



18th Swiss Pharma Science Day 2025

Prof. Dr. Rudolf Brenneisen and Dr. Andreas Schittny **SAPhS board members**

The 18th Swiss Pharma Science Day 2025 was placed under the theme of «Emerging Trends in Pharmaceutical Sciences – Recent Academic Appointments in Switzerland». Seven recently appointed colleagues from the Universities of Basel, Bern and Geneva, as well as ETH Zurich presented pharmaceutical sciences from the perspective of their respective disciplines. The SPhSD 2025 attracted on-site and online via live streaming about 130 attendees from across Switzerland and Germany from universities, industry and professional partner associations. As in the previous years the FPH-certified event took place at the Von Roll Campus of the University of Bern, on August 21.

During the lunch break, 46 young scientists presented their research on posters and discussed their data with attendees and reviewers. Three poster authors were given the opportunity for a short oral presentation in the afternoon session. The presenters of six posters received prizesHe briefly sponsored by industry, professional associations and the SAPhS.

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Morning Session – Welcome Address and Lectures 1-4

The SPhSD 2025 started with a warm welcome from the president of the Swiss Academy of Pharmaceutical Sciences (SAPhS), Prof. Matthias Hamburger (Fig. 2). He briefly reflected on the aims of the SAPhS and on the ongoing implementation of new initiatives as defined in the recently revised bylaws.



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The opening remarks were followed by the morning session, chaired by Prof. Paola Luciani (vice-president SAPHs, 3), starting with the lecture (L-1) of **Prof. Carole Bourquin** from the University of Bern (4). In the talk entitled «**Obesity, Sex, and Cancer Immunotherapy: A Surprising Connection**», she presented her work in translational pharmacology. Obesity as a well-known risk factor for cancer, yet recent findings suggest it may also improve responses to cancer immunotherapy. Understanding the biological mechanisms behind this paradox could improve cancer treatment strategies. One key factor is estrogen, which is found at higher levels in obese patients. Her study suggests that estrogen levels could serve as a predictive marker for response to immunotherapy in male patients. These findings open new avenues for personalized immunotherapy, integrating sex and metabolic factors into treatment decisions. Her lecture abstract and biosketch can be found on p. 7 of the e-conference booklet ([Weblink](#) for PDF download).



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The second lecture (L-2) entitled «**Accessing Therapeutic Natural Products via a Bio-based Approach**» was held by **Prof. Amy E. Fraley** from the ETH Zurich (5). In her talk she presented bio-based strategies to synthesize complex anticancer natural products, focusing on compounds like ET-743 (trabectedin). As traditional synthesis is inefficient, her team explores synthesis using marine microorganisms, heterologous expression of biosynthetic pathways and enzymatic engineering. She identified key steps - methylation, hydroxylation, and Pictet-Spengler reactions - that build the tris-THIQ scaffold of ET-743. These insights enable sustainable production and structural diversification of analogs. Her work highlights how biosynthetic pathway reconstruction can expand access to bioactive molecules, bridging medicinal chemistry and pharmaceutical biology for innovative drug development. Her lecture abstract and biosketch can be found on p. 8 of the e-conference booklet.



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The third lecture (L-3) on the topic «**New Mass Spectrometry-based Approaches to Characterize Oligonucleotide Therapeutics**» was held by **Prof. Valerie Gabelica**, University of Geneva (6 & 7). She

gave insights into mass spectrometry as a powerful method for biophysical characterization. She summarized various ways in which advanced mass spectrometry tools can reveal important features of nucleic acid folding, self-assembly, and interactions. She presented her team's research on novel fragmentation methods to address challenges in molecular characterization rising with the advent of advanced oligonucleotide therapeutics, which are highly chemically modified synthetic constructs. To do so, her team uses an timsOmni™ prototype mass spectrometer, a one-of-its-kind instrument in Switzerland at the moment.

Her lecture abstract and biosketch can be found on p. 10 of the e-conference booklet.



