Welcome to the 12th Career Fair for Life Sciences

One of the major aims of our conference is to prepare young researchers for their future in the scientific community, be it in academia or in the private sector. With this in mind, the Career Fair was launched in conjunction with our conference in 2007 and has been a resounding success ever since! The Horizons organizing team would like to welcome you to the 12th Horizons in Molecular Biology Career Fair.

Our roster of speakers is specifically tailored to inform and inspire the next generation of scientific professionals. From biotech, to successful start-ups, to science communication; do not miss this opportunity to engage, and network with, a variety of experts that encompass the growing spectrum of scientific industry.

The presentations are sure to provide valuable insights into life in the private sector, however it is at the Career Fair workshops where you will learn, and develop the skills, to succeed in such an environment. *How does one transition from lab to industry? What should be considered when writing a scientific article?* These are some of the questions we hope to address during the course of the workshops this year!

We hope to see you at the Career Fair and invite you to make the most of this opportunity!

Career Fair Organizers

Notes

Monday 10:00 am

Can we engineer the end of ageing

"Interdisciplinary" for us, as scientists, typically refers to cross-pollinating amongst other hard science fields. However, there is value to be had in building skills in disciplines outside of science itself. Stepping outside of the ivory tower of academia allows bigger, freer, and often more creative thinking that can energize and inform your work in lab. Along my academic career path I have explored and pursued many other interests, including an active modeling career that has spanned over a decade. I have spent a considerable amount of time traveling and speaking to non-science audiences about exciting research and progress in biomedical science, and even had the opportunity to work with entertainers like Craig Ferguson and Steve Coogan to bring science to the masses. I love bridging seemingly disparate areas and working across multiple disciplines to synthesize ideas and broaden my own perspective. In this talk I'll share my journey weaving together my careers in science, modeling, and public speaking, and discuss how cultivating interests and success outside of the lab can elevate your science and enrich your life.

Daisy Robinton
WandW

Dr. Daisy Robinton is a Hearst Fellow and Postdoctoral Research Scientist in Beth Stevens' lab at Boston Children's Hospital. Her current research focuses on neurodevelopment and the cell-to-cell interactions that contribute to neurodegenerative diseases. Daisy completed her PhD in Human Biology and Translational Medicine in the laboratory of Dr. George Q. Daley at Harvard University. Her doctoral work focused on mechanisms of stem cell identity at the intersection of cancer and developmental biology. Daisy's passion for the effective translation of science has fueled her years of teaching, speaking, and consulting on numerous projects in the US and abroad. In addition, she is a co-founder of Weird and Wonderful, a production company aimed at bridging the knowledge gap in science by connecting with creativity and entertainment to engage, educate and inspire people from all walks of life.

Benjamin Glick
Snap Gene

Ben Glick majored in Neuroscience and Mathematics at Amherst College. His graduate work with Jim Rothman at Stanford University focused on intracellular membrane transport in mammalian cells, and his postdoctoral work with Jeff Schatz at the Biozentrum in Basel, Switzerland focused on protein import and sorting in yeast mitochondria. He is now a Professor at the University of Chicago, where his lab studies the biogenesis and dynamics of membrane compartments using molecular genetics and 4D imaging. A major part of his research program is an ongoing analysis of cisternal maturation in the Golgi apparatus.

In 2004, he co-founded GSL Biotech LLC. Their core product is the molecular biology software called SnapGene. As Chief Scientist of this company, his major role is to serve as lead designer of the software. By building on his own experience as well as feedback from colleagues and customers, he guides the developers to create an intuitive, versatile, and responsive software interface.

Creating SnapGene

As a cell biologist, I became frustrated by inefficiencies in how my group performed DNA cloning. We used those procedures routinely, but mistakes were common and sequence records were poor or nonexistent. Those issues cost time and resources, and could even jeopardize the reliability of experiments. Many other researchers expressed similar frustrations.

I realized that good software could alleviate many of the problems with DNA cloning. Several colleagues joined with me in forming a company to create the software that became known as SnapGene. The goal was to make SnapGene easier to use than paper notebooks so that researchers would switch to electronic methods to plan, visualize, and document their DNA manipulations. Our software design process adheres to the principles of human-computer interaction, which focuses on how to meet users' needs as effectively and painlessly as possible. We have consistently maintained high standards by imagining how an ideal software interface would look and feel, and then doing everything possible to achieve that vision.

Our business strategy is rather unconventional. We have not sought external investment, and as a result, the founders retain full creative and financial control of the company. Initial development of SnapGene was funded by Small Business Innovation Research (SBIR) grants from the NIH. SnapGene 1.0 was released when the SBIR grants ended, and the company became profitable within a few months. Active ongoing development of the software has led to robust growth in market share. We have gradually expanded the development and sales teams in accord with our increasing needs and financial resources.

Two strategic decisions have been key. First, we provide a free version of the software called SnapGene Viewer. As a result, the SnapGene file format has become a standard for sharing annotated sequence data. Second, instead of paying to advertise, we provide an online collection of map/sequence files for commonly used plasmids. This collection brings us customers who discover SnapGene through web searches. The net result is that by investing sustained effort but very little money, we have been able to build a successful software company.

