



PROTEIN SCIENCES IN DRUG DISCOVERY 2022

2ND & 3RD NOVEMBER 2022
BABRAHAM RESEARCH CAMPUS,
CAMBRIDGE

#ELRIG

#PROTEINSCIENCES22

 elrig.org

 [@ELRIG_UK](https://twitter.com/ELRIG_UK)

 [elrig](https://www.linkedin.com/company/elrig)

WELCOME TO PROTEIN SCIENCES IN DRUG DISCOVERY 2022

We are excited to welcome delegates, speakers, and vendors to the first Protein Sciences in Drug Discovery conference organised by ELRIG.

The conference will be hosted from the Babraham Research Campus in Cambridge. Protein Science is a critical component of most drug discovery projects, with early access to protein reagents and strategies for prosecution of challenging protein reagents being critical for many lead generation plans. This is especially important in an era where we have novel targets entering drug discovery pipelines from data generated by sequencing of patient genomes, knowledge graphs and functional genomics discovery.

Over the next two days we will have several presentations by world leading speakers and technology providers. We are especially pleased to have keynote speaker Dr James Love from Novo Nordisk talk about "Automation for high throughput protein production and closed loop optimization" and keynote speaker Professor David Baker from the Institute of Protein Design at the University of Washington, Seattle, talk about "Protein design for deep learning". The interactive 2-day event will include 4 sessions. The sequential sessions will cover high throughput approaches for protein expression, advancement in protein production of novel and challenging soluble targets and prosecution of membrane protein targets. We will finish with a future looking session where we discuss how we can accelerate protein production with the development of AI techniques.

The podium program has been complemented by presentations from leading protein reagents and service providers. We will also have a poster session and there will be an award for the best poster. This together with the vendor exhibition will provide a unique opportunity to engage with peers in the field, application scientists and learn more about the latest instrumentation and kit offered by vendors.

The organisation of this meeting required hard work and dedication from many individuals. We would like to thank the ELRIG operations team; Clare Cockerham, Tara Shanks, Emma Zsadanyi, Shazo Aram, Bernardo Oliveira e Costa and Sanj Kumar for their administrative support and Melanie Leveridge, the chair of ELRIG for helping to develop the initial concept of this unique conference. ELRIG is a not-for profit organisation whose mission is to provide outstanding, leading-edge knowledge to the life sciences community on an open access basis. This would not be possible without the generous support of the exhibitors. We are grateful to them all and especially to our platinum sponsors; Fluidic Analytics. Please do take some time to engage with them during the refreshment breaks.

We hope that you all enjoy the symposium over the next two days and look forward to meeting you!

CONFERENCE DIRECTORS



Lovisa Holmberg-Schiavone
Director,
AstraZeneca



Kate Smith
Director,
GlaxoSmithKline



Theresia Schaedler
Senior Scientist,
Maxion Therapeutics

SESSION CHAIRS

HIGH-THROUGHPUT APPROACHES FOR PROTEIN EXPRESSION



Helena Maja Firczuk
HTX Team Leader,
GlaxoSmithKline



Hanna Tegel
Group Leader,
Royal Institute of Technology (KTH)

ADVANCEMENT IN PROTEIN PRODUCTION OF NOVEL AND CHALLENGING SOLUBLE TARGETS



Panchali Goswami
Investigator,
GlaxoSmithKline



Valerie Pye
PLRS,
Francis Crick Institute

PROSECUTION OF MEMBRANE PROTEIN TARGETS



Maria Garcia-Alai
Team Leader, Head of SPC Facility,
EMBL Hamburg



Arjan Snijder
Director,
AstraZeneca

ACCELERATE PROTEIN PRODUCTION WITH THE DEVELOPMENT OF AI TECHNIQUES



Brian Marsden
PI Research Informatics,
Centre for Medicines Discovery,
University of Oxford



Aurelie Bornot
Program Manager,
GlaxoSmithKline

PLENARY KEYNOTE SPEAKERS



David Baker
Professor, Biochemistry, University of Washington

PROTEIN DESIGN USING DEEP LEARNING

2nd November 2022, 17.00
Auditorium via Zoom

Proteins mediate the critical processes of life and beautifully solve the challenges faced during the evolution of modern organisms. Our goal is to design a new generation of proteins that address current-day problems not faced during evolution. In contrast to traditional protein engineering efforts, which have focused on modifying naturally occurring proteins, we design new proteins from scratch to optimally solve the problem at hand. We now use two approaches. First, guided by Anfinsen's principle that proteins fold to their global free energy minimum, we use the physically based Rosetta

method to compute sequences for which the desired target structure has the lowest energy. Second, we use deep learning methods to design sequences predicted to fold to the desired structures. In both cases, following the computation of amino acid sequences predicted to fold into proteins with new structures and functions, we produce synthetic genes encoding these sequences, and characterize them experimentally. In this talk, I will describe recent advances in protein design using both approaches.



