Network of European Researchers in Biology and Medicine in China

NERBIMEC newsletter – Winter 2022/2023

NERBIMEC is pleased to present its biannual newsletter, and to share this third NERBIMEC newsletter for the winter 2022/2023 period. Here, we detail the latest publications of our members, list upcoming events and introduce our new members. If you would like to know more about us, if you would like to contact us, you can visit the NERBIMEC website: **www.nerbimec.eu** or write to **info@nerbimec.eu**

Any suggestions for the next newsletter? You are a NERBIMEC member, and you are aware of an event happening soon? Or you have an idea how to improve this newsletter? Please contact our Newsletter editors: Dr. Malgorzata Garstka, Dr.Quentin Montardy, Dr. Magdalena Koziol and Dr. Magdalena Górska.

Edito: Time for renewal

This is no mystery stating that during the last three years and due to numerous restrictions, many of us, European Researchers, had no choice but to leave China. Corollary, only a few newcomers arrived to pursue their scientific careers in China, significantly reducing our number and mechanically limiting international scientific interactions. However, international and domestic travel has recently become easier, giving hope for a potential reversal of this trend.

As past, actual and future European Researchers in China, we have a unique chance to participate in rebuilding the scientific bridges between Europe and China. It is more than ever necessary to keep strong relations. More than keeping collaborations active, we have the occasion to help Euraxess and Europe design new cooperation models by sharing our experiences from both academic worlds.

The best part is that sharing experiences is in the DNA of the NERBIMEC group! So with this in mind, we have prepared an issue including information on how to get to China based on the experience of one of our members, Dr. Magdalena Koziol, who recently visited Europe and returned. Declaration of National Natural Science Foundation of China applications has started, and Dr. Goran Aneglovski, the recipient of two NSFC grants, presents the scheme. As always, you can also read about upcoming events, recent publications and new members of our network.

Editor note: We thank Dr. Quentin Montardy, our co-editor and friend, for his enthusiasm and work in starting and creating this newsletter. We wish him success in new endowers and hope he stays associated with Nerbmiec.

How to come back to China:

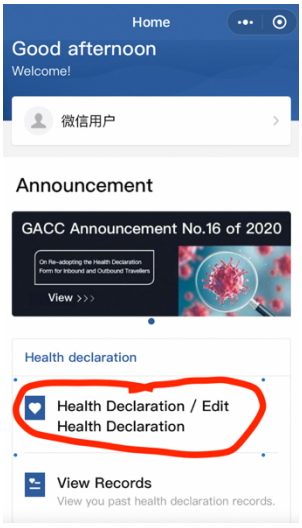
Since inbound passengers no longer have to quarantine when entering China, travel got a lot easier. However, how does the process work now? How to enter China?

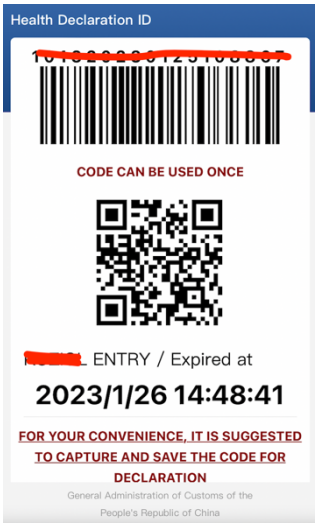
A few simple steps to follow:

1. Purchase your plane ticket
2. Apply for your visa
3. Take a nucleic acid (PCR) test not more than 48hrs before your flight. You need a PRINTED copy of the PCR results and a negative covid test result. *Please note, not all locations where people can take a PCR tests will be accepted for travel into China. I highly recommend taking such a test at an airport, as they guarantee that this test will be accepted for China travels. To not take unnecessary risks, check with the PCR providers if their facility offers tests that are accepted for travel abroad. Also, there are different processing speed options, for example 24hrs,12hrs or even 1.5hrs in advance.*
4. Arrive at the airport and at the gate ahead of time. *I recommend arriving at the airport earlier than 2hrs before, and to go to your gate earlier. After check-in and security checks, on the way to the gate, airport personnel will you only let you access the gate after checking your PCR test results. This takes time.*
5. You have to wear a mask on the plane to China.
6. Fill out a 'Health Declaration Code' no more than 24hrs before you land in China. *This form can be accessed by scanning the displayed code with wechat (see picture below). If you fill this form out earlier than 24hrs in advance, it will no longer be active. However, it can also be filled out after landing in China, at the airport. Through this form you will obtain a barcode that has to be presented at a gate at the airport.*
7. Fill out the immigration form. *As common practice, you have to fill out a small form on arrival for the immigration officers. The immigration officers will check this form and your passport.*
8. You are done! Welcome to China!

Dr. Magdalena Koziol

The code has to be scanned before/on arrival (b) to be filled out to (c) obtain barcode





Declaration of NSFC applications has started:

The National Natural Science Foundation of China (NSFC) has released the call for proposals in two programs that can be of interest for the NERBIMEC network members: the NSFC-Mianshang program 2023 (面上项目) and NSFC-Research Fund for International Scientists project – RFIS 2023 (外国学者研究基金项目).

The Mianshang program has duration of 4 years (January 2024 to December 2027) and the applications from all scientific disciplines will be considered. The eligible applicants must hold a PhD degree and work at the host institute registered at the NSFC for submission of applications. The proposal length is estimated to 15 pages (single-space, 12 pt) or no longer than 8000 Chinese characters (description of the research project may be submitted in English). The successful funding of the Mianshang program allows the grant holder to apply for a large number of NSFC international collaborative projects, as these usually require applicants to host a NSFC program with the duration of at least 3 years (e.g., like Mianshang). Based on the available statistics at the NSFC web page, the average funds granted per project are around 550-600,000 RMB and the success rate is 15-25%, depending on the discipline.

