SciLifeLab

Uppsala SciLifeLab Platform Day

SciLifeLab PhD & PostDoc council – Uppsala

To promote and introduce an array of SciLifeLab infrastructure platforms based in Uppsala

Karolinska Institutet

KTH Vetenskap och Konst

Stockholms universitet

Uppsala Universitet

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Program Schedule

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About the ScilifeLab PhD & PostDoc council – Uppsala

The PhD & PostDoc Council SciLifeLab - Uppsala was newly established in 2022 and consists of a group of four PhD students and PostDocs from various groups and departments linked to SciLifeLab in Uppsala.

The council works to represent the interests, needs and perspectives of SciLifeLab researchers at every level.

Activities

This year on November 24th, the council is planning for the "ScilifeLab Platform Day" in Navet, Trippelrummet to promote and introduce an array of SciLifeLab platforms based in Uppsala. This event will involve the participation of platforms representatives as well researchers working closely with them. It will be a great opportunity for new members and prospective collaborators to interact and request information from those services. We are looking forward to be part of a council aiming to build a strong network among researchers at SciLifeLab Uppsala !

We also organize the bi-monthly PhD & PostDoc seminar series in which the young researchers part of the ScilifeLab community have a chance to present their work.

Our vision

To establish a connection between the SciLifeLab community members in Uppsala to achieve scientific research that is beyond what is possible from an individual research group or discipline.

Contact

If you have any interest in joining the PhDs and PostDocs council in Uppsala, feel free to contact us at:
phd-council.scilifelab@uu.se

Members from left to right: Pierre Cheung, Luis Nunes, Marit Melssen, Madan Kumar Shankar

National Genomics Infrastructure (NGI)

“An introduction to technologies and services offered at the National Genomics Infrastructure at SciLifeLab”

Speaker: Johanna Lagensjo

The National Genomics Infrastructure (NGI) is the largest technical platform within SciLifeLab. The platform provides access to technology for massively parallel/next generation DNA sequencing, genotyping and associated bioinformatics support.

The platform comprises two nodes: NGI Stockholm and NGI Uppsala (SNP&SEQ Technology Platform and Uppsala Genome Center). Please visit the National Genomics Infrastructure homepage (https://ngisweden.scilifelab.se/ for more information about technologies offered.

National Bioinfromatics Infrastructure (NGI)

“An overview of the National Bioinformatics Infrastructure Sweden”

Speaker: Sebastian DiLorenzo

We are the SciLifeLab bioinformatics platform and the Swedish node in Elixir, a European intergovernmental organization bringing together life science resources from across Europe. With over a hundred staff members, we work with bioinformatics support, infrastructure and training. NBIS has staff at six sites: Göteborg, Linköping, Lund, Stockholm, Uppsala, and Umeå. We provide expertise in most areas of bioinformatics, including omics analysis, genome assembly/annotation, image analysis and biostatistics. We also offer support in systems development, such as interactive websites and data processing pipelines. NBIS is mainly funded by the Swedish Research Council, SciLifeLab, the Knut and Alice Wallenberg Foundation, and Swedish universities.

We provide:

• Weekly online drop-in sessions. Join to discuss study design, data analysis or other bioinformatics-related questions.
• Free consultation meetings to discuss study design.
• Hands-on project support, ranging from assistance with smaller tasks to long-term engagement.
• Free, extensive hands-on support to a limited set of projects selected in a peer review process (enabled by a grant from Knut and Alice Wallenberg Foundation).
• Tools, data management, systems development and guidelines for the life science community.
• Introductory and advanced training events.
• A mentorship program for PhD students interested in guidance from a bioinformatics expert.

Web: https://nbis.se/

Affinity Proteomics

“Antibody-based proteomics”

Speaker: Mikael Åberg

Affinity Proteomics in Uppsala is a member of the Clinical Proteomics and Immunology platform at SciLifeLab. The platform provides technologies, services, and expertise within the field of mass spectrometry, affinity proteomics and single cell analyzing tools for advanced protein analyses in body fluids, cells and tissues. The services allow studies of proteins in clinical and basic research projects, includes assays to profile immune-responses, quantification of autoantibodies and circulating blood proteins, as well as cellular protein expression, modifications and interactions. The technologies and services are provided through five units: Autoimmunity and Serology Profiling (KTH); Affinity Proteomics (nodes at KTH and UU); Cellular Immunomonitoring (KI); Glycoproteomics (GU) and Global Proteomics and Proteogenomics (KI).