James Love
Vice President, Automation, Novo Nordisk

AUTOMATION FOR HIGH THROUGHPUT PROTEIN PRODUCTION AND CLOSED LOOP OPTIMIZATION

3rd November 2022, 09.05
Auditorium

Automated systems enable researchers to generate data in quantity and quality to enable 'design build test learn' cycles, where the human hands on time is minimized, so that virtual computational designs are less limited by the practicalities of wet work experimentation. Novo

Nordisk, and other groups have been working towards these goals, and ongoing efforts will be presented leading towards a potential goal of human 'out of the loop' (or at least minimized!) experimental optimization.

INFORMATION FOR PARTICIPANTS

WIFI

Wi-Fi is freely available throughout the venue and may be found by following the below instructions:

1. Enable the wireless function on your device.
2. Select 'The Cloud' from the available network list.
3. Open browser, hit refresh and follow the onscreen instructions to log on. If this page doesn't automatically come up when you hit refresh, type 'service.thecloud.net' into the address bar.

REGISTRATION

To help keep Protein Science in Drug Discovery 2022 a safe space, we require the following from all attendees:

1. Pre-registration for the meeting is essential. Please register at elrig.org and enter our EventFlo registration system (*if you wish to, you may choose a pro-noun, which will be printed on your badge*).
2. To ensure we minimize the risk of spreading COVID, please ensure that you have had at least two vaccinations against the COVID virus and that you are not presenting with any of the symptoms. At registration you may be asked to present your COVID passport, or a document issued by your local government showing you have been double vaccinated. Once you have entered the venue, you may wear a mask if you wish, but this is not compulsory. Please be aware that we expect the meeting to be completely full, so social distancing in the exhibition area and auditorium will not be possible.
3. Please observe our safe space guidelines:
At ELRIG we want all our meeting participants, whether the meeting is face-to-face or on-line, to enjoy, participate in and contribute to the event. We are therefore dedicated to providing a harassment-free experience for all event participants involved in its activities and meetings. ELRIG does not accept harassment or intimidation of ELRIG participants in any form whether verbal, physical, or written (including on social media or by email).

Harassment includes, but is not limited to:

1. Offensive or unwanted conduct on the basis of age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, sex or sexual orientation which has the purpose or effect of violating dignity or creating an intimidating, hostile or degrading environment.
2. Use of sexualised or other inappropriate images or unwelcome sexualised content, inappropriate physical contact, unwelcome sexual attention or stalking.
3. Sustained interruption of speakers or those asking questions.
4. Unwanted photography or filming.

Intimidation includes, but is not limited to:

1. Making threats.
2. Bullying.
3. Personal attacks.

Participants who do not adhere to these rules will be asked to stop and expected to comply immediately. Participants may be removed from any meeting or communications at the discretion of ELRIG's management if this behaviour continues. If you are being harassed/ intimidated, notice that someone else is being harassed/ intimidated, or have any other concerns, please contact any of the ELRIG management team immediately. They will be able to step in to remove you or others from a chain of communication, if this is the preferred action, and can also facilitate a discussion or mediation. If you wish, you may also nominate someone else to support facilitating any mediation or as an observer to this process.

Please note that ELRIG photographs and videos may be taken throughout the duration of the meeting, which may then be used for promotional purpose after the event. If you do not wish your image to be used, please let the organisers know. The taking of your own photographs or making your own recordings is strictly forbidden, unless it is needed to help your accessibility to the presentations. The event is cashless and free! All beverages and food served is freely available to all who attend.

ELRIG MOBILE APP

Download the free ELRIG app and access all our conference information, programme and more from your phone or tablet.