Monday 11:20 am

The systems biology verification endeavour – Harness the power of the crowd to address computational and biological challenges

Systems biology relies on large numbers of data points and sophisticated methods to extract biologically meaningful signal and mechanistic understanding. For example, analyses of transcriptomics and proteomics data enable to gain insights into the molecular differences in tissues exposed to diverse stimuli or test items. The sbv IMPROVER crowdsourcing project (*https://sbvimprover.com*), developed by Philip Morris International as a mean to verify methods and data in systems biology, has already proven its usefulness in benchmarking computational methods used in diagnostic signature discovery or the assessment of species translatability for example. Five challenges have already been successfully conducted, allowing to gain insights into key topics in systems biology and confirmed that the aggregation of predictions often leads to better results than individual predictions and that methods perform best in specific contexts.

Stéphanie Boue
sbv IMPROVER

Stéphanie has a background in biotechnology (Engineering degree in Biotechnology from the Ecole Supérieure de Biotechnologie de Strasbourg (ESBS)), molecular biology, and bioinformatics and obtained her PhD in bioinformatics from the European Molecular Biology Laboratory (EMBL) in Heidelberg, Germany. After a postdoc on pluripotent cells at the Center for Regenerative Medicine in Barcelona (CMRB), she joined Philip Morris International R&D as a computational biologist in 2010. She now manages scientific transparency and verification aspects in the biomedical research department and is responsible for the development of INTERVALS, a platform to share data, methods, and results, and for the Systems Biology Verification project.

Stephanie Boue currently works at the Biological Systems Research, Philip Morris International (PMI). She is representing sbv IMPROVER, which stands for Systems Biology Verification combined with Industrial Methodology for Process Verification in Research. It constitutes crowdsourcing approaches to provide a measure of quality control of industrial research and development. The sbv IMPROVER approach was initially developed by PMI and IBM Research in 2011-2013 and is now a collaborative effort led and funded by PMI Research and Development.

Adrian Schomburg
Proteros Pictures

Dr. Adrian Schomburg is the CTO of Proteros, a biotechnology company that discovers and develops novel epigenetic medicines based on disease relevant screening methods. Adrian oversees the target identification, validation and early drug discovery areas. As a project manager of collaborations with international pharma partners, Adrian aligns the project teams for joint and productive drug discovery. As a trained biologist, Adrian completed the IMPRS for molecular biology in Göttingen, followed by a master Thesis with Carl Wu at the NIH, a PhD with Wolfgang Fischle at the Max Planck Institute for biophysical chemistry and a research scientist role with Pfizer.

Monday
11:50 am

New ways of drug discovery: Between the big and the small

As an early stage researcher, ample opportunities for pursuing your personal goals exist both in the academic as well as the industry sector. However, this is not a black and white picture: The novel way of doing drug discovery research is highly decentralized. Big Pharma collaborates with biotech and institutions. Start-up companies pursue challenging and novel concepts to then acquire venture capital funding, partner with the big once or become acquired themselves. This talk will illustrate this novel "matrix" approach of drug discovery and highlights opportunities to position yourself – as an early stage career researcher – in this matrix.

Monday
1:30 pm

PicoQuant – Advanced photon counting technologies in service of life sciences

PicoQuant develops and produces components as well as instrumentation for time-resolved applications. Our philosophy is to provide robust, state-of-the-art technology that is easy to use and tailored to the users needs in both academia and industry. We are a world-leading company in the fields of pulsed diode lasers, time-resolved data acquisition, single photon counting, and fluorescence instrumentation.

Our products are tested by and often co-developed with renowned scientists. Thanks to the ease-of-use of our instruments, researchers can focus their attention on the questions under study in biology, medicine, chemistry, environmental or materials science instead of wrangling the machines.

We at PicoQuant are always on the look out for talented individuals interested in:

- developing novel optical concepts, fluorescence techniques and applications
- consulting customers regarding technical questions and new research applications
- supporting and training researchers which use our microscopes and spectrometers.

My role as microscopy application specialist involves primarily communicating with customers. Starting with advising them on basic questions regarding the principles and applications of our time-resolved techniques, I then assist them in tailoring the desired microscope system to meet their research needs. I also participate in designing custom solutions for novel techniques together with our development team.

Maria Loidolt-Krüger
PicoQuant

Maria studied biophysics at the Technical University Kaiserslautern (Germany). During her diploma and PhD studies, she worked in the group of Prof. Stefan W. Hell at the Max Planck Institute for Biophysical Chemistry in Göttingen. The subject of her Diploma thesis was developing a multicolor STED microscopy technique with corresponding live cell staining protocol. During her PhD work, she investigated the feasibility of performing STED microscopy on FRET pairs.

In January 2018, Maria joined PicoQuant as an application specialist for confocal fluorescence microscopy. Her background in method development enables her to advise customers not only regarding technical questions but also with new research applications or custom developments. She is also involved in the product management of the SymPhoTime 64, PicoQuant's data acquisition and analysis software for time-resolved microscopy.