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The last lecture (L-4) of the morning session entitled «**From Head-twitching to Synaptic Potentiation: Pre-clinical Research on Psilocybin**» was held by **Prof. Linda Simmler**, University of Basel (8). She presented her research on the neuropharmacological mechanisms underlying psilocybin's antidepressant effects. Psilocybin, a psychedelic alkaloid, is rapidly converted into psilocin, which activates serotonin receptors and induces hallucinatory effects. While clinical studies show long-lasting antidepressant benefits, mechanisms on the synaptic level remain unclear. Using mouse models, Simmler's team explores both acute and long-term effects. They observed dose-dependent head-twitching behavior, a proxy for hallucinatory activity. However, they found a mismatch between behavior and psilocin brain levels - an important insight for drug development. Electrophysiological recordings revealed increased excitatory synaptic activity in the prefrontal cortex after a single dose, suggesting enhanced synaptic strength. In addition, she presented findings on long-lasting forms of synaptic plasticity induced after a single dose of psilocybin. Results showed increased frequency of miniature excitatory postsynaptic currents in prelimbic cortical cells, indicating a potentiation of synaptic strength. Her ongoing research investigates whether such increased synaptic strength underlies the long-lasting antidepressant effect of psilocybin and related psychedelics.

Her lecture abstract and biosketch can be found on p. 11 of the e-conference booklet.



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The morning session, which perfectly demonstrated on a high scientific level the impressive diversity of pharmaceutical sciences, ended just on time with now relaxed speakers (11), happy SAPHs organizers and board members Proff. Gerrit Borchard, Matthias Hamburger (10), Rudolf Brenneisen (12), and hungry attendees.



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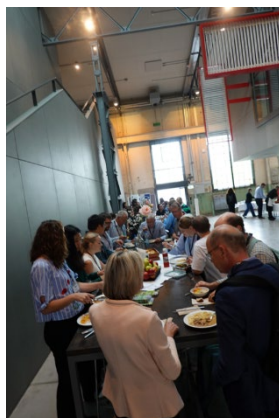
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Lunch Break and Poster Session

During lunch break attendees enjoyed the nice buffet provided by the university caterer, maintained their professional networks, and visited the poster gallery featuring this year 46 posters from young scientists of all Swiss Pharmacy schools (13-18). Lively discussions between presenters, participants and members of the reviewer board were held. The poster abstracts can be found in the e-conference booklet on pp. 15-68. This year's posters spanned a wide range of topics including pharmaceutical biology, phytopharmacology, pharmaceutical technology, clinical pharmacy, clinical pharmacology, molecular pharmacology, molecular medicine, experimental pharmacology as well as biopharmacy.



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Afternoon Session – Short Oral Presentations, Lectures 4-7 and Award Ceremony

The afternoon session was chaired by Prof. Klaus Eyer (Aarhus Univ., 19) and kicked off with 3 short oral presentations (SOPs) which had been selected by the organizers on the basis of the submitted abstracts. These young researchers were given a platform to showcase and discuss their outstanding research in front of the audience.



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Dr. Inès Nikolic from the University of Geneva (20) was talking about **«Scarring Beyond Healing: Exploring Cyclops Syndrome – A Distinct Form of Knee Arthrofibrosis Following the Anterior Cruciate Ligament Reconstruction»** (P-V-4). She investigated Cyclops syndrome, a fibrotic complication following anterior cruciate ligament reconstruction that impairs knee extension and affects approximately 10% of patients. She analyzed Cyclops lesions and synovial fluid using histology, cell isolation, flow cytometry, and ELISA. The lesions showed abundant collagen and activated fibroblasts, alongside immune cells and elevated IL-1 β and TNF- α levels, indicating persistent inflammation. The lysyl oxidase inhibitor β -aminopropionitrile (BAPN), showed no cytotoxicity in vitro, supporting its potential as an antifibrotic treatment. These findings offer insight into the syndrome's pathology and support future development of targeted therapies.

Boris Sevarika from the University of Basel (21) was presenting his research on **«Targeted Mannose-6-phosphate Liposomes for Enhanced Lysosomal Drug Delivery»** (P-II-3). He explored M6P-decorated liposomes for improved lysosomal drug delivery, particularly for lysosomal storage diseases. M6P binds to its receptor, enabling clathrin-mediated endocytosis and efficient lysosomal trafficking. Liposomes functionalized with M6P showed up to 14-fold increased uptake in HeLa and Hap1 cells compared to controls, with ~72% co-localization with lysosomes. Control liposomes with unrelated sugars or similar charge showed no enhanced uptake, confirming specificity. These findings highlight M6P-liposomes as a promising platform for targeted enzyme replacement therapies, offering improved cellular delivery and reduced off-target effects.

