UNIVERSITÄT BERN

Media Relations

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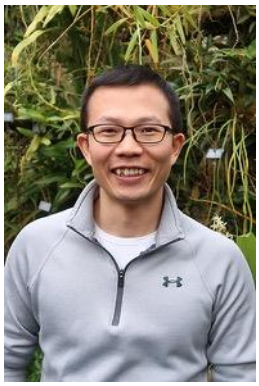
List of Marie Skłodowska-Curie at the University of Bern

The University of Bern welcomes six Marie Skłodowska-Curie Fellows this year. Below you will find short descriptions of the projects of the six researchers.



Dr. Lei Wang
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Supervisor: Prof. Dr. Matthias Erb

Project title: Integration of volatile cues and plant peptide signals for enhanced herbivore resistance in tomato (InteCue)

Photo: courtesy of Dr. Lei Wang

Plants are often under threat of pests. How do they defend themselves? It is known that plants can perceive volatile cues to fend off pests. Plants can also produce small peptide signals to fight against pests. It is still unknown if plants can integrate volatile cues and peptide signals for enhanced pest resistance. The aim of “InteCue” is to investigate the capacity and mechanism of tomato plants to integrate volatile cues and peptide signals for stronger defense against pests. Upon success, this research will help to lay the foundation of breeding new pest resistant crops and developing efficient pest control strategies.

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Dr. Agne Frismantiene
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Project title: Deciphering oncogenic signalling patterns to break cancer drug resistance (NOSCAR)

Photo: Gina Beinoraviciute

Breast cancer is the leading cancer in women by incidence and the second cause of cancer-related death in the female population. To cure the more advanced and aggressive cases of breast cancer, modern, targeted chemotherapies have been proposed. However, cancer drug resistance limits the promise of targeted therapy. “NOSCAR” aims to better understand how cancer develops resistance to targeted therapies. To this end the project aims to study cell communication dynamics in breast cancer organoids at the single cell level in thousands of cells and over extended periods of time. This will allow to identify molecular vulnerabilities in cancer cell communication that might be targeted to break cancer resistance.

Dr. Hugo Guillen Ramirez
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Supervisor: Prof. Dr. Rory Baldwin Johnson

Project title: Computational genomics of long noncoding RNA domains across metazoans (RNADOMAIN)

Photo: courtesy of Dr. Hugo Guillen Ramirez

Previously disregarded as junk DNA, the so-called “dark matter of the genome” encompass RNA molecules that do not encode for proteins. In particular, long noncoding RNAs (lncRNAs) have been linked to pathophysiological processes. However, a full understanding of lncRNAs’ roles in disease requires us to solve the outstanding mystery of how the lncRNA sequences encode their functions. Aided by artificial intelligence algorithms, “RNADOMAIN” aims to shed light on this “sequence-function code” of lncRNAs as a means for targeting them in disease.

Dr. Tina Uroda
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Supervisor: Prof. Dr. Rory Baldwin Johnson

Project title: Linking sequence to function of long noncoding RNAs with CRISPR-Cas9 (CRISPR-Locate)

Photo: courtesy of Dr. Tina Uroda

A great surprise in the wake of the Human Genome Project has been the discovery of vast numbers of RNAs that do not encode proteins. However less than 1% of these “long noncoding RNAs” (lncRNAs) have been experimentally characterised. To understand lncRNAs’ biological significance, we must solve the pressing question of how lncRNAs’ functions are encoded in their primary sequence. To answer that question the project aims to identify lncRNA domains and their function in a natural biological context via development of high-throughput techniques. Resulting maps of functional lncRNA domains will contribute to unlock the potential of 10^4 novel genes in medicine and biology.

Dr. Andrew Ronald Friedman
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Supervisor: Prof. Dr. Stefan Brönnimann

Project title: Assessing and QUantifying the ATlantic Instrumental hydroclimate (AQUATIC)

Photo: courtesy of Dr. Andrew Ronald Friedman

Global warming is projected to have pronounced impacts on the hydroclimate — including rainfall and river flow — in the tropical Atlantic basin, which contains the world’s largest river systems and rainforests, and growing populations. “AQUATIC” will compile recently-recovered measurements of precipitation, river discharge, and surface salinity from different archival sources to develop an integrated record of tropical Atlantic regional hydroclimate back to the late 19th century. The historical data will contribute to an understanding of the mechanisms of hydroclimate variability and constrain future climate projections.

Dr. Juliane Kämmer
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Supervisor: Prof. Dr. Wolf Hautz

Project title: TeamUp: Understanding and improving team decision making in uncertain environments

Photo: courtesy of Dr. Juliane Kämmer

(Better) Teamwork is supposed to be a key element in reducing the unacceptably high incidence of diagnostic error worldwide. The goal of the project “TeamUp” is to advance the understanding of decision processes in teams in uncertain, error prone environments such as the emergency room, and ultimately, to inform theory-based interventions to achieve diagnostic excellence. The project will thus contribute to a reduction of diagnostic errors, avoid unnecessary treatments, save healthcare costs, and ultimately enhance patient safety.