questions, working with Pernilla Bohlin-Nizzetto of NILU. In September, Lisa Melymuk travelled to NILU to assist in air sampler testing. A high volume air sampler from NILU was adapted to allow direct real-time monitoring of ozone and NO_x within the air sampler. These trace gases are believed to be the cause of much of the degradation of atmospheric pollutants, and if found within the sampler, this tells us that unexpected losses of pollutants could occur during sampling. These tests showed that levels of ozone and NO_x within the air sampler itself are equal to those in outdoor air, and so there is potential that degradation could make measured air concentrations less accurate. This issue is an important one in air sampling, and will receive more attention in the remainder of the DA VINCI project.



The issue of passive sampler comparability was addressed in a research trip in December 2015, when Lisa Melymuk and Ondřej Sáňka travelled to NILU to assist in tests on passive air samplers. Double-bowl passive air samplers are used worldwide for monitoring of atmospheric pollutants, but there are many differences in the size, shape and installation of the passive samplers that may lead to differences in performance, and hence a lack of comparability in air concentrations. To address this, a joint study between NILU, RECETOX and Tom Harner of Environment Canada was developed to test 15 different passive samplers from around the world. Samplers from 13 different countries were shipped to NILU and deployed at the same site in Norway. In December, Lisa, Ondřej and Pernilla collected the samplers and characterized the differences in bowl dimensions and deployment methods. The air samples were shipped back to the participating laboratories for analysis. This study will help us understand if different designs of passive samplers are comparable and what uncertainty is associated with comparing data from different countries and monitoring networks. A second phase of this passive sampler comparison will happen at NILU in spring 2016.





RECETOX News

One of RECETOX publications was rated a Top 4 biomedical publication globally in 2014!

The publication describing bioinformatics classifier PredictSNP „Bendl J., Stourac, J., Saland, O. Pavelka, A., Wieben, ED, Ramakrishnan, J., Březovská, J., Damborsky, J. 2014 PredictSNP: Accurate and robust consensus classifier for prediction of disease-related mutations. PLoS Computational Biology 10: e1003440 ‘ by team of Professor Jiří Damborský was ranked among the top four articles of 1594 articles published and cited in 2014 on Medline. The four articles represent excellent research in field of bioinformatics and exhibit potential application in health and clinical care. They were also included in the IMIA (International Medical Informatics Association) Yearbook of Medical Informatics 2015, containing the overview of the best articles. The full text of the yearbook is available electronically: <http://www.imia-medinfo.org/new2/node/110>

Contest Awards Diploma Thesis Competition 2015

13th contest of diploma theses focusing on ecology and environment in South Moravian Region was organized by Lipka, environmental education society, in cooperation with Region of South Moravia. Twenty-six works selected in the first round competed at the Conference held in Brno on 26 November 2015 in front of an expert jury. The jury awarded 10 theses with a prize and students also received feedback and inputs to further development of their research. Masaryk University had three theses awarded this time.

We are proud to announce that one of them was the work of Ondřej Brózman on “Epigenetic mechanisms of toxicity in vitro model of the respiratory system,” awarded the Prize for Outstanding Scientific Contribution. Abstracts of all theses are available in the Students for South Moravian

Enroll in the 4th Summer School on Protein Engineering

The Loschmidt Laboratories in Brno will host the 4th Summer School on Protein Engineering from 26-20 June 2016 and registration for the training for secondary school students and university students (first and second year) is now open. The training is for those interested in biology, biochemistry, bioinformatics and biotechnology. The program consists of theoretical introductory lectures and hands-on laboratory practice. Topics covered are: search in bioinformatics databases, computer design of biomolecules, construction of mutants using molecular biology techniques, structural and biophysical determination of protein properties, lab-on-chip technologies. Participation in summer school is fully covered by the FP7 project ICRC-ERA-HumanBridge and the capacity of the Summer School is 20 participants. Therefore, anyone interested is strongly recommended to sign up on the summer school website: <http://loschmidt.chemi.muni.cz/school/> as soon as possible. All candidates will be notified by 30 March 2015 and successful graduates receive certificates and study credits.

