
CBCS CHEMICAL BIOLOGY CONSORTIUM SWEDEN

Erik Chorell



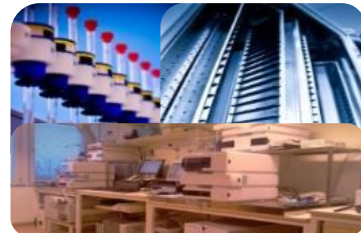
CBCS Mission – Chemical Biology

The overall mission of CBCS is to collaborate with research groups to develop and utilize bioactive small molecules to address important biological questions within all areas of life science.

- Explore biology!



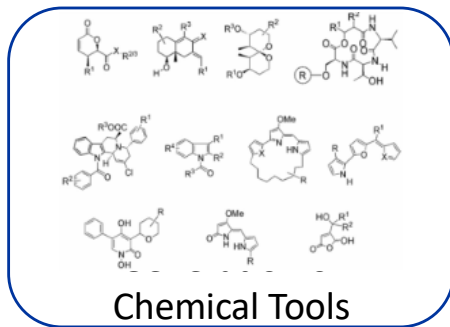
Research Community



CBCS Infrastructure and experienced staff



Basic Research



Environment



Human Health

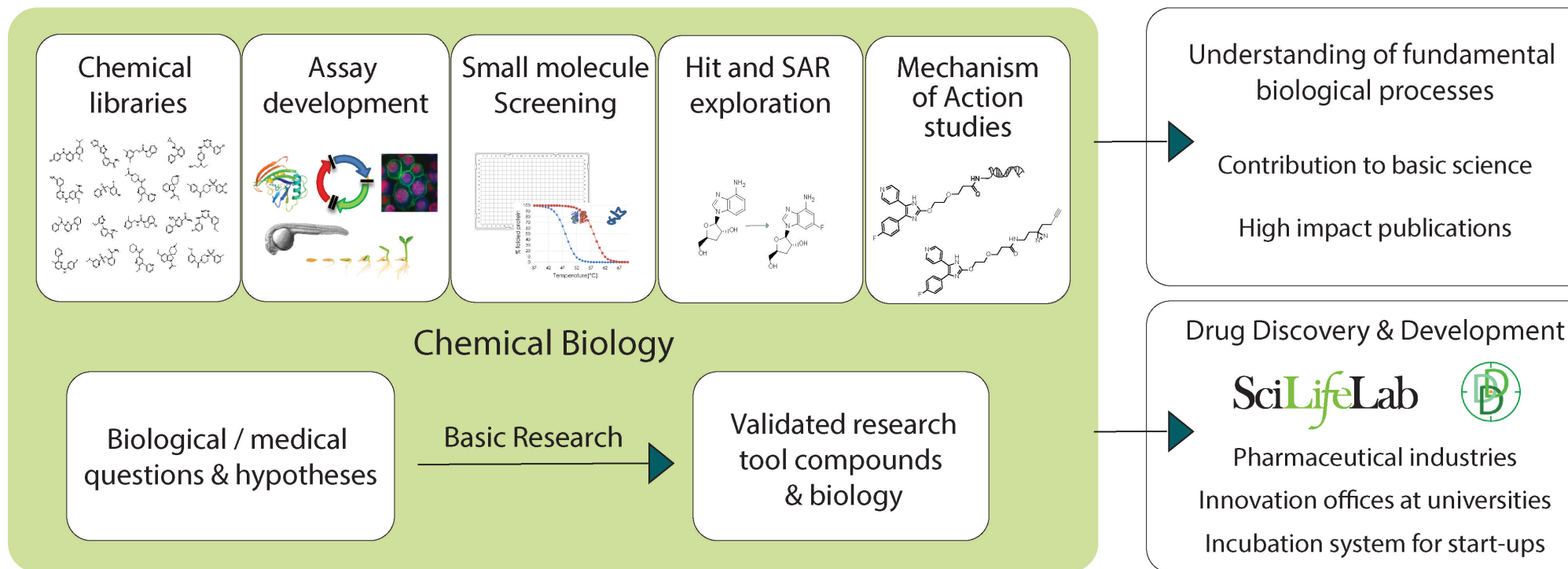


Veterinary Medicine



Plant Physiology

Current services



Resources

Assay development and screening

- Liquid handlers
- Plate readers
- High content screening

Compound management and cheminformatics

- Scilifelab Compound Collection
- Compound storage and handling
- Nano liter acoustic dispenser
- Cheminformatics