Affinity Proteomics Uppsala has two commercial platforms based on the proximity extension assay (PEA, Olink Proteomics) and electrochemiluminescence (Meso Scale Diagnostics). With these versatile and scalable tools, we can provide high-throughput screening of proteins using small volumes of material to generate high-quality data that is actionable. The analyses goes from singleplex assays up to, as of today, ~3000 analytes. In addition to providing service of established state-of-the-art technologies, we also develop new advanced technologies and assays for tailored applications. For these purposes we utilize the Meso Scale platform or in-house Proximity Ligation Assays (In situ PLA), solid-phase PLA and customized PEAs. These technologies are often very sensitive and suited for low plex. As previously mentioned, we also have a KTH based node with other complimentary technologies for similar research questions. So please do not hesitate to reach out if you want to discuss projects concerning proteomics, there are many ways that we can help you.

Web: https://www.scilifelab.se/units/affinity-proteomics/

AFFINITY PROTEOMICS

UPPSALA UNIVERSITET

KTH

SCAN ME

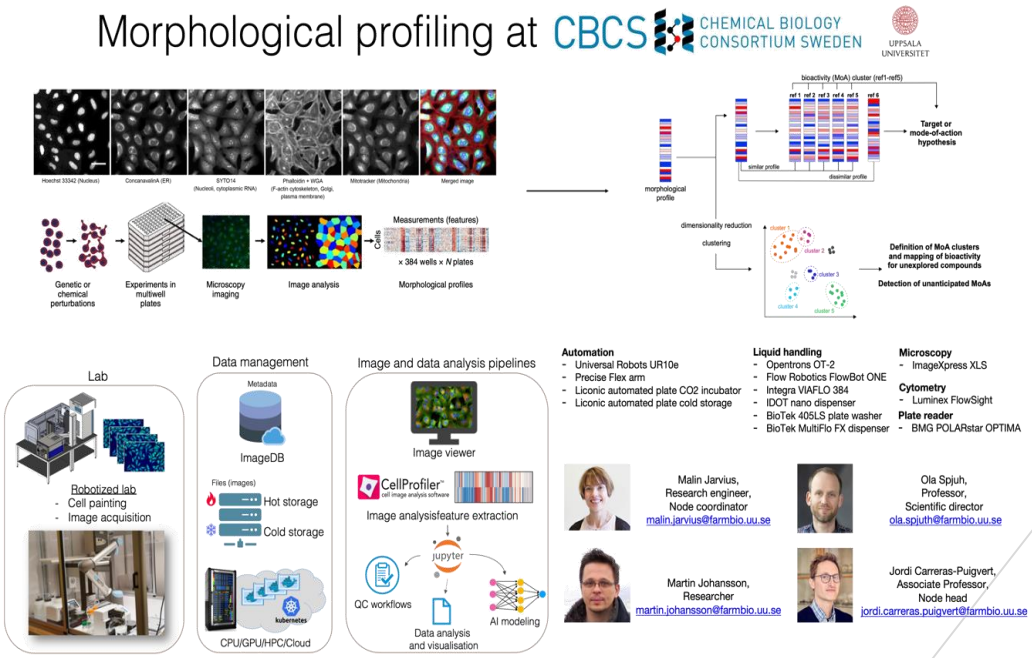
Chemical Biology Consortium Sweden- Uppsala University node

“Painting cells for morphological profiling – a new service at the Chemical Biology Consortium Sweden UU node”

Speaker: Jordi Carreras Puigvert

Cell morphological profiling is a technique developed at the BROAD institute that exploits the use of a cocktail of fluorescent reagents to stain 8 different organelles (nucleus, nucleoli, cytoplasmic RNA, f-actin cytoskeleton, Golgi, ER, mitochondria and plasma membrane). High content imaging, image analysis and statistical data analysis are then used to extract cellular features to calculate context-specific morphological profiles. By comparing morphological profiles of query compounds with those of a reference compound library, the mechanism of action (MoA) of the query compound can be estimated. Additionally, new biological information about the effect of a given perturbation (chemical, biological or genetic) can be drawn from the morphological profiles. We are the Chemical Biology Consortium Sweden Uppsala university node, and we are now offering cell painting-based morphological profiling as a service to Swedish researchers.