Kaushavi Anil Cholke, University of Bern (22), was discussing her work entitled **«Deciphering the Targets of Trypanocidal Chalcones in Trypanosoma cruzi»** (P-I-6). She presented research on chalcones as potential treatments for *Trypanosoma cruzi*, the parasite causing Chagas disease. Current therapies are ineffective in chronic stages and often toxic. She screened 45 chalcones and used chemoproteomics to identify their molecular targets, revealing interactions with trypanothione-dependent peroxidases. Chalcones increased reactive oxygen species by inhibiting these enzymes, disrupting parasite survival. CRISPR-Cas9 knockouts and metabolomics confirmed their biological role, and cryo-EM resolved the structure of key targets. These findings support chalcones as promising candidates for safer, more effective therapies against Chagas disease.



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After the SOPs followed the fifth plenary lecture (L-5) on the topic «**Pharmacogenetics in Pharmaceutical Care: From Translational Research to Real-World Implementation**», held by **Dr. Céline Stäuble** University of Basel (23; co-author Prof. Samuel Allemann). Pharmacogenetics offer a promising path toward personalized medicine, but its integration into routine pharmaceutical care remains limited. Dr. Céline Stäuble presented strategies to bridge this gap, focusing on statin-induced myopathy and genetic variations in drug transporters like OATP1B1. She shared findings from a pharmacovigilance analysis on muscle-related adverse effects and investigations on a biomarker to quantify drug-drug-gene interactions. She also highlighted the role of pharmacists in implementing pharmacogenetic testing through interprofessional collaboration. Despite barriers, such as insurance coverage and digital infrastructure, she emphasized the importance of translational research and implementation science in making pharmacogenetics accessible and impactful in everyday practice.

Her lecture abstract and biosketch can be found on p. 12 of the e-conference booklet.



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Then followed the lecture (L-6) by **Prof. Nathalie Grob** from the ETH Zürich (24) on «**Peptides in Drug Discovery: Challenges, Innovations, and Opportunities**». She presented her work on therapeutic modulation of protein–protein interactions by peptide-based drug candidates. The translation of bioactive peptides from initial hits into successful drug candidates represents a challenge due to their low metabolic stability and the rapid elimination upon administration. An approach to overcome these limitations is the incorporation of non-natural amino acids (nnAAs). The chemical synthesis of peptides on solid support allows for the facile introduction of nnAAs at defined positions. This synthesis approach supports the integration of nnAAs into early drug discovery phases by enabling the generation and screening of large, chemically diverse peptide libraries. Affinity selection-mass spectrometry (AS-MS) has proven particularly effective for the identification of high-affinity peptide binders against proteins of therapeutic interest from peptide libraries. Nathalie Grob discussed the application and impact of AS-MS in peptide discovery, highlighting recent innovations and emerging opportunities in novel target spaces and therapeutic strategies.

Her lecture abstract and biosketch can be found on p. 13 of the e-conference booklet.



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The last lecture (L-7) on the topic «**Combining Interprofessional Education and Implementation Science: Keys to Reshaping Pharmacy Practice in Primary Care**» was held by **Prof. Marie-Paule Schneider Voirol**, University of Geneva (25). She advocated for transforming pharmacy practice through interprofessional education and implementation science. Her work addresses the challenges of aging populations, polypharmacy, and healthcare workforce shortages by promoting collaborative care models. Approaches, such as “MyCare Start”, exemplify a multi-level approach, spanning research, education, policy, and practice, to adapt and evaluate new pharmacy services in Switzerland. She especially highlighted barriers in interprofessional education, such as limited curriculum space and coordination across faculties. Her projects aim to move beyond siloed training to foster collaborative care, e.g. by simulation-based learning or shadowing across professions. Through initiatives, like the Geneva Interprofessional Education Programme and the pharma24 living lab, her research focuses on ultimately integrating pharmacists into broader care teams.

Her lecture abstract and biosketch can be found on p. 14 of the e-conference booklet.