The RFIS program has duration of 1 or 2 years starting from January 2024. It covers all research disciplines and is divided in three subgroups: a) for International Young Scientists (budget 200,000 RMB/year); b) for International Excellent Young Scientists (budget 400,000 RMB/year); and c) for International Senior Scientists (budget 800,000 RMB/year). The eligible applicants must hold a PhD degree and work at the host institute registered at the NSFC for submission of applications for at least 9 months during the project. The proposal length is limited to 18 pages (1.5 space, 14 pt), while the success rate is higher than for the applications from the Mianshang program.

Note that additional restrictions may apply for either of the programs, such as applying for multiple NSFC projects at the same time. More information about the Mianshang and RFIS programs can be found at the NSFC web page:

NSFC-Mianshang program 面上项目 2023
Application deadline: 4 pm, Mar. 20th
Link: **https://www.nsfc.gov.cn/publish/portal0/tab434/info88392.htm**

NSFC-Research Fund for International Scientists project 外国学者研究基金项目 2023
Application deadline: 4 pm, Mar. 20th
Link: **https://www.nsfc.gov.cn/publish/portal0/tab434/info88444.htm**

Dr. Goran Angelovski

Book the date! Upcoming events in China and online

Upcoming meetings and conferences:

—> **NERBIMEC members meeting** will take place in Spring 2023, offline and online. Exact date and place will be announced soon.

—> **EU-China conference on agricultural research "Setting the tone for a renewed partnership and future cooperation",** Beijing February 28th (15:30-19:00 CST, 8:30-12:00 CET), hybrid format.

Meeting objective is to allow researchers and policy makers in the field of agricultural sciences from EU and China to get together, learn from previous success stories and launch new collaboration projects. Tentative program includes EU-China cooperation in agricultural sciences – policy objectives, introduction of successful cooperation projects in agricultural research, co-funded by EU and China, parallel sessions on agricultural research (animal nutrition and feed resource efficiency, sustainable farming systems and optimization of manure use along the management chain, innovation in new bridging technologies: smart agriculture, food quality and safety, plant pathology, crop protection and climate resilience) and panel discussion of EU researchers' in China on practicalities of EU-China research collaboration

For further information please contact Michael Mechthold-Jin at Michael.Mechthold-Jin@gopa.de.

—> **Upcoming neuroscience meeting in China:**
For more information: https://www.cns.org.cn/2023/index.html

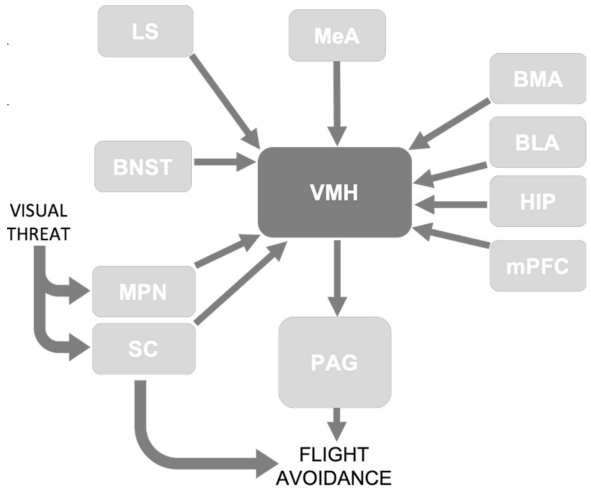
—> Upcoming Cold Spring Harbor Asia meetings
For more information go to: **https://www.csh-asia.org/?list/34**

Cold Spring Harbor Laboratory

Meeting Name	Meeting Dates	Abstracts Due
Cilia & Centrosomes, AWAJI, JAPAN	Tue Feb 28 - Fri Mar 3, 2023	Jan 27, 2023
Human Development - from Embryos to Stem Cell Models, AWAJI, JAPAN	Sun Mar 5 - Fri Mar 10, 2023	Feb 3, 2023
Novel Insights into Glia Function & Dysfunction, AWAJI, JAPAN	Mon Apr 24 - Fri Apr 28, 2023	Feb 24, 2023
Chemical Biology and Drug Discovery	Mon May 15 - Fri May 19, 2023	Mar 10, 2023
The Now and Future of RNA Therapeutics, AWAJI, JAPAN	Mon Jun 19 - Fri Jun 23, 2023	Apr 14, 2023
Mitochondria and Metabolism in Health and Disease	Mon Oct 30 - Fri Nov 03, 2023	Sept 01, 2023

'Editors' Choice', award for Dr. Montardy from the Nature-Springer Group and the journal Brain Structure and Function

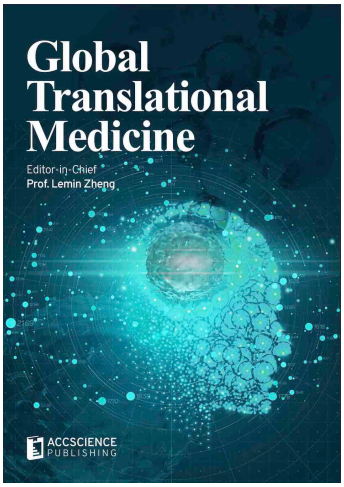
An international team of researchers from the Shenzhen Institute of Advanced Technology (China), European Molecular Biology Laboratory (Italy), and Monash University (Australia) have made a major discovery about the innate fear networks in primates. With this article Dr. Montardy won the 'Editors' Choice', an award at the Cajal Club at the Society for Neuroscience conference 2023. The researchers discovered that the primate (marmoset monkey) ventromedial hypothalamus also receives major inputs from the medial nucleus of amygdala, suggesting a conserved role of medial hypothalamic instinctive behavior networks across mammals, including humans. These findings have significant implications for understanding fear in humans.