Region 2015 Yearbook available online from Lipka’s website – www.lipka.cz

A press release by Lipka was used to prepare this text.



Visit www.genasis.cz and use the data browser to find out more about levels of toxic chemicals around us!

The GENASIS (Global ENvironmental ASsessment Information System) created in cooperation of RECETOX with IBA MU – institutes of Masaryk University, Brno, Czech Republic – provides comprehensive information on chemical contamination of the environment, namely persistent organic pollutants (POPs). The system combines expertise, validated data from partner institutions, and input from regular environmental monitoring programmes. Users and data providers get secure data repository, sophisticated analytical tools, and comfortable data management and visualization. A sister database is used globally under the Stockholm Convention and showcases an overview of global levels of POPs at www.pops-gmp.org.



Brno PhD Talent Contest 2015

The South Moravian Centre for International Mobility (JCMM) with the financial support of the City of Brno organized the 5th contest for doctoral students in early stages of their PhD (up to 2 semesters) in science or engineering at four Brno universities (Masaryk University, the Technical University in Brno, the Veterinary and Pharmaceutical University and Mendel University). The contest, held in English, started in September 2015 with almost 80 registered projects. The first stage evaluation by experts from academia and industry and private sector selected thirty projects to the finals consisting of a defense of the project in front of an international expert committee. The committee selected 15 winners on 1 December 2015. Each of them receives complementary scholarships of 300 000 Czech Crowns (equivalent of 10800 EUR) that will be gradually paid over three years. This scholarship allows them to fully concentrate on research without a need for additional funding. For more information about the contest please see: <http://www.jcmm.cz/cz/vice-o-soutezi.html>

We would like to congratulate to all winners, but especially Jan Raška, our new doctoral student who works at RECETOX with Pavel Babica. Jan succeeded in the contest with a project on effects of cyanobacterial toxins on liver stem cells that endeavours to simulate the in vitro effects of these toxins on

liver homeostasis whose disruption is a key factor in the development of liver tumors and other disorders. The project also strives to understand the significance of liver stem cells in tissue homeostasis and develop a reliable in vitro model for research and analyses of other potentially toxic compounds.



Jan Raška, one of Brno PhD Talent 2015 winners

RECETOX in brief

We are pleased to announce that our traditional Christmas party charity collection hit a record of 11 320 CZK this year. We transferred it to Bakhita association, an organization working in Brno helping mothers and young families in critical situations. Funds from RECETOX were used to purchase food (including dried, canned or otherwise preserved items) and toiletries. In addition, some more food was provided by RECETOX staff to the Bakhita food bank before end of the year.

We are happily announcing that a number of young researchers celebrated their Christmas with a newborn child this year. Congratulations to Zuzana Toušová on the birth of daughter Evička, to Helena Šebestová for welcoming son Filípek.

New Papers Published

In 2015, scientists RECETOX prepared more than 100 publications. Below is a selection of scientific articles that have been accepted for publication in prestigious international journals in the last part of 2015:

- Daniel, L., Buryska, T., Prokop, Z., Damborsky, J., Brezovsky, J., 2015: Mechanism-Based Discovery of Novel Substrates of Haloalkane Dehalogenases using in Silico Screening. *Journal of Chemical Information and Modeling* 55: 54-62.
- Bányiová, K., Nečasová, A., Kohoutek, J., Justan, I., Čupr*, P., 2015. New experimental data on the human dermal absorption of Simazine and Carbendazim help to refine the assessment of human exposure. *Chemosphere*. doi:10.1016/j.chemosphere.2015.11.018
- Bob, P.; Selesova, P.; Raboch, J.; Kukla, L. Dissociative Symptoms and Mother's Marital Status in Young Adult Population. 2015. *MEDICINE* vol. 94, issue 2. DOI: 10.1097/MD.000000000000408
- Bownik, I., Peter Šebej, Jaromír Literák, Dominik Heger, Zdeněk Šimek, Richard S. Givens, Petr Klán: 4-Hydroxyphenacyl Ammonium Salts: A Photoremovable Protecting Group for Amines in Aqueous Solutions. *JOURNAL OF ORGANIC CHEMISTRY*. 2015, vol. 80, issue 19, p. 9713-9721.
- Kail, J., Brabec, K., Poppe, M., Januschke, K. (2015) The effect of river restoration on fish, macroinvertebrates and aquatic macrophytes: A meta-analysis, *Ecological Indicators*, Volume 58, November 2015, Pages 311-321, ISSN 1470-160X, <http://dx.doi.org/10.1016/j.ecolind.2015.06.011>.