CBCS Staff scientists - areas of expertise:

- Assay development
- Screening
- Compound Management
- Synthetic chemistry
- Computational chemistry
- Target ID

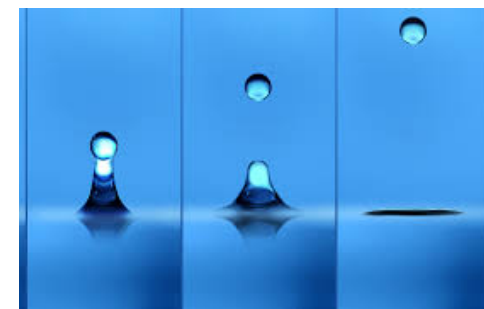
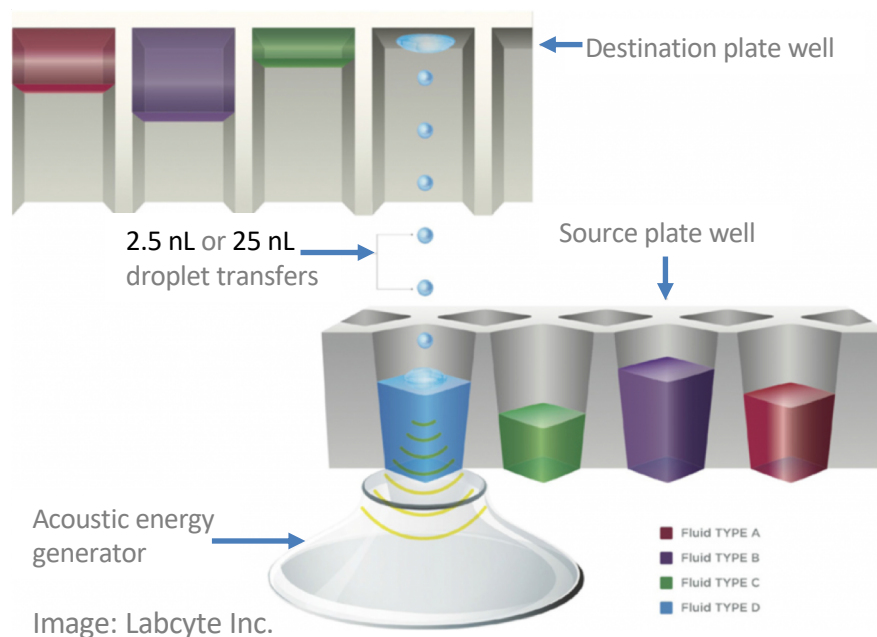
Chemistry

- Fully equipped chemistry laboratories
- Chemical stores w/ 17,000 reagents
- NMR spectrophotometers, HPLC-MS, prep-LC, microwave reactors

• Mixture of Chemists and Biologists many with "pharma" experience!

Compound Center

- Automated - 20 °C storage with controlled humidity
- Non-contact acoustic dispensing – Echo from LabCyte both a 550 (DMSO solutions) and a 525 (water solutions)



- A Compound Collection Group with representatives from CBCS and DDD platform
- Hits are evaluated - purity, identity, reactivity, assay interference, promiscuity and *in silico* filters - to secure quality hits and sound pharmacology

Primary screening set:

Diverse set
~37,000

Ex-pharma
companies &
commercial
vendors

includes sub-sets
focused on
target classes or
chemotypes

Additional sets:

Commercial
diverse sets:
Enamine
Maybridge
ChemDiv
ChemBridge
Timtec

Ex-pharma set

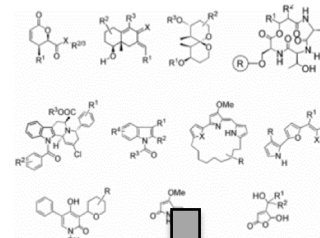
Specialized sets:

Known Drugs &
pharmacological
tools

National Academic
Compound
Collection

Plant Set

Fragments



Automated storage

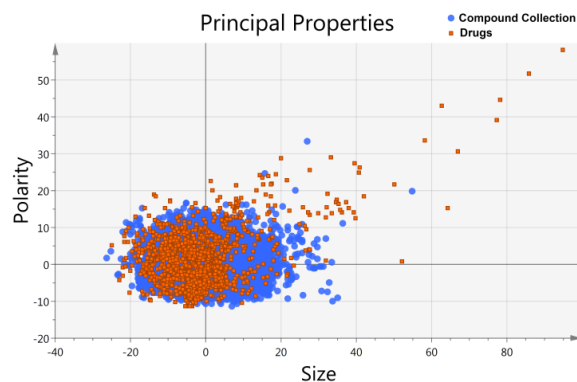


Acoustic
dispensing
2.5 nL



384 well assay
ready plate (200 nL)

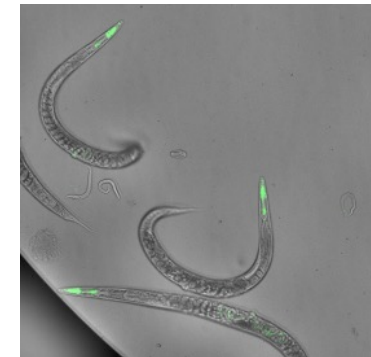
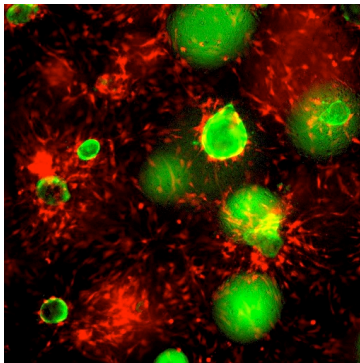
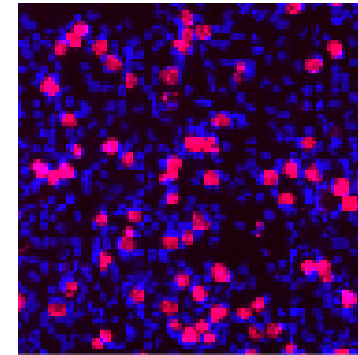
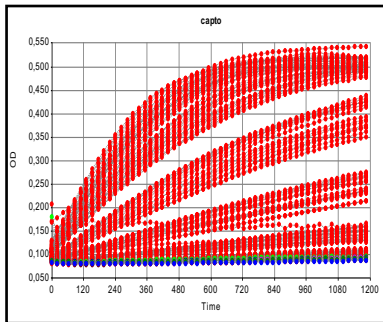
ciLifeLab



Resources at CBCS CHEMICAL BIOLOGY CONSORTIUM SWEDEN

Small molecule Screening

- Target based enzymatic
- Phenotypic cell-based screening
 - Microbiology
 - Infection – Viruses, parasites and obligate intracellular bacteria
 - Cell-lines (organoids)
 - Organisms



SciLifeLab

CBCS  CHEMICAL BIOLOGY
CONSORTIUM SWEDEN

Karolinska
Institutet

Umeå
University

CBCS 

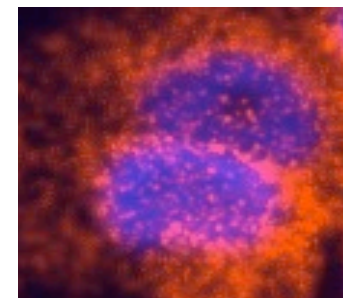
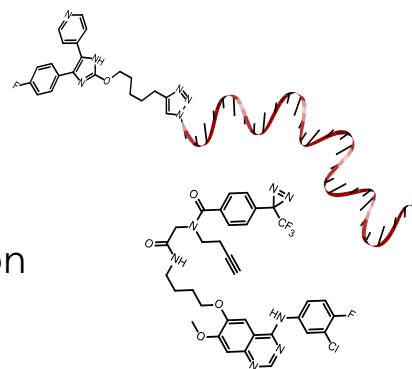
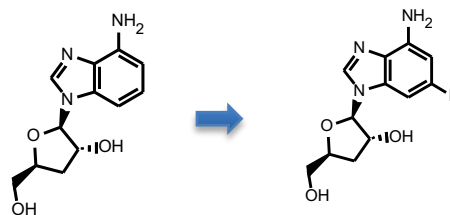
SciLifeLab