Award website: https://www.springer.com/journal/429/updates/23789728
Link to paper: https://link.springer.com/article/10.1007/s00429-020-02176-6
—>NERBIMEC contact information: Dr. Quentin Montardy

Call for papers:

Malgorzata Garstka, our NERBIMEC member is supporting the launch of a new journal Global Translational Medicine.



Global Translational Medicine (GTM) is a quarterly journal that focuses on medicine, biological sciences, and biomaterials engineering. The goal of Global Translational Medicine is to provide a platform to researchers for showcasing their latest research works in translational medicine so as to advance the field towards the betterment of human health. Despite the advancement of omics and new technologies, the process of transforming these technologies and scientific research results into effective therapies and putting them into clinical use still has a long way to go. Global Translational Medicine provides a platform to fill the gaps in preclinical and inter-disciplinary research, to promote clinical translation of scientific research results, and to contribute to the conception of new and improved preventive measures as well as diagnostic and therapeutic techniques of diseases. GTM is supported by School of Basic Medical Sciences Peking University.

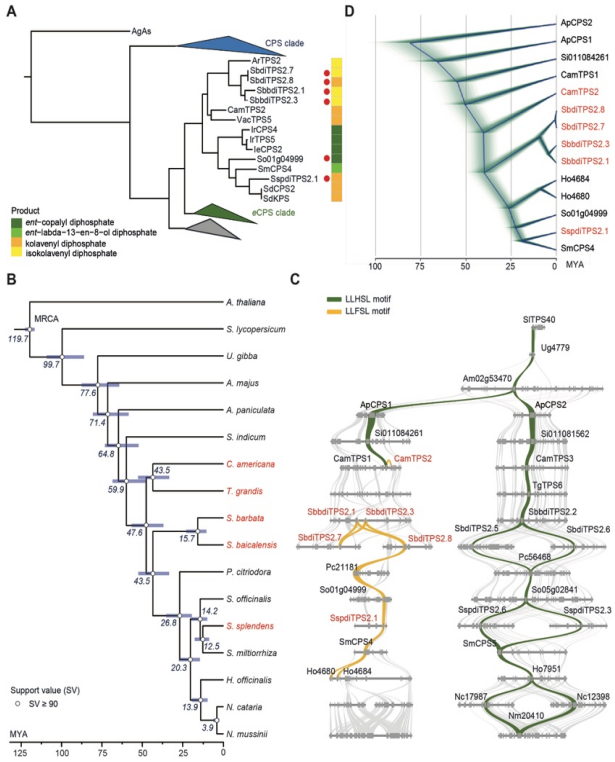
Global Translational Medicine is now open for submissions. Find out more about the journal on **https://accscience.com/journal/GTM**

—> NERBIMEC contact information: Dr. Malgorzata Garstka

Hot publications from NERBIMEC' members

PLANT SCIENCES

Following the trail of the TCM and evolution to develop new anti-cancer medicines (Molecular Plant, 2022)



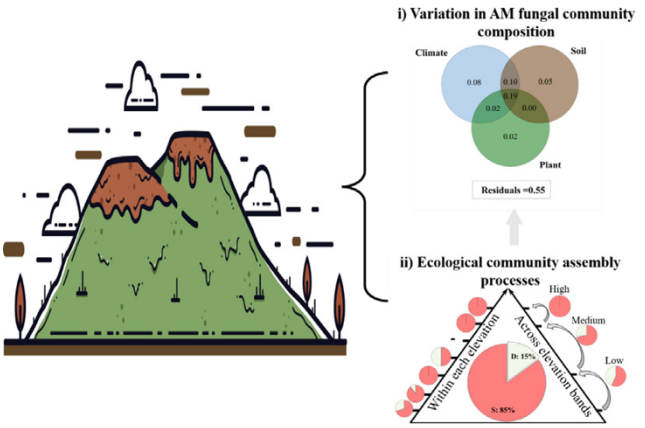
The evolutionary secrets that enable the medicinal herb known as barbed skullcap to produce cancer fighting compounds have been unlocked by an international collaboration by the labs of Dr. Evangelos Tatsis and Prof Cathie Martin, FRS, OBE. The CEPAMS (https://www.cepams.org) collaboration used DNA sequencing technology to assemble the genomic sequence of skullcap (Scutellaria barbata) known in China as banzhilian. This gave researchers the genetic information - a microevolutionary history - required to identify how the plant produces the compound scutebarbatine A, which acts against a range of cancer cells. The primary metabolite has activity against cancer cells but not non-cancer cells which is especially important as a drug lead from natural resources for novel anticancer medicines. Now, with the knowledge of the genes that make up the biochemical pathway behind the anti-cancer activity of the herb, researchers are close to being able to synthesise larger quantities of compounds more rapidly and sustainably by using a host such as yeast. The research which appears in the journal Molecular Plant is led by CEPAMS, a partnership between the Chinese Academy of Science and the John Innes Centre supported by The Royal Society.

