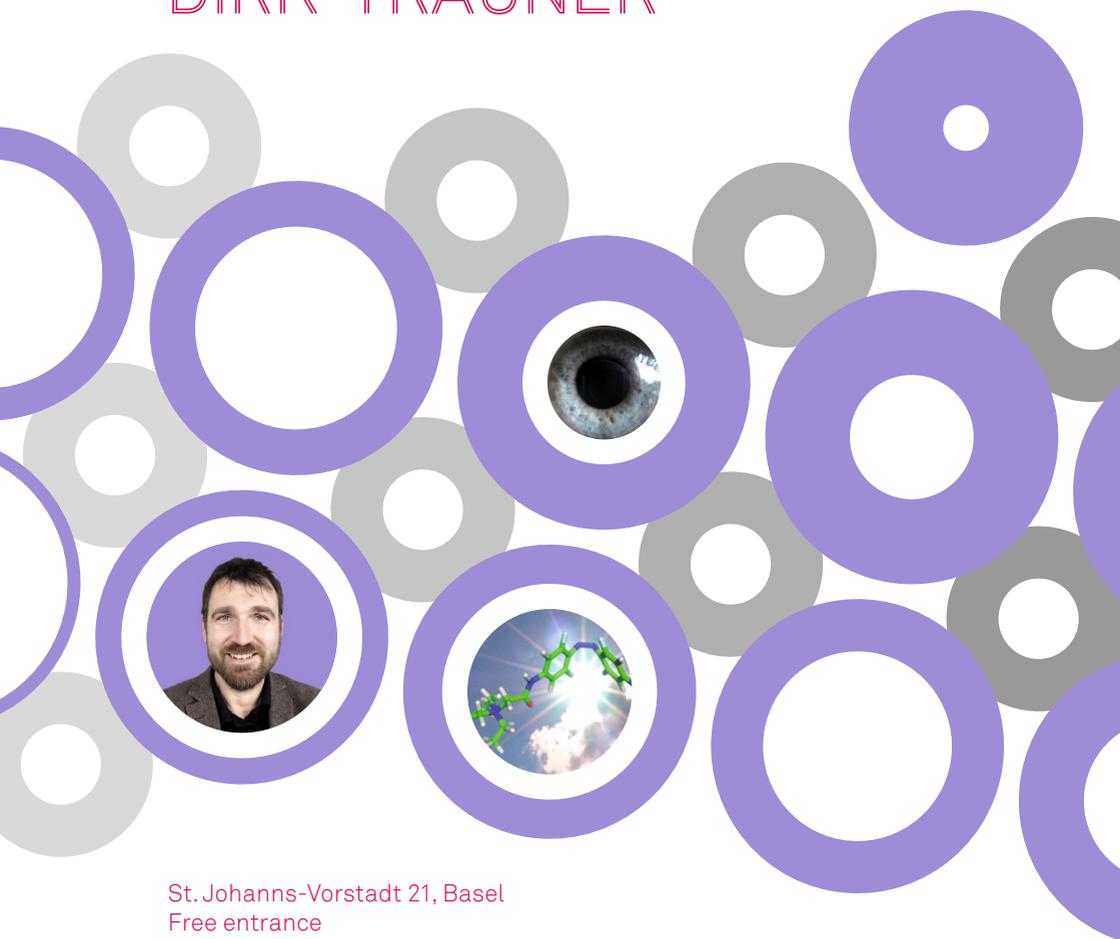




NCCR
Molecular Systems
Engineering

SEMINBAR

WED. 25 JAN. 2017, 6 PM
ACKERMANNSHOF
DIRK TRAUNER



St. Johannis-Vorstadt 21, Basel
Free entrance

DIRK TRAUNER

SYNTHETIC PHOTOBIOLOGY

Light is a fascinating phenomenon that ties together physics, chemistry, and biology. It has unmatched temporal and spatial precision and has been used to map objects on the scale of tens of nanometers (10^{-8} m) to light years (10^{16} m). A plethora of photoreceptive systems have evolved on earth, all of which rely on a small set of molecular photo switches, which undergo transient bond isomerizations or bond formations upon irradiation. Chemistry has opened the door to a large repertoire of synthetic photo switches with highly tuneable properties. Like their natural counterparts, these chromophores can be attached to proteins to put them under optical control. Photopharmacological systems are engineered by attaching chromophores covalently or non-covalently to a wide variety of proteins, including ion channels, GPCRs, enzymes and more.

Dirk Trauner will make the case that photopharmacology has many advantages over conventional optogenetics since it involves the manipulation of *native* receptors and since the synthetic chromophores are, at least in principle, more tuneable than the natural ones. He will discuss the potential of photopharmacology in medicine, in particular with respect to restoring vision, managing pain, controlling insulin release, and fighting cancer. The usefulness of photo switches for shaping artificial and biological membranes will also be discussed.

Born in Austria, Professor Dirk Trauner earned his undergraduate degree in Berlin, his doctorate in Vienna, before a postdoctoral fellowship at Memorial Sloan Kettering Cancer Center. He got tenured at UC Berkeley which was followed by 8 years of faculty at the LMU, Munich. Trauner is a fellow of the Royal Society of Chemistry, and most recently got awarded the 2016 Emil Fischer Medal and the 2016 Otto Bayer Award for his “pioneering contributions to photopharmacology and chemical optogenetics”. The broad objective of research in the Trauner Lab is to “demonstrate the awesome power of chemical synthesis with challenging target molecules and to use it toward the establishment of synthetic biological pathways”. He just resettled to NYU, where he is establishing his new lab.

NYC LIVE MUSIC STARTING AROUND 9PM

The 1980 original Blues Brothers movie hit the big screens across the globe hard with the stomping rhythms and screeching saxophone. The sound of Jake and Elwood Blues lives on tonight. Our friends from the Basel Jazz Campus once again show their versatility and will bring a little bit of NYC to the stage at Ackermannshof to entertain you and our speaker, who just recently settled in the big apple.

Dress for the occasion: Everyone wearing a black suit and tie, and a white shirt, will get an extra free drink courtesy of this NCCR! Sunglasses and hat are optional. With DJ Morbus Nova. Everyone welcome.