Resources at CBCS CHEMICAL BIOLOGY CONSORTIUM SWEDEN

Chemistry projects



- Optimisation of Chemical Tools
 - Specificity
 - Solubility
 - Toxicity
 - Cellular uptake
- Target Identification and Visualisation



Resources at CBCS CHEMICAL BIOLOGY CONSORTIUM SWEDEN

Instruments and Facilities

- Facilities
 - Cell-labs, HTS-lab and Biolab
 - Fully equipped chemistry lab
- Liquid handling
 - Biomek Nx robots for 384w and 96w
 - Wellmate, Multidrop
- Plate readers
 - Synergy, Tecan, Wallac, Spectramax
- HCS microscopes
 - ArrayScan VTI
 - ImageXpress micro confocal



Resources at CBCS CHEMICAL BIOLOGY CONSORTIUM SWEDEN

–Training and Education

–"Introduction to High Throughput Screening"

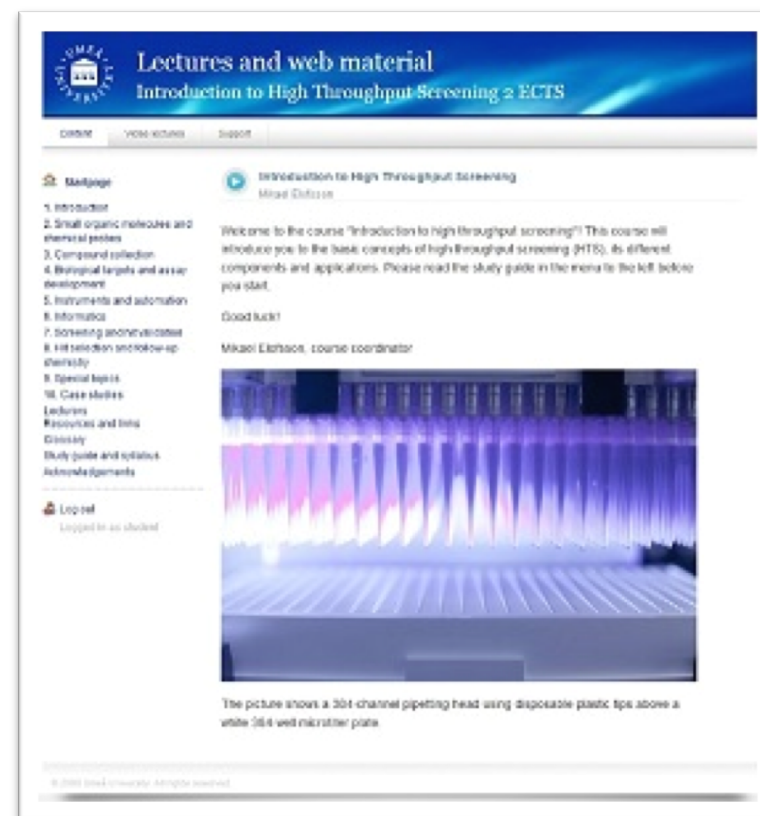
2 ECTS web-based course.

–"Assay development in High Throughput Screening"