Main contact: Dr. Evangelos Tatsis at etatsis@cemps.ac.cn

Article link: https://doi.org/10.1016/j.molp.2023.01.006

PLANT SCIENCES

Stochastic processes dominate soil arbuscular mycorrhizal fungal community assembly along an elevation gradient in central Japan (Science of The Total Environment, 2023)

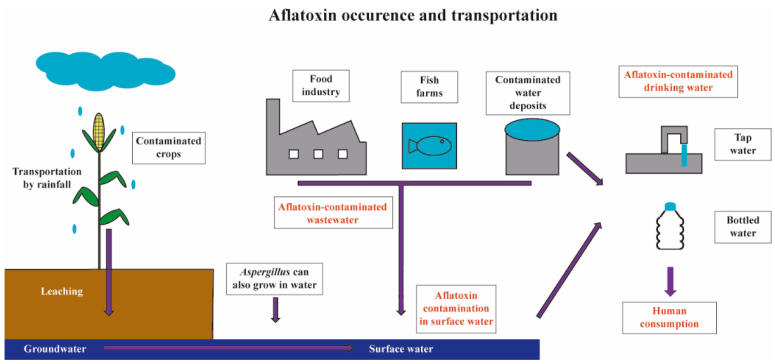


Most plants in the world depend upon a special group of symbiotic fungi known as AMF, that live inside the roots and help the host plant take up nutrients from the surrounding soil. To understand the ecology of AMF, with the help of colleagues in Japan, Korea and China we sampled different soil samples of forests along an elevation gradient in Japan, from near sea level to above 2,500m on Mount Norikura, one of highest mountains in Japan. We used a molecular probe, called a primer, to capture a key gene that tends to differ from one species of AMF to another. We found that the assortment of AMF species varies in a random, fairly unpredictable way, suggesting that many different AMF species do a fairly similar job for the host plants, and that the plants can't or don't distinguish between them. This may well suit the plants – if one species of AMF is not available, the plants can just grab others. This interchangeability of AMF may mean that the forest trees and flowers can just keep growing and the whole ecosystem is more resilient and less sensitive to disturbance and climate change – good news in a rapidly changing world.

Main contact: Dr. Jonathan Adams at geog.ecol@gmail.com
Article link: https://doi.org/10.1016/j.scitotenv.2022.158941

TOXINS

Occurrence of aflatoxins in water and decontamination strategies: A review (Water Research, 2023)

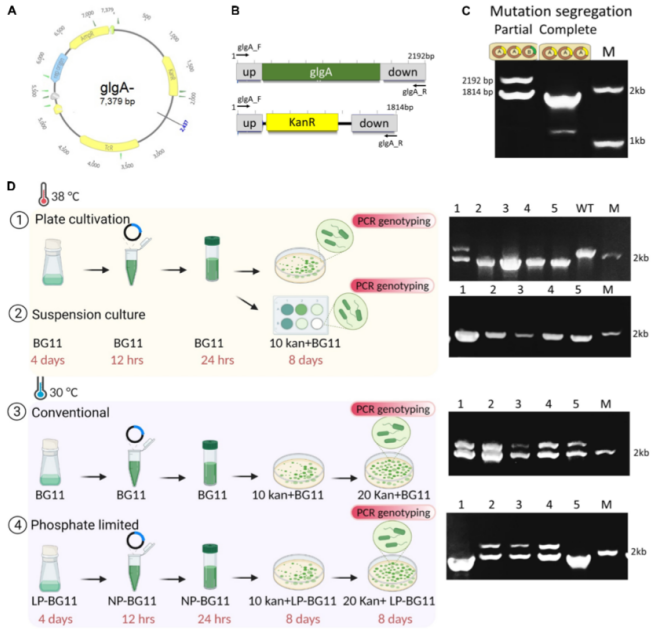


Aflatoxins are highly carcinogenic metabolites produced by some *Aspergillus* species. Although aflatoxins are commonly synthesized during fungal colonization in preharvest maize, cereals, and nuts, they can be transported by rainfall to surface water and are a common toxin found in wastewater from some food industries. These toxins are stable in aqueous solution for several months, and can have very different fates, being present in tap and bottled water. Given that the concentrations of aflatoxins in bottled water are higher than 0.16 μg/L, a person who consumes 2 L of water per day ingests more than of 0.32 μg aflatoxins only from drinking water. Considering that daily intakes of aflatoxins ranging from 0.127 to 0.195 μg per day have been found to be directly related to the presence of primary liver cancer in China, it can be concluded that the ingestion of aflatoxins from water may be a significant cause of cancer and in some areas may be higher than the ingestion of aflatoxins from food products. Overall, the occurrence of aflatoxins in water could be a significant emerging public health concern largely ignored by local and international legislation.

Main contact: Dr. Pedro Laborda
Article link: https://doi.org/10.1016/j.watres.2023.119703

APPLIED MICROBIOLOGY

Generation of miniploid cells and improved natural transformation procedure for a model cyanobacterium Synechococcus elongatus PCC7942 (Frontiers in Microbiology, 2022)



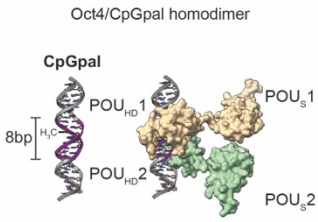
The biotechnologically important and naturally transformable cyanobacterium, *Synechococcus elongatus* PCC 7942, possesses multiple genome copies irrespective of its growth rate or conditions. Hence, segregating mutations across all genome copies, required for obtention of a stable phenotype, typically takes several weeks. In this study, we introduced the concept of miniploid bacterial cells, i.e. cells possessing the lowest possible number of genome copies. We then explored this concept to facilitate the transformation and segregation of polyploid bacteria using the model cyanobacterium *Synechococcus elongatus* PCC 7942. The strain was grown at different temperatures and nutritional conditions and the miniploid cells were identified using flow cytometry and fluorimetry. The applied approach allowed to lower the average ploidy of cyanobacterial cells to approximately two indicating that a single segregation event could be sufficient to obtain homogenous lines. We further improved the genetic transformation protocol with a combination of temperature control, optimisation of solidifying agent and utilisation of reactive oxygen scavengers; drastically reducing time needed to produce segregated lines from a few weeks to several days.