Activities of the Stockholm Convention Regional Centre

Three events took place in November and December 2015 in the RECETOX premises – two trainings and a meeting of experts on polychlorinated biphenyls. In addition, we also sampled air and soil in Kyrgyzstan in December and started preparations for a meeting on mercury planned for early February 2016.

Capacity Building Courses for Serbia and Kazakhstan

Serbian Ministry of Agriculture and Environmental Protection staff received a short capacity building course in support of POPs monitoring. They were trained in sampling methods and analyses of persistent organic pollutants in the environment and in data management and work with visualization tools. The course took place from 25–26 November 2015 under the support of UNIDO.

The Laboratory of Trace Analyses also carried out another capacity building training for 16 laboratory experts, prepared on request of UNDP to increase Kazakhstan's capacity for chemical analyses of POPs. Their one-week training comprised both lectures on the latest development in research and global policy measures as well as practical courses in the laboratory and a field visit to the EMEP and MONET background sampling site in Košetice, Czech Republic.

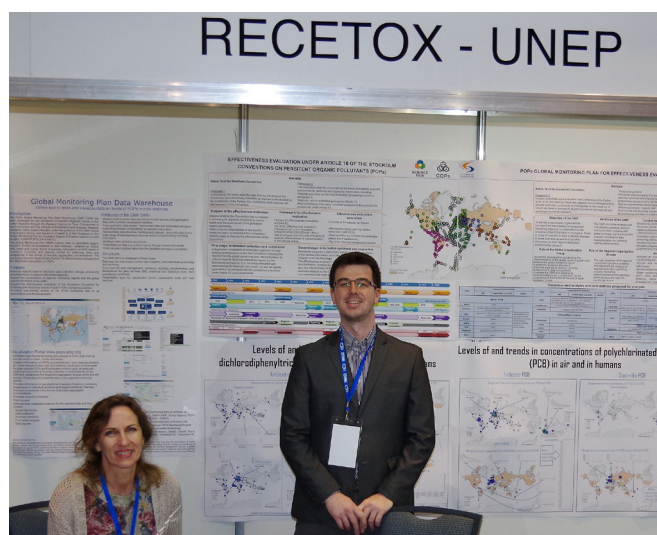
RECETOX in Mexico

RECETOX director, Professor Jana Klánová, and principal software developer for environmental and human electronic repositories, Richard Hůlek, represented the Czech Republic and UNEP in the Geospatial Week at the GEO-LAGF 2015 exhibition for 90 ministers and over 600 delegates and the ministerial conference of the Group on Earth Observations (Group on Earth Observation, GEO), held 9–13 November 2015 in Mexico City, Mexico. A stand was prepared in cooperation with UNEP showcasing outputs of environmental data management and monitoring of POPs carried out in support of the Global Monitoring Plan of the Stockholm Convention, as RECETOX and UNEP are strategic partners to the Global Earth Observation System of Systems (GEOSS) for the priority area 2 “Health”, priority 2.2. Tracking of Pollutants. The work is also available online at www.pops-gmp.org and presents levels of global pollution by persistent organic pollutants on human and environmental matrices from 1980s to 2014.

Global progress in the elimination of PCB

A group of 13 experts from around the world met from 14–16 December 2015 in RECETOX to review existing knowledge on global polychlorinated biphenyl inventory and speed of its elimination in different continents and Parties to the Stockholm Convention on POPs.

Their aim was to prepare input towards the Effectiveness Evaluation Committee under the Stockholm Convention that will meet in February 2016. RECETOX provided its support and expert capacity available in its National and Regional Centre.



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