

## **SAB report 2017 (excluding the evaluations of individual Group Leaders)**

The FIMM SAB meeting took place on 17-18 May 2017 in Helsinki. The program of the meeting is enclosed. Present at the meeting were the following SAB members:

- Professor Kai Simons, Max-Planck-Institute of Molecular Cell Biology and Genetics, Germany (Chair)
- Professor Cornelia van Duijn, Erasmus University Medical School, the Netherlands
- Professor Carl-Henrik Heldin, Ludwig Institute for Cancer Research, Uppsala University, Sweden
- Professor Edison Liu, The Jackson Laboratory, USA
- Professor Nadia Rosenthal, The Jackson Laboratory, USA

On the first day of the visit we had a meeting with Tomi Mäkelä, the Director of HiLIFE. We heard an overview of FIMM and future plans from Jaakko Kaprio and about the Technology Center from Janna Saarela. Then we had presentations of the three grand challenge programs. The SAB listened to presentations from the FIMM group leaders who were up for evaluation. We had a meeting with the Vice Rector for Research and the Chair of the HiLIFE board. The following day the SAB had more presentations from group leaders as well as sessions with the PhD students, postdoctoral researchers and Senior Researchers.

### **Overview of FIMM**

FIMM has in the 2 years since our visit in 2015 continued its upward progress and maintained its leading position in research. The SAB was impressed by the advances that have been made. The research in all three grand challenge areas has been most successful. First of all, the Finnish Genomes Empowering Personalized and Predictive Health has now moved into the health sector. A practical, web-based tool for doctors and individuals has been built, Kardiokompassi, which combines polygenic risk scores with traditional risk factors to predict coronary heart disease. This will be an excellent demonstration of how basic research can be turned into a public health tool.

In the Individualized Systems Medicine in Cancer project impressive advances have been made. 136 acute leukemia patients have been subjected to a comprehensive ex vivo drug testing regime. Clinically meaningful responses were observed in 40% of the AML patients. FIMM is now a leader world-wide in this emerging field.

Also the Digital Diagnostics for Precision Medicine project has been successful. The platforms – “Web microscope” and “Prognomics” serve both the national and the international research oncology community. This technology is now starting to be accepted by professional pathologists as a valuable aid in day to day pathological diagnostics. This is an enormous step forward, achieved with modest resources.

These successes are reflected by a steadily increasing publication output as well as by increasing citations, demonstrating that FIMM research is receiving serious attention. Also the ranking of FIMM in the biomedical and health field is at the top (Leiden ranking). In only ten years FIMM has moved to the top globally in its field of research: a truly impressive achievement!

FIMM continues to attract serious external funding and has the highest share of third party funding for any unit at the University. This institution is a jewel in the University of Helsinki crown! Thus, FIMM deserves full and dedicated support for its activities.

## **HiLIFE and FIMM**

The University of Helsinki has now established the Helsinki Institute of Life Science (HiLIFE). The SAB welcomes this move because it provides solutions to several problems that FIMM has been trying to solve. First of all, the SAB acknowledges its recommendations to grant FIMM continued autonomy within the HiLIFE organization. Only if given an appropriate independence will FIMM be able to fulfill its mission as an EMBL-node and to attract international top scientists. Secondly, the integration of the research infrastructure under the umbrella of HiLIFE can only be welcomed. The core facilities are being evaluated by an external panel and we can only hope that their recommendation will strengthen the performance of HiLIFE infrastructure. FIMM has developed very efficient core facilities, which have been essential for the success of FIMM.

The SAB wants to stress that experience from top institutions has demonstrated that the efficiency of such centralized facilities depends on having leaders who are not research PIs but run the facility professionally without being expected to have an independent research program of their own. Also pooling of equipment under HiLIFE umbrella will have the advantage that appreciable depreciation comes into play and will make it possible to renew and buy equipment when needed. The sequencing instrumentation at FIMM is three generations behind and needs to be replaced. This will save considerable sums because of the increased efficiency of present day DNA sequencers. The HiLIFE core facilities will need a dedicated Director to coordinate and manage this important resource.

It will be important to come up with guidelines for the career structure at FIMM and HiLIFE. The best would be to follow the EMBL scheme. For most PIs, the maximum is 9 years (5+4) and then the PI leaves for another job. This turning-over organization is essential for continued success. Only PIs with considerable research potential should be recruited. The SAB had the impression that young PIs are now being somewhat neglected and may not have had the mentoring that they need to be able to secure good positions when leaving FIMM. The program will decline in attractiveness internationally if PIs are not able to secure positions after their nine years. A mentor system should be introduced.

The problems of the Senior Scientists that the SAB brought up in its 2015 report has not been solved. We have to state the problem: it is clear this talented group has problems to move their careers inside/outside FIMM> FIMM cannot afford to lose this extremely valuable support on which its successful activities depend. This problem is acknowledged world-wide (see recent article by Steve Hyman, Nature 2017;545:283-284) and needs dedicated action. Administrative avenues need to be created that allow FIMM to select Senior Scientists for tenured positions. What has changed is that research today cannot be run only by rotating PhD students and postdocs. FIMM needs continuity for staff that has proven its worth. HiLIFE needs a procedure for evaluating Senior Scientists for tenure.

## **PhD students and postdocs**

The SAB had a very positive impression from their meeting with the PhD students and the postdocs. The Senior Researcher Gretchen Repasky is the Leader of the research training as well as the postdoctoral program. She is doing an outstanding job. All the SAB members were enthusiastic about her achievements. One issue that we have mentioned in every SAB report is the requirement for 3-4 accepted papers for the PhD thesis. This is a most ill-advised rule and there is no reason to punish the PhD students by such a requirement. This rule is a hindrance for collaborative work and leads to weak papers with low impact. This has been criticized for years without remedy. HiLIFE should strive to replace this rule with one that follows best practice internationally.

The postdocs are very happy with their FIMMPod program and with the working atmosphere at FIMM. The environment is characterized by an unusual openness that leads to productive collaborations and a happy togetherness. What more could one wish for?

### **The search for a new Director of FIMM**

Jaakko Kaprio has during his two years at FIMM Director continued the inspired leadership that Olli Kallioniemi became known for, and has contributed significantly with his own brand of leadership. But his tenure as Director will also come to an end and FIMM needs to find a new Director. Jaakko Kaprio could then continue as a groupleader at FIMM. Considering the uncertainty brought about by the HiLIFE re-organization and the unclear budget situation, it may not be easy to attract external candidates of the right caliber and competence. The SAB stresses that the future of FIMM is dependent on this search. FIMM has a mission through its three grand challenge programs and these have to be successfully continued to reap the full harvest of this investment.

The SAB also discussed the leadership of the Individualized Systems Medicine in Cancer program. Olli Kallioniemi is still leading this project although he obviously has enough on his plate with the Directorship of SciLifeLab in Stockholm-Uppsala and with his own group at FIMM and the SciLifeLab. The SAB recommends that it is time to relieve Olli of the grand challenge leadership and that FIMM should find an internal successor. Olli Kallioniemi naturally continues to manage his own group at FIMM as planned. In this way he will be able to continue to provide valuable advice and to link FIMM and SciLifeLab closer together.

For the Scientific Advisory Board



Kai Simons

chair