Web: http://www.cbcs.se/phenotypic-profiling



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U-Print

“U-PRINT - 3D-printing in the Life Sciences”

Speaker: Olle Eriksson

Emerging 3D-printing technologies enable the development of novel methods, assays and tools for life science applications. U-PRINT enables research and technical development for research groups within the life sciences by offering design and manufacturing services for several state-of-the-art additive manufacturing technologies. In addition, U-PRINT helps clinicians at the University hospital in Uppsala with 3D-printing of anatomical models for surgical planning research.

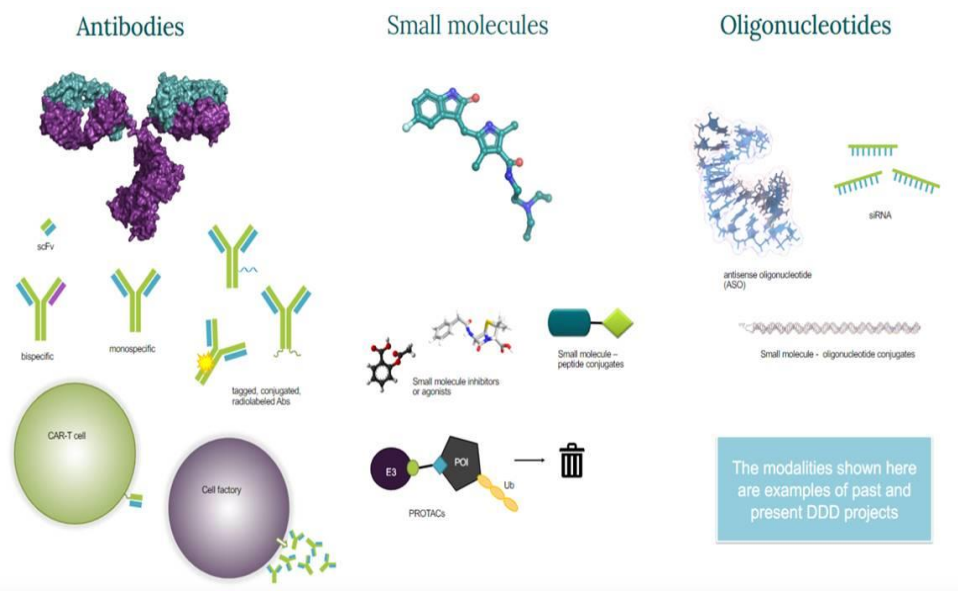
Drug Discovery and Development Platform (DDD)

“The SciLifeLab capabilities to provide state-of-the-art wetlab support and knowledge in drug discovery & development.”

Speaker: Kristian Sandberg

The mission of DDD is to turn academic discoveries into innovations - prototype drugs - and to provide technologies and training for state-of-the-art drug discovery in Sweden. DDD is internationally recognized with a proven impact on Swedish life science. Integration within the vibrant SciLifeLab environment offers access to novel complementary technologies and expertise that seldom are available even at large pharma companies. The therapeutic modalities supported by DDD include small molecules, antibodies, oligonucleotides and “new modalities”.

Web: https://www.scilifelab.se/platforms/ddd
LinkedIn: https://www.linkedin.com/company/scilifelabddd



Drug Discovery and Development Platform (DDD)