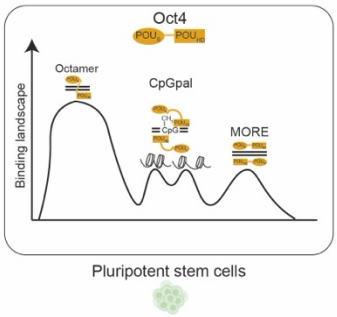
Main contact: Dr. Maurycy Daroch

Article link: https://doi.org/10.3389/fmicb.2022.959043

EPIGENETICS

How is epigenetic information interpreted by stem cell transcription factors (Nucleic Acids Research, 2023)?





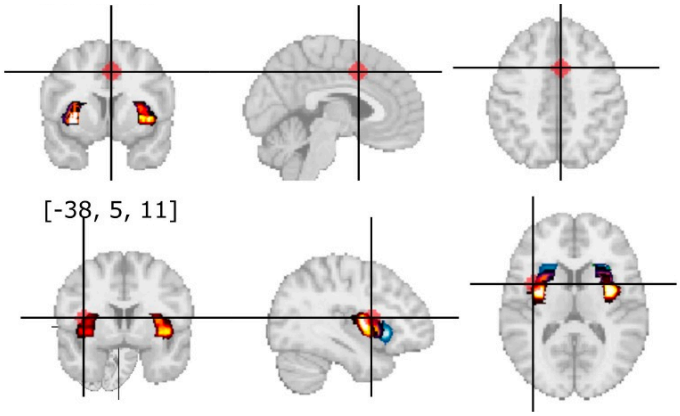
The methylation of DNA at CpG steps determines the fate of cells and marks their age. During embryonic development from totipotent to pluripotent and somatic cells as wells as during the specification of egg and sperm, CpG methylation is remodeled across human and mouse genome. We studied how the pluripotency and germ cell factor Oct4 targets a symmetric DNA site with a methylated CpG step at its centered which we called CpGpal element. To bind this elements, two Oct4 molecules pair up but use just the homeodomain for DNA binding whilst the POU specific domain dangles around. Factors that are evolutionarily related to Oct4 but function in differentiated cells do not show this binding mode. Interestingly, Oct4 can regulate stem and germ cell genes without the removal of the methylation mark. Apparently Oct4 can regulate genes within the context of chromatin conventionally believed to be epigenetically silenced which underlies its essential function in pluripotent stem cells.

Main contact: Dr. Ralf Jauch

Article link: https://doi.org/10.1093/nar/gkac1262

NEUROSCIENCES

The central autonomic system revisited - Convergent evidence for a regulatory role of the insular and midcingulate cortex from neuroimaging meta-analyses (Neuroscience and Biobehavioral Reviews, 2022)

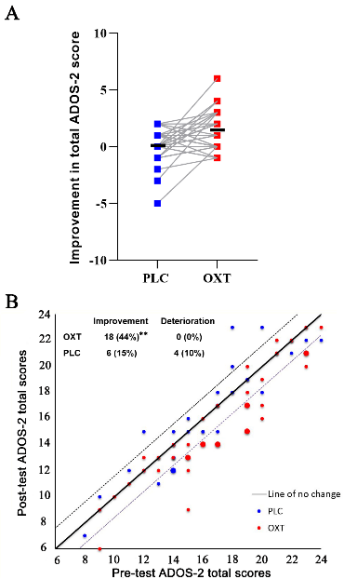


The autonomic nervous system regulates dynamic adaptations to internal and external environmental changes and plays a central role in theories of emotion. However, neuroimaging findings with respect to the organization of the central autonomic system (CAN) in humans remained inconsistent. We leveraged different meta-analytic algorithms to identify the bilateral dorsal anterior insula and midcingulate cortex as critical nodes that mediate the CAN across sympathetic and parasympathetic systems and task domains. Remarkably, the identified core regions overlapped with the salience network and regions commonly reported across different affective and cognitive neuroimaging paradigms as well as being dysfunctional in mental disorders.

Main contact: Dr. Benjamin Becker
Article link : https://pubmed.ncbi.nlm.nih.gov/36244505/

CHILD PSYCHIATRY

Autistic symptoms in young children can be improved by oxytocin (Psychotherapy and Psychosomatics 2022)

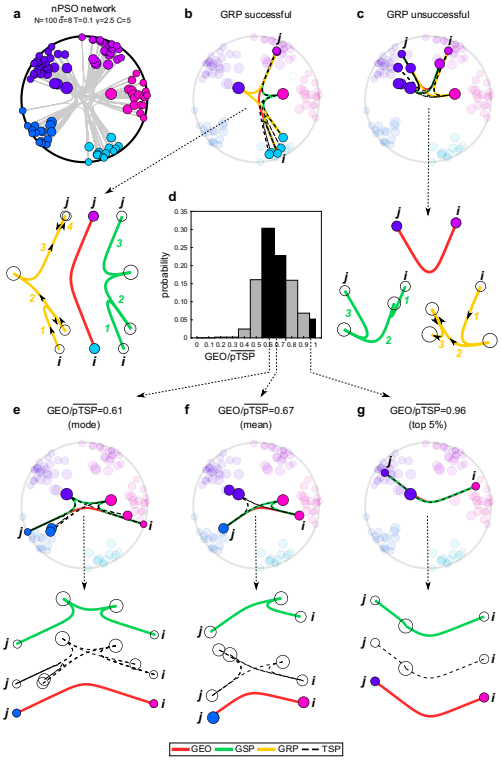


Intranasal administration of the neuropeptide oxytocin has emerged as a promising potential treatment for autism, but clinical trials using chronic daily administration have reported inconsistent results. In a cross-over randomized controlled clinical trial on 41 young children (3-8 years) we found that 24IU intranasal oxytocin given less frequently (every other day), and prior to positive social interaction sessions, produced clinically relevant improvements in the objective gold standard diagnostic measure, the Autism Diagnostic Observation Schedule-2, in 44% of children after 6 weeks. Improvements were also found in visual attention to social stimuli as well as a number of other measures. These initial findings are encouraging for future development of oxytocin as a therapy for autism in children and emphasize the importance of dose frequency and its use as an adjunct to positive social interactions.