- View the event programme
- View presentation and poster abstracts
- View speaker profiles
- View the exhibitor guide
- View the delegate and exhibitor list
- Organise your day with your own favourites list
- Share your profile as vCard and QR Code and scan exhibitor QR code information tags
- Network – contact delegates, other exhibitors and speakers easily through opt-in directories and integration with Linked-In, Twitter and Facebook

You can download the ELRIG app by visiting the app store appropriate to your tablet or smart phone, scanning the QR code below or visiting the ELRIG website:

elrig.org/mobile-app



PROTEIN SCIENCES 2022 - DAY 1 SUMMARY

HIGH-THROUGHPUT APPROACHES FOR PROTEIN EXPRESSION ADVANCEMENT IN PROTEIN PRODUCTION OF NOVEL AND CHALLENGING SOLUBLE TARGETS

2nd November 2022
Auditorium

8.30-09.30	Registration
09.30-09.40	Conference Welcome and Keynote Introduction - Lovisa Holmberg-Schiavone, AstraZeneca, Kate Smith, GlaxoSmithKline & Theresia Schaedler, Maxion Therapeutics
09.40-09.45	Session Chair Introduction - High-throughput approaches for protein expression - Helena Maja Firczuk, GlaxoSmithKline & Hanna Tegel, Royal Institute of Technology (KTH)
09.45-10.15	High-Throughput Protein Expression - Nicola Burgess-Brown, Exact Sciences Innovation
10.15-10.30	Industry Insider Sponsorship - Services and Tools for Protein Analysis: How Bio-Rad Can Boost Your Drug Discovery Workflow - Richard Cuthbert, Bio-Rad Laboratories Ltd
10.30-11.15	Refreshment Break
11.15-11.45	A high-throughput parallel protein workflow to accelerate antimicrobial drug discovery at LifeArc - Peter Canning, LifeArc
11.45-11.50	Bronze Sponsorship - Automated assay for quantification of antibody titre in crude samples - Ruizhi Wang, HexagonFab
11.50-11.55	Bronze Sponsorship - ASSIST Plus Pipetting Platform - Kiran Sharma, Integra Biosciences Ltd
11.55-12.25	The MultiBac system as a protein complex production platform - Tom Taylor, University of Bristol
12.25-12.40	Industry Insider Sponsorship - Production of Cas9 orthologs for functional and structural studies - Thomas Meins, WuXi AppTec
12.40-14.00	Refreshment Break with poster session 13.30-14.00
14.00-14.05	Session Chair Introduction - Advancement in protein production of novel and challenging soluble targets - Panchali Goswami, GlaxoSmithKline & Valerie Pye, The Francis Crick Institute
14.05-14.35	Investigating epigenetics using electron microscopy (and a little bit of Chemistry) - Marcus Wilson, Univeristy of Edinburgh
14.35-14.40	Bronze Sponsorship - Enhance your separation power and increase product purity with the J.T.Baker® BAKERBOND® PROchievA™ protein A derived affinity chromatography resin - Meera Pirie, Avantor Sciences
14.40-14.45	Poster Introductions - Theresia Schaedler, Maxion Therapeutics
14.45-14.55	Poster Presentation - ‘SNARE Proteins’-Maximizing Protein Expression in Mammalian Cells - Angita Shrestha, GlaxoSmithKline
14.55-15.05	Poster Presentation - A novel screening platform to monitor GPCR-G proteins complex formation - William Lee, AstraZeneca
15.05-15.40	Refreshment Break
15.40-16.10	Exploiting the versatility of synthetic nanobodies in protein production and structural biology - Lisa Joedicke, Roche
16.10-16.25	Industry Insider Sponsorship - Expression and Purification of a Challenging, Disordered Transcription Factor - Duncan Smith, Peak Proteins
16.25-16.55	Building the replisome: structure and mechanism of a DNA replication machine - Joe Yeeles, LMB
16.55-17.00	Plenary Keynote Introduction - Lovisa Holmberg-Schiavone, AstraZeneca
17.00-17.45	Plenary Keynote - Protein design using deep learning - David Baker, UW Institute for Protein Design 
17.45-19.00	Networking with poster session 18.00-18.30

 Presenters will appear in-person, unless marked with this icon, when they appear virtually.