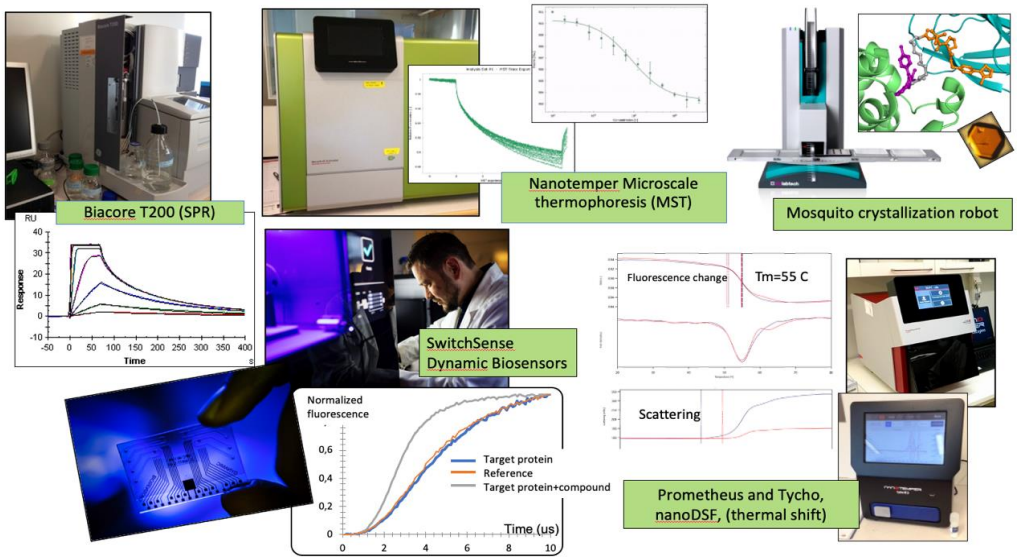
“Biophysical Screening and Characterization, a unit within the Drug Discovery and Development Platform”

Speaker: Annette Roos

We mainly help projects within the DDD platform by providing information on how molecules interact. This can be to prove target engagement, provide detailed kinetic information about the interaction to progress from hit to lead molecule, or visualization of the interacting molecules by protein X-ray crystallography. Our most used technique is surface plasmon resonance (SPR) biosensor technology.

I will talk about the methods we have and which instruments are available for users to come and borrow. Both the instruments we have at the unit at BMC but also the Protein Expression and Characterization unit at Scilifelab in Solna. Apart from studying molecular interactions we can help you understand your protein sample - from previously published structural information and easy characterization techniques.

Web: https://www.scilifelab.se/units/biophysical-screening-and-characterization/
LinkedIn: https://www.linkedin.com/company/scilifelabddd



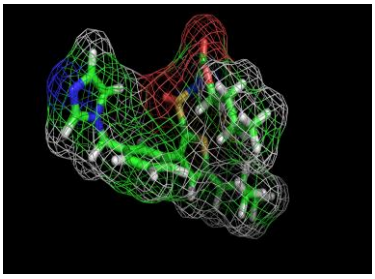
Drug Discovery and Development Platform (DDD)

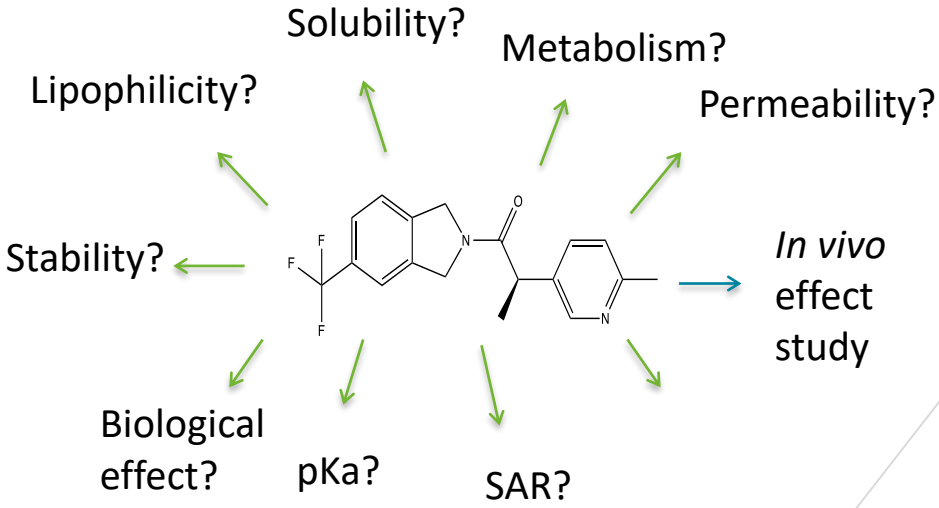
“Medicinal Chemistry – Lead Identification, a unit within the Drug Discovery and Development Platform”

Speaker: Ulrika Yngve

The Drug discovery and development platform has the mission to turn academic projects into innovations. With the capabilities to design and synthesize drug-like compounds, the medicinal chemistry units take the project from a lead generation strategy to a compound suitable for a proof-of-concept in your selected animal model. The presentation will contain examples of how we work to develop novel small molecular compounds with the desired biological properties in collaboration with Swedish academic scientists.