Main contact: Dr. Keith Kendrick
Article link: https://doi.org/10.1159/000524543

NETWORK SCIENCE

Geometrical congruence, greedy navigability and myopic transfer in complex networks and brain connectomes (Nature Communications, 2022)



The manifold's geometry underlying the connectivity of a complex network determines its navigation ruled by the distances between its nodes in the geometrical space. In this work, the authors propose an algorithm which allows to uncover the relation between the measures of geometrical congruency and efficient greedy navigability in complex networks. This requires finding all topological shortest-paths for each nonadjacent node pair in the network: a nontrivial computational task. Hence, an optimized algorithm is proposed that reduces 26 years of worst scenario computation to one-week parallel computing. Analyzing artificial networks with patent geometry, different from current belief, hyperbolic networks do not show in general high geometrical congruence and efficient greedy navigability with respect to the geodesics. Analyzing real networks with latent geometry, geometrical congruence overcomes greedy navigability as marker to differentiate phenotypical states (such as sex and age) in macroscale structural-MRI brain connectomes.

Main contact: Carlo Vittorio Cannistraci
Article link: https://www.nature.com/articles/s41467-022-34634-6

ANIMAL BEHAVIOR

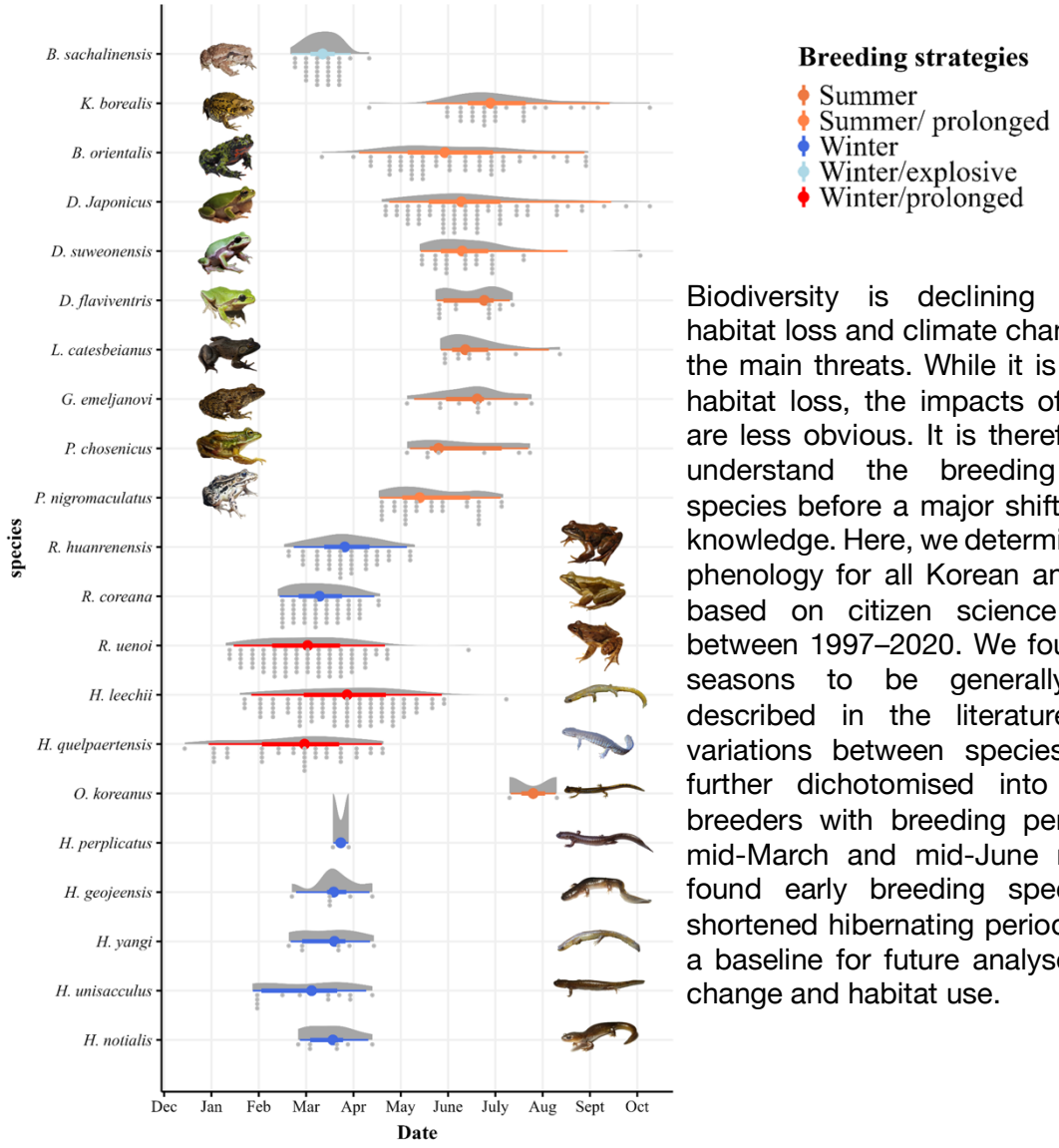
Season, age, sex, and location impact the density of tooth rake mark and dorsal fin notch of Indo-Pacific humpback dolphins (Sousa chinensis) in the northern South China Sea (Marine Mammal Science, 2022)