PROTEIN SCIENCES 2022 - DAY 2 SUMMARY

PROSECUTION OF MEMBRANE PROTEIN TARGETS ACCELERATE PROTEIN PRODUCTION WITH THE DEVELOPMENT OF AI TECHNIQUES

3rd November 2022
Auditorium

8.30-09.00	Registration
09.00-09.05	Conference Welcome and Keynote Introduction - Kate Smith, GlaxoSmithKline
09.05-09.50	Plenary Keynote - Automation for high throughput protein production and closed loop optimization - James Love, Novonordisk
09.50-10.20	Platinum Presentation - Simultaneous quantification of absolute cellular concentration and antibody affinity of HER2 in lipid-bilayer nanodiscs extracted directly from cancer cells - Sebastian Feidler, Fluidic Analytics
10.20-11.00	Refreshment Break
11.00-11.05	Session Chair Introduction - Prosecution of membrane protein targets - Maria Garcia Alai, EmBL & Arjan Snijder, AstraZeneca
11.05-11.35	New approaches to working with membrane proteins - Bernadette Byrne, Imperial College London
11.35-11.40	Bronze Sponsorship - Automated purification of many proteins, all at once, on the CyBio FeliX - Keltoum Bourka, Analytik Jena UK Ltd
11.40-11.45	Bronze Sponsorship - SUPR-DSF - Plate Reader Technology for Next Level Protein Stability Screening - Jemma Roberts, Protein Stable
11.45-12.15	Enabling drug discovery for membrane proteins at the Novartis Institutes for BioMedical Research - Matthias Haffke, Novartis
12.15-12.30	Industry Insider Sponsorship - Drug Discovery at the single molecule level: Opportunities for challenging targets - Tim Kaminski, InSingulo AB
12.30-13.00	Potassium transporters and channels in bacterial survival - Inga Hänelt, Goethe University, Frankfurt
13.00-14.00	Refreshment Break with poster session 13.30-14.00
14.00-14.05	Session Chair Introduction - Accelerate protein production with the development of AI techniques - Brian Marsden, Centre for Medicines Discovery & Aurelie Bornot, GlaxoSmithKline
14.05-14.35	HDX-MS guided identification of low-complexity regions in complex proteins - Sebastian Zoll, Institute of Organic Chemistry and Biochemistry 
14.35-15.05	Data sharing to improve model building - Andrew Leach, EMBI-EBI
15.05-15.35	Predicting protein expressibility and solubility using protein language models - Henrik Nielsen, & Hannah-Marie Martiny, Technical University of Denmark
15.35-15.45	Conference Close & Awards

 Presenters will appear in-person, unless marked with this icon, when they appear virtually.

ABOUT ELRIG

The European Laboratory Research & Innovation Group (ELRIG) is a leading European not-for-profit organization that exists to provide outstanding scientific content to the life science community. The foundation of the organisation is based on the use and application of automation, robotics and instrumentation in life science laboratories, but over time, we have evolved to respond to the needs of biopharma by developing scientific programmes that focus on cutting-edge research areas that have the potential to revolutionize drug discovery.

Comprising a global community of over 12,000 life science professionals, participating in our events, whether it be at one of our scientific conferences or one of our networking meetings, will enable any of our community to exchange information, within disciplines and across academic and biopharmaceutical organisations, on an open access basis, as all our events are free-of-charge to attend!

OUR VALUES

Our values are to always ensure the highest **quality of content** and that content will be made readily **accessible to all**, and that we will always be an **inclusive** organisation, serving a **diverse scientific network**. In addition, ELRIG will always be a **volunteer led** organisation, run by and for the **life sciences community**, on a **not-for-profit** basis.

OUR PURPOSE

ELRIG is a company whose purpose is to bring the life science and **drug discovery** communities together to **learn, share, connect, innovate** and **collaborate**, on an **open access** basis. We achieve this through the provision of world class conferences, networking events, webinars and digital content.

GOVERNANCE

ELRIG's board is comprised of volunteers from it's community, who either work in biopharma, CRO's, academia or with vendor companies. The board is steered by the General Committee, who act as a direct connection to the community and thus is comprised of a diverse group of people. The board delegates it's tasks to a series of work groups, who work with the Operational Team to ensure ELRIG achieves it's objectives. Current work groups are:

- Early Career Professionals
- Marketing Communications
- Networking & Webinars
- People & Culture
- Publications
- Science Strategy
- Vendor Outreach

STRATEGIC PILLARS



EVENTS

Deliver UK leading events, showcasing cutting edge science and technology, that are accessible to all.



PRESENCE & AWARENESS

Expand and enhance our digital presence.



EQUALITY, DIVERSITY & INCLUSIVITY

Promote inclusivity, engagement and collaboration, in our diverse community.



SUSTAINABILITY

Drive an open and transparent organisation, with a focus on delivery excellence and financial sustainability.

ELRIG'S EQUALITY DIVERSITY AND INCLUSION AIMS AND GUIDING PRINCIPLES

OUR AIMS

- ELRIG will strive for cultural change, both for itself and the ELRIG community
- Rather than a policy we have developed the ELRIG Community's Guiding Principles
- We will communicate the journey and the conclusions
- The process and implementation of outcomes will be transparent
- Data and the ELRIG community will guide action
- Mechanisms will be put in place to ensure that accessibility is maximised at all events
- Guiding principles will be embedded in governance and all Work Groups daily activities

OUR GUIDING PRINCIPLES

We will promote equality, by welcoming all to all our events and will be inclusive, by removing barriers to access, and that our events will represent the diversity of the ELRIG community.