Web: https://www.scilifelab.se/units/lead-identification-chemistry/
LinkedIn: https://www.linkedin.com/company/scilifelabddd





Drug Discovery and Development Platform (DDD)

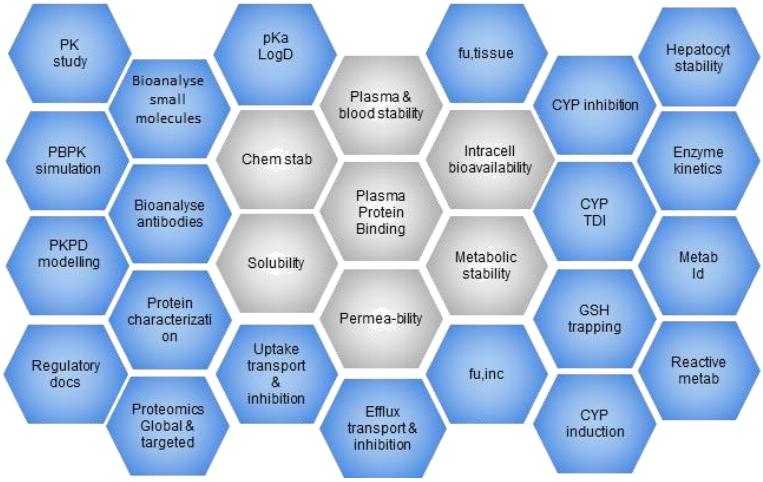
“ADMEoT (UDOPP) unit within the SciLifeLab DDD: pre-clinical characterization of hits and lead compounds”

Speaker: Pawel Baranczewski

The ADME of Therapeutics unit (ADMEoT/UDOPP) is a national infrastructure within the SciLifeLab DDD, located at the Dep of Pharmacy, Uppsala University. ADMEoT helps the projects to pre-clinically optimize and select candidate drugs (CD) of the highest possible quality. The activities range from in vitro ADME, protein characterization, bioanalysis, in vivo PKs, physiologically-based PK simulations to PKPD modelling. ADMEoT is working with the CDs from different chemical space: small molecules, peptides and oligonucleotides, and therapeutic proteins (mostly mAb).

LinkedIn: https://www.linkedin.com/school/udopp/

ADMEoT facility assays & services



People

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PK, PK/PD modeling

Aljona Saleh, PhD
Analysis, HR MS, ADME

Ivailo Simoff, PhD
Molecular & cell biology

Richard Svensson, PhD
Phys-chem, ADME, (PB)PK

Jimmy Ytterberg, PhD
Protein characterization, HR MS

Cryo-EM

“Cryo-EM Uppsala and CryoScreeNet”

Speaker: Daniel Larsson

Cryo-EM Uppsala is an Uppsala university facility in collaboration with SciLifeLab that provides the tools and support for performing high-resolution structure determination of biological macromolecules using cryogenic electron-microscopy.