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The afternoon session then traditionally ended with the Award Ceremony, moderated by the SAPHs president Prof. Matthias Hamburger.

First, **Prof. Dr. Marie-Paule Schneider Voirol, University of Geneva, IPSO** (26), was awarded **SAPHs Fellow 2025**. Her laudatio was as follows: «For your substantial contribution to the pharmaceutical sciences, in particular for your research and education in the fields of therapeutic compliance and interprofessional cooperation.» (27).



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The ceremony ended with outstanding research projects being awarded with the poster prizes. The evaluation was based on several key criteria, including the clarity and originality of project objectives, the methodology used, the quality of the results, the alignment of conclusions with the data, as well as the overall scientific significance and presentation quality, including visual elements. The 6 awards were this year generously sponsored by the SAPHS (1st prize), GSIA Foundation (2nd prize), AKB Foundation (3rd prize), CSL Vifor (Technology prize), Max Zeller Söhne AG (Pharm. Biology-Phytopharmacology prize), and GSASA (Clin. Pharmacy prize).

The **First Prize**, sponsored by the SAPHS and handed over by its president, was awarded to **Alexander John Lander** (28), University of Basel (group Prof. Daniel Ricklin), for poster IV-10, entitled «**Leech-inspired bivalent peptides for multi-target modulation of host-defense responses**».



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The **Second Prize**, sponsored by the GSIA Foundation and handed over by Hansruedi Keller, was awarded to **Alessandra Cavegn** (29), University of Basel (group Prof. Jörg Huwyler), for poster II-10, entitled «**Intracellular processing of DNA-lipid nanoparticles: A quantitative assessment by image segmentation**».



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The **Third Prize**, sponsored by the AKB Foundation and handed over by its former board member Prof. Rudolf Brenneisen, was awarded to **Georg Bailer** (30), University of Basel and University Hospital Basel (group Prof. Christoph R. Meier), for poster III-4, entitled «**Diabetes in Switzerland: A 20-year comparison of risk factors by sex**».



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The prize for the **best poster in Pharmaceutical Technology**, sponsored by CSL Vifor and handed over by Frédéric Zwahlen, was awarded to **Remo Eugster** (31), University of Bern (group Prof. Paola Luciani), for poster II-8, entitled «**Thermo-reactive in situ forming liposome depot (TILD): From computational design to in vivo efficacy**».



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The prize for the **best poster in Pharmaceutical Biology and Phytopharmacology**, sponsored by Max Zeller Söhne AG and handed over by its medical director Prof. Veronika Butterweck, was awarded to **Felix Huwyler** (32), University of Bern (group Prof. Jürg Gertsch), for poster I-4, entitled «**Exploring the potential of THC/THCV Cannabis strains in preclinical assays**».



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The prize for the **best poster in Clinical Pharmacy**, sponsored by GSASA and handed over by its managing director Sara Iten, was awarded to **Hao Guo** (33), ETH Zurich (group Prof. Roger Schibli), for poster V-6, entitled «**(RS)-[¹¹C]HBP2 - A PET radioligand with high specificity, good brain uptake and favorable kinetic properties for imaging monoacylglycerol lipase**».



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Closing Remarks and Acknowledgements

The 18th SPhSD 2025 closed with final remarks and acknowledgements from the SAPhS president Prof. Matthias Hamburger on behalf of the whole organizing committee. He expressed gratitude to the participants, speakers, chairs, reviewer board, BT University of Bern for technical assistance, team ZFV for catering, and last but not least to all the sponsors, whose essential financial support contributed to the event's success. Attendees were encouraged to stay connected and were reminded to mark their calendars for next year's Swiss Pharma Science Day. The event concluded with the traditional farewell reception, providing attendees with the opportunity to reflect on the challenging lectures and stimulating poster presentations, as well as to network and socialize - one of the main goals of the SPhSD.

Everyone is warmly invited to join us for the 19th SPhSD 2026, which again will take place at the University of Bern. We look forward to seeing you all next year!

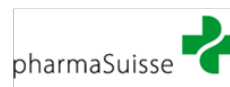
Comments, suggestions, and questions are welcome.
Please send to the SPhSD organizers:

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Bern, September 2025

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