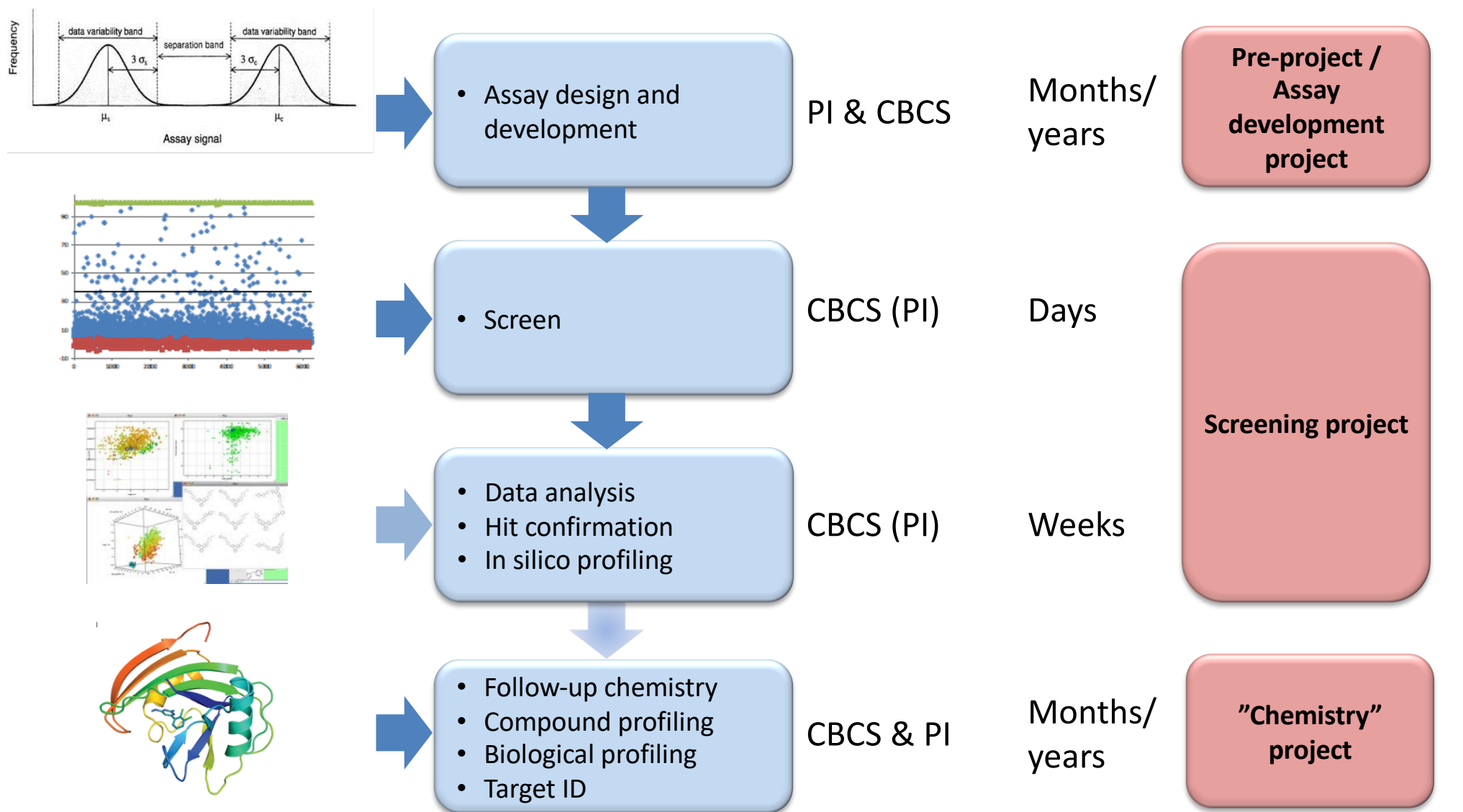
2 ECTS hands-on course.

More info and apply at CBCS
Umeå web page

www.chemistry.umu.se/english/research/infrastructure/lcbu/



CBCS collaborative project model



Project types and Resource allocations

Project types

- Pre-projects - intellectual input from CBCS (facility decision)
- Small projects - max 2 weeks full time (facility decision)
- Larger projects: **Assay development, Screening, and Chemistry projects** (PI application to PRC)

PRC evaluation criteria

- Overall scientific impact/rational
- Importance of CBCS efforts in the project
- Secondary assays and test models
- Plans for validation of chemical probe
- Technical feasibility
- Resources required
- Publication strategy
- National perspective

PROJECT REVIEW COMMITTEE (PRC)


Morten Grøtli (chair, GU)
Kristian Sandberg (UU, Drug Disc.& Dev.Platform, SLL)
Malin Lemurell (AZ)
Samuel Svensson (LiU)