LinkedIn: https://www.icm.uu.se/cryo-em/

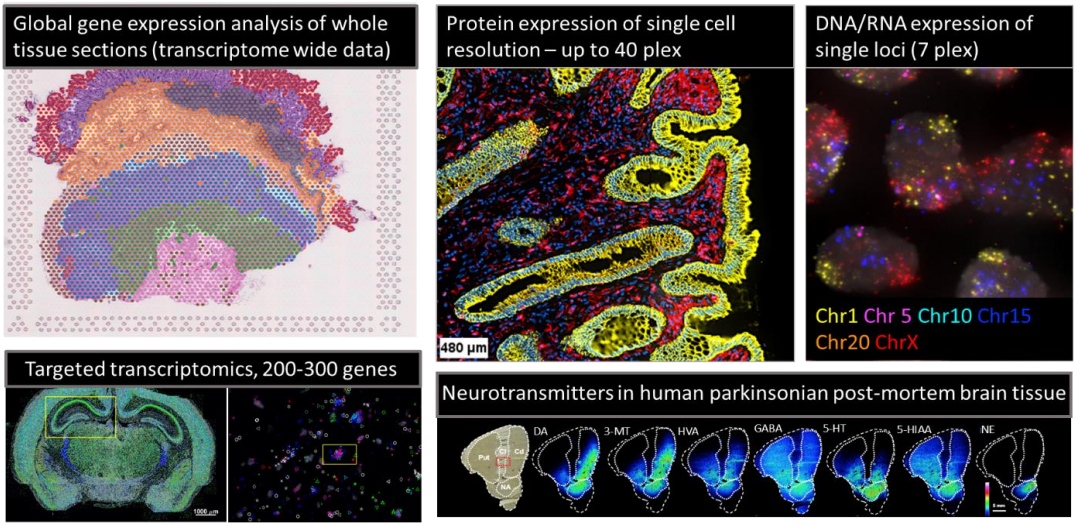
Spatial and Single Cell Biology

“Spatial omics technologies within the Spatial and Single Cell Biology Platform”

Speaker: Anna Nilsson

The Spatial and Single Cell Biology platform covers cutting-edge technologies for spatial profiling of transcripts, proteins, DNA and small molecules such as drugs and endogenous metabolites. The provided services offer spatial information of molecules in fresh frozen or formalin fixed tissue sections and the analyses can be either targeted or untargeted global approaches with spatial resolution ranging from subcellular to around 100 µm depending on the biological question.

Web: https://www.scilifelab.se/units/spatial-omics/



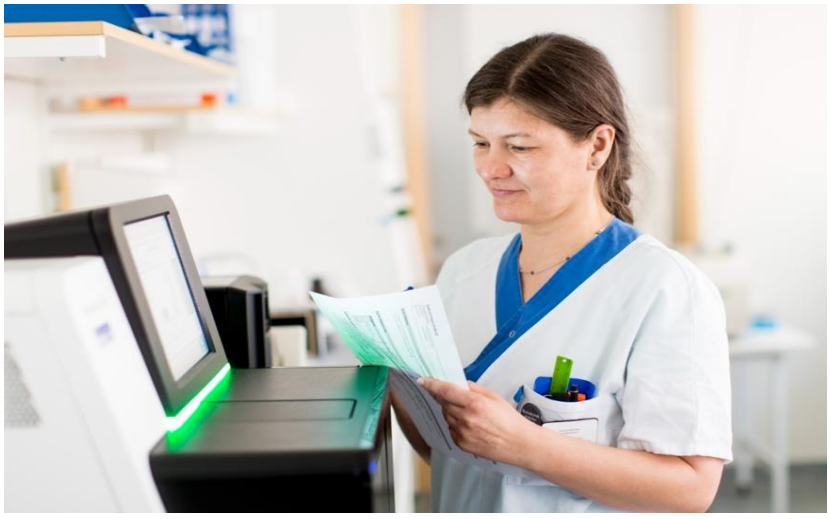
Clinical Genomics

“Clinical Genomics platform - a bridge between research and healthcare

Speaker: Malin Melin

The Clinical Genomics platform’s goal is to accelerate the development and use of new genomic methods for diagnostics, and thereby facilitate precision medicine. The platform develops, validates and implements new high-throughput technologies for clinical and translational research projects, clinical trials and diagnostics within healthcare. We provide a unique end-to-end service, from sample preparation and analysis to clinical interpretation.

Web: https://www.scilifelab.se/units/clinical-genomics/
https://www.cgu.igp.uu.se



Ancient DNA

“Ancient DNA – a window to the past”

Speaker: Magnus Lundgren

DNA of humans, animals, plants and other organisms that lived a long time ago, can often be analyzed after long periods of time. Such ancient DNA constitute a part of our biological and cultural heritage and can assist in analysis of the development of human societies and our shared history, as well as of the ecology in the past and the evolution of life. The SciLifeLab Ancient DNA unit provides analysis a service for a wide range of purposes. We provide processing of samples in our state-of-the-art clean room laboratory, and computational analysis optimized for ancient DNA sequence data.

Web: //www.scilifelab.se/units/ancient-dna/

Notes