Wolfgang Grosse
CureVac

Dr. Wolfgang Grosse is a Scientist at CureVac AG, the company of mRNA people. We are fighting for human health by using natural mRNA as a data carrier to instruct the human body how to produce its own proteins to fight a wide range of diseases. At CureVac Wolfgang uses his passion for protein structure by working in the field of protein design assuring the desired function is achieved by the mRNA encoded protein in the rather early stages of projects. Wolfgang completed his diploma in Chemistry at the Philipps-Universität Marburg where he discovered his interest in biochemistry. He completed his thesis in the field of Ion-Channel Engineering in the group of Prof. Dr. Lars-Oliver Essen. Before joining CureVac in 2014 he was performing work in the area of expression and purification of G-protein coupled receptors in the lab of Prof. Dr. Horst Vogel at the EPF Lausanne.

CureVac – mRNA delivered as a message to the body to cure and protect itself from diseases

Despite the tremendous achievements in medicine in the last century there is still a lot of room for improvement towards current medical treatments, especially in cancer and treatments that are applicable in the third world. CureVac explores the diverse therapeutic possibilities (= Cure) based on revolutionary vaccination (= Vac) and therapeutic treatment based on mRNA. We use unmodified mRNA to give the body the exact information it needs to produce its own medicine, naturally and safely.

On the path to bring the first mRNA-based drug to the market many exciting tasks have to be tackled. Starting from the first proof of principle, over the development of robust and scalable methods towards the actual permission to produce drugs that might be administered to human beings and performing the clinical trials to prove efficacy. Together we manage that task and many different company units cover all aspects of this process on this incredibly potent technology platform.

We believe in the revolution of mRNA! We fight for human health, because it's worth it!

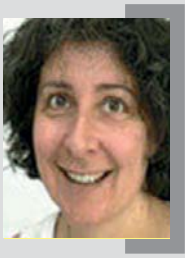
Monday
2:30 pm

Gene regulation and systems biology of cancer

The Yaspo research group focuses on cancer genomics and system biology of cancer, with a translational perspective in personalized medicine. Based on NGS technologies, our interests are centered on dissecting molecular landscapes of tumors for identifying pathway components and biomarkers associated with malignancy,, and on exploring gene regulation networks operating in specific cancer entities. Onging cooperative projects address various aspects of cancer genomics in metastatic melanoma, early-onset prostate cancer, medulloblastoma, pediatric leukemia, and colorectal cancer. We have developed powerful integrative NGS analysis pipelines exploiting simultaneously genome and transcriptome information. In particular we promote the use of RNAseq in tumor profiling, detecting the consequences of somatic events at the gene expression levels, such as gene fusions, alternatively spliced isoforms, long non-coding RNAs, and epigenetic dysregulations. Beyond primary tumor chracterisation, we are interested in identifying the nature of the stromal niche and immune infiltrates in various tumors, and in evaluating to which extend patient-derived model systems cell or xenografts, used in drug sensitivity assays, recapitulate the features of their donors.

Besides, we are developing NGS-based methods allowing a deep characterisation of human immune cell repertoires and therefore the immune status in health and disease.

Marie-Laure Yaspo
Alacris Theranostics



Marie-Laure Yaspo heads an independent research group at the Max Planck Institute for Molecular Genetics in Berlin. She is also one of the founders and Chief Scientific Officer of Alacris Theranostics, a Berlin based company founded in 2008. Alacris Theranostics works towards developing novel approaches in precision medicine with long-standing expertise in interdisciplinary approaches, combining sequencing technologies, large-scale operations, advanced computing, high dimensional data analytics and bioinformatics systems.

David Giltner
TurningScience

David Giltner is the author of the book Turning Science into Things People Need, and is an internationally recognized speaker and mentor for early career scientists and engineers seeking careers in industry. He has spent the last 20 years commercializing photonics technologies in a variety of roles for companies, including JDS Uniphase and Ball Aerospace.

David began lecturing on technical career building in 2010. In 2017 he started TurningScience to provide tools and advice for making the transition from academia into the private sector.

David has developed the unique ability to function well in both highly technical and business circles, and has often functioned as an interpreter to help these two words communicate more productively. He now uses this skill to help scientists and engineers understand the world of product development so they can design and build rewarding careers in industry.

David has a BS and PhD in physics and holds six patents in the fields of laser spectroscopy and optical communications.

David is an internationally recognized author, speaker, and career coach He works with students and early career professionals to help them design exciting careers making things people need!

How to be more employable in the private sector

Working in industry is very different than working in academia! An advanced degree in science or engineering gives you many technical skills that are valuable in the private sector, but this is only 90% of what you need to be successful. That missing 10% is very important, and it is not taught in university.

Being successful in industry, either as an employee or an entrepreneur, requires understanding what behavior is rewarded, and developing new habits accordingly.

In this seminar I discuss some important ways that industry is different than academia, and I use stories from my own career to illustrate exactly why these differences are so important.

I will leave you with three important takeaways:

1. 4 important ways working in industry is different than academia
2. 5 essential habits that successful engineers learn quickly
3. 1 very useful technique for making difficult decisions and accelerating your career

Make these habits part of your daily working life and you will be much more employable and successful in the 'real world.'