Photographic data from five locations of the northern South China Sea were used to analyze seasonal, demographic, and geographic effects on the density of tooth rake marks in Indo-Pacific humpback dolphins (*Sousa chinensis*). Fresh tooth rake marks were most frequent during the dry season. Males exhibited significantly higher rake mark density than females and rake density declined significantly with age. Geographically, tooth rake mark were the highest in Sanniang Bay and Southwestern Hainan. These results provide indirect evidence of variation in social interactions across seasons, across the lifespan of an individual, between sexes, and among different locations. This variation may result from changes in biological parameters, differences in social lives, and habitat characteristics. A model to determine the sex of dolphins was tested, and after further validation, such sex assignment could contribute to understanding dolphins' social structure.

Main contact: Dr. Agathe Seres
Article link: https://doi.org/10.1111/mms.12986

ANIMAL BEHAVIOR

***Breeding phenology and landscape use in all amphibian species from the Republic of Korea based on open-source data* (Frontiers in Environmental Science, 2022)**



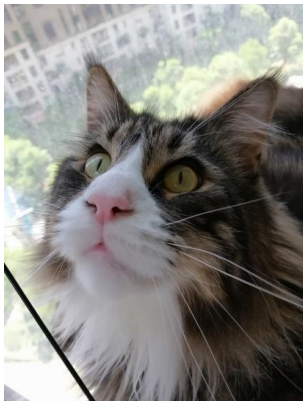
Biodiversity is declining worldwide with habitat loss and climate change being among the main threats. While it is easy to quantify habitat loss, the impacts of climate change are less obvious. It is therefore important to understand the breeding phenology of species before a major shift, and the loss of knowledge. Here, we determined the breeding phenology for all Korean amphibian species based on citizen science data collected between 1997–2020. We found the breeding seasons to be generally shorter than described in the literature despite large variations between species. Species were further dichotomised into early and late breeders with breeding periods peaking in mid-March and mid-June respectively. We found early breeding species to have a shortened hibernating period. Our results set a baseline for future analyses about climate change and habitat use.

Main contact: Dr. Amael Borzee

Article link: https://doi.org/10.3389/fenvs.2022.846481

ANIMAL BEHAVIOR

Changes in the Dog's and Cat's Behaviors, as Reported by the Owners, before and during the Lockdown in China (Animals, 2022).



The current study explores the behavioral changes in dogs and cats before (BL) and during the lockdown (DL) in China. In general, behavioral problems and stress-related behaviors in dogs and cats decreased DL compared to BL, while anxiety-related behaviors in cats did not show any differences between the two periods considered. Differently, anxiety-related behaviors were more frequent in dogs DL compared to BL, which were associated with reduced frequency of play activities with the owners and altered sleeping habits. During the lockdown, dogs' and cats' daily routines and management (feeding and sleeping habits, dogs' walks, dogs' and cats' play activities, litter box management, and cats' lifestyle) experienced changes, but they were not associated with any behavioral issues. On the other hand, the behavioral issues in dogs and cats were more frequent BL, which were influenced by the daily schedule of the owners and the management of the pets. The current study showed how critical the attention the owners can provide to the pets could be for the welfare of their companion animals. Therefore, animal behavioral support should be provided to pet-owners both during particularly difficult periods such as a lockdown, and during regular daily routines to avoid the development of behavioral issues in dogs and cats which represent the major cause of pets' relinquishment.

Main contact: Dr. Sara Platto
Article link: DOI: https://doi.org/10.3390/ani12192596

WILDLIFE ECOLOGY AND CONSERVATION

China's wandering elephants: Integrating exceptional movements into conservation planning (Integrative Conservation, 2022)

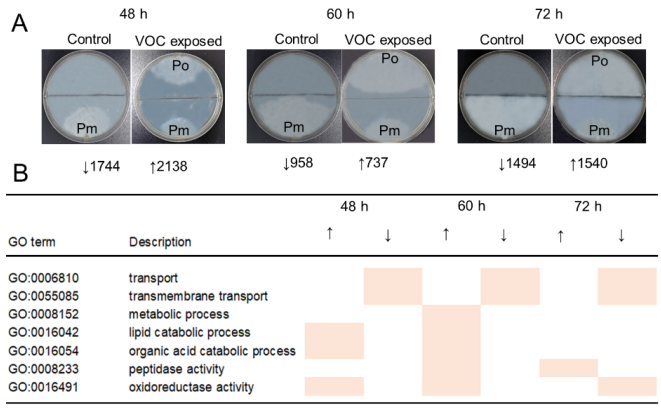
In May-June 2021 a herd of wild Asian elephants made global headlines when they trekked hundreds of km into areas where elephants had been absent for centuries. We analyzed their movement attributes and body condition to understand this behavior and its implications for conservation. The movements fit a form of partial and irruptive nomadic behavior. The elephants made unusual habitat choices (selecting high nightlight intensity and staying close to villages but far from forest) and showed high body condition scores, suggesting good health. We recommend an elephant conservation strategy founded on area-based and area-specific measures, including protected areas, landscape connectivity, and the mitigation of human-elephant conflicts, as well as preparedness for population range expansions, potentially on the scale of hundreds of km, in the coming decades. Our study highlights the ecological and behavioral plasticity of elephants and the importance of integrating movement ecology in conservation planning.