1. Project Review Committee meetings bi-annually, gives a priority A-E
2. CBCS node leaders allocate resources

→ **Project priority**



CBCS PROJECT PROPOSAL FORM CONFIDENTIAL

 CBCS PROJECT PROPOSAL FORM

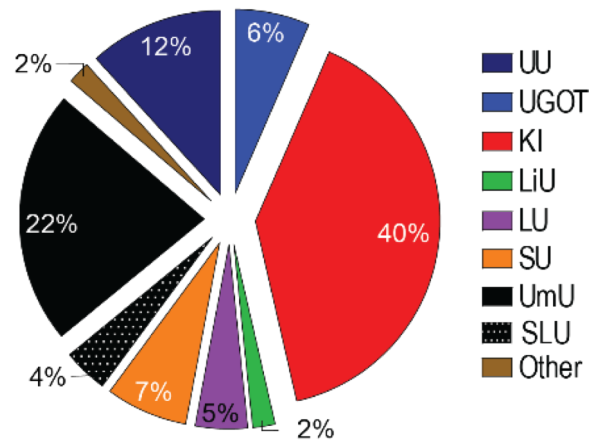
Completed applications are sent directly as Word files to thomas.lundback@ki.se with CC to your contact person within CBCS. Make sure the application is complete including contact details and the name of your CBCS contact person.

PROJECT TITLE	Inhibitors of acetaldehyde dehydrogenase from <i>Escherichia coli</i>		
PRINCIPAL INVESTIGATOR	Mikael Elofsson		
Primary Affiliation(s)	Department of Chemistry, Umeå University		
Address	Linneaus v. 10 90187 Umeå		
Telephone	090-7869328	email	mikael.elofsson@chem.umu.se
Date of Submission	Click here to enter a date.		
Co-PI 1	Andrew Roe	Co-PI 2	