OUR EQUALITY PRINCIPLE IS:

We will ensure that all are welcome by: profiling the demographics of attendees by segment, age, ethnicity, disability and gender, monitoring and ensuring that no one group is favoured nor excluded and act to ensure equal outcomes and opportunities for the entire ELRIG community.

OUR DIVERSITY PRINCIPLE IS:

We will strive for gender balance at our events, by ensuring that the diversity mix of our speakers represents the diversity of our delegates, and that the diversity mix of our delegates represents the diversity of the ELRIG community, as well as ensuring that scientific content reflects the diversity of the ELRIG community.

OUR INCLUSIVITY PRINCIPLE IS:

We will ensure that accessibility is maximised at all events, by removing barriers to those with disabilities, limits on finances, caring and parental responsibilities, religious needs, geographical location and other requirements. To ensure our principles remain relevant, we will solicit, monitor, and report to the ELRIG community and act upon relevant feedback during and after events to maintain accessible and safe spaces in which to collaborate.

PROTEIN SCIENCES 2022 SPONSORS

PLATINUM SPONSOR



Fluidic Analytics
fluidic.com

INDUSTRY INSIDERS



InSingulo AB
insingulo.com



WuXi AppTec
wuxiapptec.com



Bio-Rad
bio-rad.com



Peak Proteins
peakproteins.com

GOLD SPONSOR



Avantor Sciences
avantorsciences.com

BRONZE SPONSORS



Integra Biosciences
integra-biosciences.com



Analytik Jena UK
analytik-jena.com/uk



HexagonFab
hexagonfab.com

STANDARD SPONSORS



Collaborative Drug
Discovery
collaborativedrug.com



FESTO
festo.com



Fusion Antibodies
fusionantibodies.com



Sigma-Aldrich
International (Merck)
sigmaaldrich.com



Proteome Sciences Plc
proteomics.com



Twist Bioscience
twistbioscience.com



Protein Stable
proteinstable.com

ELRIG EVENTS 2023

KEY EVENTS

ELRIG is a learned society that organises scientific conferences and forums, for the European drug discovery community. Meetings will have anywhere between 40 to 1500 attendees. Meetings may be an afternoon only to 2 days in length and have a very narrow focus or contain a broad range of topics, applicable to many research areas within the drug discovery community. All events are free-to-attend, simply register at elrig.org. Remaining events for 2022 and future events for 2023 are:



REMAINING EVENTS IN 2022

ROBOTICS & AUTOMATION 2022

Festo, Esslingen, Stuttgart
November 30th - December 1st

EVENTS IN 2023

2023 CONFERENCES

CRISPR IN DRUG DISCOVERY 2023
The Kings Centre, Oxford
February 7th - 8th

**RESEARCH & INNOVATION 2023:
ACCELERATING FUTURE DRUG
DISCOVERY**
Hinxton, Cambridge
March 29th - 30th

**THE ELRIG THERAPEUTIC OLIGO
AND THE EUROPEAN CHEMICAL
BIOLOGY CONFERENCE 2023**
AstraZeneca, Gothenburg
May 9th - 11th

DRUG DISCOVERY 2023
ACC Liverpool
October 18th - 19th

**HIGH CONTENT IMAGING AND
FLOW CYTOMETRY IN DRUG
DISCOVERY 2023**
GSK, Stevenage
November 21st - 22nd

2023 FORUMS

**LABEL-FREE MASS SPECTROMETRY
ASSAYS FOR EARLY DRUG
DISCOVERY**
The Netherlands
January 25th

**SUSTAINABILITY PRACTICES IN
DRUG DISCOVERY RESEARCH**
Oxford
April 19th

**THE SCOTTISH RESEARCH AND
DRUG DEVELOPMENT FORUM**
Scotland
April 27th

**DISCOVERY TECHNOLOGIES 2023:
COMPLEX MEDICINES FORUM**
Alderley Park
June 22nd

**ADVANCEMENTS IN CELL & GENE
THERAPY: NEW THERAPEUTIC
HORIZONS**
Basel
September 21st

**FRENCH DRUG DISCOVERY
FORUM**
France
December 6th

2023 NETWORKING EVENTS

CAMBRIDGE
May 23rd

LONDON
June 29th

All events are in-person and free of charge to attend, but registration is essential.