Main contact: Dr. Ahimsa Campos-Arceiz
Article link: https://onlinelibrary.wiley.com/doi/10.1002/inc3.10

ENVIRONMENTAL MICROBIOLOGY

Volatile organic compounds from Pythium oligandrum play a role in its parasitism on plant-pathogenic Pythium myriotylum (Applied and Environmental Microbiology, 2023)

Overview of the transcriptome responses of *P. myriotylum* to *P. oligandrum* VOCs

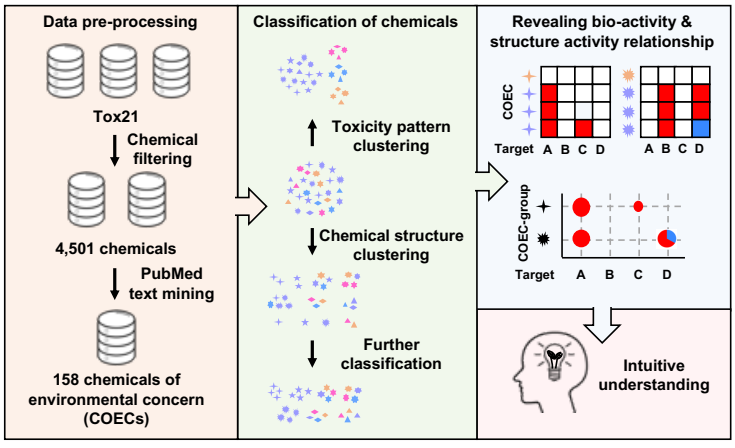


Microbe-microbe interactions in nature are multifaceted with multiple mechanisms of action, and are crucial to how plants interact with microbes. Volatile organic compounds (VOCs) have diverse functions, including contributing to parasitism in ecological interactions and potential applications in biocontrol. The microbial parasite *Pythium oligandrum* is well-known for using hydrolytic enzymes as part of its parasitism. We found that *P. oligandrum* VOCs reduced the growth, and caused major damage to the hyphae of *Pythium myriotylum* (a host or prey of *P. oligandrum*). Transcriptomic analyses of *P. myriotylum* exposed to the VOCs revealed the upregulation of genes potentially involved in detoxification of the VOCs. The inhibitory effects of the VOCs had a knock-on effect by reducing the virulence of *P. myriotylum* towards its plant hosts. The *P. oligandrum* VOCs could contribute to its ecological role as a microbial parasite and may also contribute to biocontrol of diseases using *P. oligandrum* commercial preparations.

Main contact: Dr. Paul Daly
Article link: https://doi.org/10.1128/aem.02036-22

TOXICOLOGY

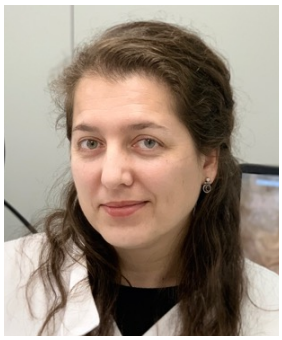
Tox21-Based Comparative Analyses for the Identification of Potential Toxic Effects of Environmental Pollutants (Environmental Science & Technology, 2022)



Recently, quantitative high-throughput screening (qHTS) assays have been developed for the fast assessment of chemicals' toxic effects. Toxicology in the 21st Century (Tox21) is a continuously developing qHTS project. Recent Tox21 reports have mainly focused on setting up mathematical models for *in vivo* toxicity predictions, with less attention to intuitive qHTS data visualization. Here, we revealed and summarized environmental pollutants' toxicity by analyzing and visualizing Tox21 qHTS data. Via PubMed text mining, toxicity/structure clustering, and manual classification, we identified 158 chemicals of environmental concern (COECs) from the Tox21 library that we classified into thirteen COEC-groups, based on structure and activity similarities. Those COECs frequently displayed androgen and progesterone antagonistic effects, xenobiotic receptor agonistic roles, and mitochondrial toxicity. We also revealed novel targets of the thirteen COEC-groups, and that current Tox21 assays may not correctly classify known teratogens. In conclusion, we provide a feasible method to intuitively understand qHTS data.

Main contact: Dr. Francesco Faiola
Article link: https://doi.org/10.1021/acs.est.2c04467

NERBIMEC new members (winter 2022/2023)



Dr. Marta Filipa Simões is a microbiologist, currently based in Macau (China), where she is working as an assistant professor on astrobiology, at the State Key Laboratory of Lunar and Planetary Sciences (SKLPlanets) located at the Macau University of Science and Technology (MUST). She is establishing her research team on astromycology. Her current work is focused mostly on: fungal ecology, biodiversity in environmental analogues to outer-space conditions, bioprospection and application of filamentous fungi, and fungal growth containment and exploitation in outer-space similar conditions.

As a doctoral student at the Cajal Institute and the Autonomous University of Madrid studying biochemistry at the single-molecule level, Ruben Hervas Millan, PhD, was attracted by protein aggregation, and especially functional amyloids, as a biological mechanism to provide gain-of-functions in a time and space-dependent manner. Ruben first studied in depth the structural transition from the monomeric, non-amyloid, state to the final amyloid state of CPEB, a synaptic protein synthesis regulator. After finishing his PhD in Spain, Ruben moved to Kausik Si's lab at the Stowers Institute for Medical Research, USA to tackle a fundamental question in studies of prion-like proteins: what is the atomic structure of a functional amyloid such as CPEB? To address this problem, Ruben developed a multistep purification step and purified Drosophila CPEB from the adult fly head to finally determine the 3D structure of the functional, CPEB amyloid state. As an independent investigator, Ruben is not afraid of trying new ideas or new experimental venues, attributes that he considers important for pursuing this rather unusual but exciting line of research. When he's not in the lab, Ruben enjoys spending time with his family and friends. He also loves music and concerts, a passion of his since he was a child growing up in Madrid.