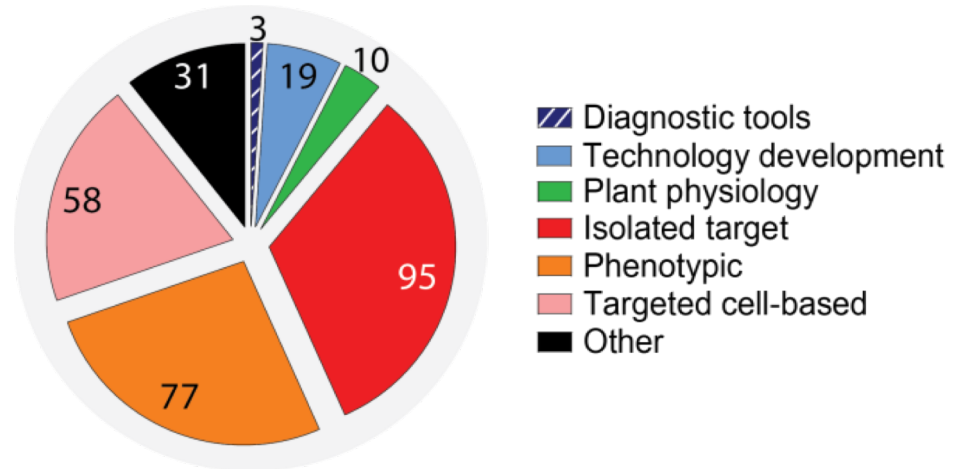


Interest in CBCS services and project/user distributions

Distribution of CBCS users



Distribution of CBCS projects



Users from all of Sweden

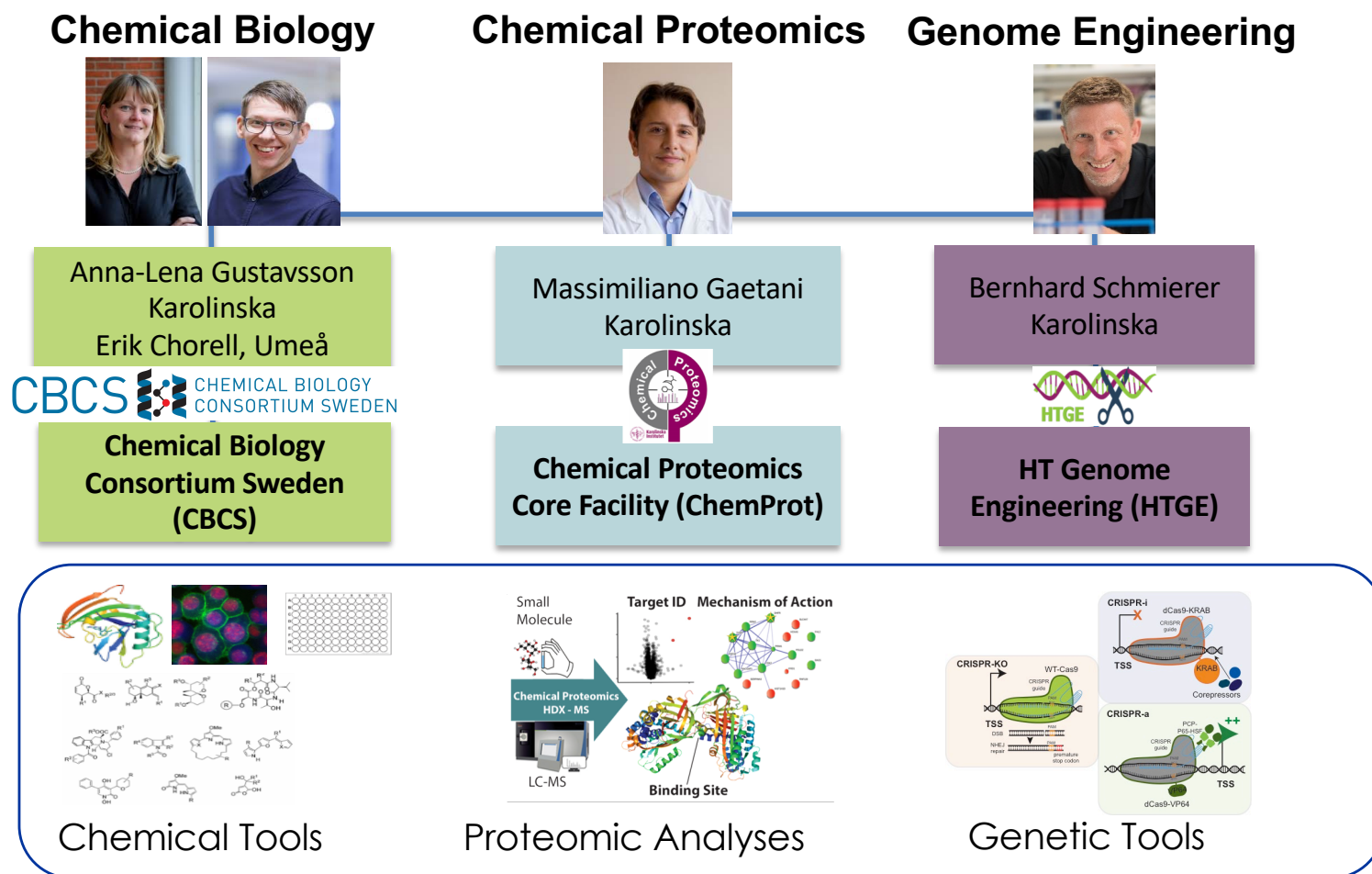
> **140 publications**

> **10 patents** and **5 spin-off companies**

~**180 individual users** in the CBCS project database.

At SciLifeLab, Chemical Biology and Genome Engineering

Platform Structure



Chemical Biology and Genome Engineering, Erik Chorell



enabling academic innovation

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CBCS provides the tools to transform your research



The **Chemical Biology Consortium Sweden (CBCS)** is a national research infrastructure for academic investigators throughout Sweden and consists of two nodes, one at Karolinska Institutet and one at Umeå University. CBCS coordinates, and makes available, a powerful and integrated platform for the discovery, development and utilization of small molecules and chemical tools for life science applications in close collaboration with academic research groups.

CBCS provides expertise, support and experimental resources within assay development,

News and Press Releases

New CBCS Webpage Developed

[Read More →](#)

Feb 18, 2019

Technology development project published in JoVE

[Read More →](#)

Dec 6, 2018

Project Review Deadlines

Project Review Committee dates announced for Spring 2019!

Apr 3, 2019

Do you need chemical tools to enhance your research? We can help you!

*Come and visit us – **KBC**
Floor 4C*

www.cbcs.se
www.kbc.umu.se/english/lcbu/

or send an email to:

Erik Chorell – erik.chorell@umu.se
Stina Berglund Fick – stina.berglund.fick@umu.se



Erik Chorell



Stina Berglund



Anna Eriksson



Weixing Qian