



Once again, many young scientists attended this year's summer school.

### Summer school in retrospect

## Summer school 2014 in Kandersteg

This past June the summer school, jointly organized by SystemsX.ch and the SIB Swiss Institute of Bioinformatics, was held in Kandersteg for the second time. Once more, this five-day event was a great success. The 27 international participants were offered a varied program on the subject of "Systems Medicine and its Applications". Each day there were talks by renowned scientists and related hands-on training. A hike to the Oeschinensee completed the event.

### Focus on clinical problems

This summer school was geared towards PhD students and post-docs from around the world with expertise in fields such as systems biology, bioinformatics, computer sciences, medicine or biochemistry.

The application of computer-assisted approaches to solving clinical problems took center stage in each class. Therapeutic approaches in personalized medicine were introduced and their various characteristics and potential discussed. In addition to the theoretical and scientific features, the clinical aspect of these approaches was always addressed, including drug development, the

promising use of microbiomes and the application of large data sets to techniques such as next generation sequencing (NGS). This high-performance method is used to read sequence information on the DNA strand.

In future, these innovations should help investigate and develop therapies for complex diseases such as cancer and neurological disorders.

### From the battle against cancer to data management

As an example, Olivier Michielin, a professor at the University of Lausanne, introduced the participants to the promising uses of NGS in oncology. He is convinced that the knowledge gained in this area will lead to innovative approaches in the development of drugs, capable, for instance, of inhibiting tumor development at the gene level; improvements which will be of great help to patients in the long run.

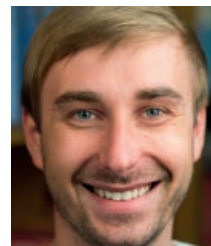
On the other hand, Timothy W. Clark, a professor at Harvard Medical School, addressed a very different topic in his presentation: the reproducibility and the reliability of scientific data. The computer scientist took a closer look at the problems encoun-



*“Getting in touch with people from different disciplines broadens and complements your*

*perspective on your own research.”*

Jasmin Walter, Veterinary Medicine, University of Zurich



*“It was great to meet peers and senior scientists, and to communicate with them in both formal and informal*

*environments at the same event.”*

Stepan Tymoshenko, Industrial Biotechnology, EPF Lausanne



*“I liked the event location and the interesting talks and discussions about challenges in medical research.”*

Nadezda Kryuchkova, Evolutionary Bioinformatics, University of Lausanne



*“I liked the diversity of scientific talks and speakers from around the world.”*

Atul Sethi, Computational Biology and Bioinformatics, ETH Zurich

tered in scientific communication. Clark highlighted the important fact that not all data published in scientific journals is available online. In his talk, he also critically analyzed a number of propositions for the implementation of “next-generation” scientific publication concepts.

Norbert Graf, chair of the pediatric oncology clinic at Saarland University, advocated the need for a consensus among internationally renowned data management experts before moving away from the present medical practice in the direction of personalized medicine. According to him, only thereafter is it possible to create an innovative, service-oriented IT infrastructure. He believes that standardization and data bank sharing, as well as data protection and consolidation of patients’ rights, are issues that still need to be addressed.

Graf was particularly impressed by the students’ contributions to the lively discussion on the topic. “This combined with the very friendly atmosphere, the hospitality and beautiful surroundings made this year’s summer school the best one I have ever attended.”