

BioCity Turku 2030 vision group– White paper for the BioCity
SAB meeting

The vision team consisting of representatives of the younger generation of researchers in the BioCity Turku community was asked to think about the present prevailing practices in the BioCity Turku organization and the bioscience area of both universities in Turku and how they could be changed to better serve the community. Professor Johanna Ivaska was appointed as the chair of the committee and all the current research programmes were asked to appoint a suitable candidate to the vision team. The vision team met four times during May 2019 – January 2020 and actively discussed in a private discussion forum on other times.

Members of the vision team:

Laura Elo, Professor, Faculty of Medicine/Research Director, Turku Bioscience Centre, UTU

Maria Haanpää, MD PhD Specialist Physician in Medical Genetics, Turku University Hospital

Tan Phat Huynh, tenure track PI, Molecular Process- and Material Technology, ÅA

Leo Lahti, Academy Research Fellow/Associate Professor, Language and Speech Technology, UTU

Anssi Malinen, Academy Research Fellow, Biochemistry, UTU

Pieta Mattila, Academy Research Fellow (former collegium researcher), Institute of Biomedicine, UTU

Annika Meinander, Lecturer in Cell Biology, ÅA

Maria Sundvall, Clinical Lecturer, Institute of Biomedicine/ MD PhD; Specialist Physician in Clinical Oncology. UTU and Turku University Hospital

Pekka Taimen, MD, PhD Assistant Professor (tenure track), Institute of Biomedicine, UTU

Manu Tamminen, University Lecturer, Physiology and Genetics, UTU, academic entrepreneur

Hongbo Zhang, Academy Researcher, Tenure Track Professor, Drug Development and Diagnostics, ÅA

Johanna Ivaska (Chair), Professor, Department of Biochemistry, Turku Bioscience Centre
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Terhi Jokilehto (secretary), BioCity Turku coordinator

Turku, March 30th 2020

On behalf of the vision team,



Professor Johanna Ivaska

Chair of the committee

BioCity Turku 2030 vision

The vision group concludes that all the activities of BioCity Turku should promote the quality of science. The vision of BioCity Turku 2030 should be aiming at scientific excellence through investing in four main aims.

- 1) Academic career paths – recruiting, supporting and retaining the best
- 2) Promoting the quality of science in the doctoral programs
- 3) Renewing the research programs to promote collaboration and new leadership
- 4) Promoting academic entrepreneurship

BioCity Turku 2030 value

Develop BioCity as an entity that people associate with top science and are proud of being a part of.

BioCity Turku 2030 involvement

BioCity Turku is a large life science research community that has the potential to become an internationally recognized research organization. This should be recognized by University of Turku and Åbo Akademi University, and strategic investments should be focused on profiling and developing BioCity Turku further.

BioCity Turku 2030 the challenge

Currently, the science and the funding within BioCity Turku are too fragmented and lack clear structure and transparent visibility. This results in an unsatisfactory use of the limited resources and lack of impact, and should be resolved by restructuring and redirecting resources to a unifying single entity – BioCity Turku.

Objectives of the vision

1) Academic career paths – recruiting, supporting and retaining the best

- Currently there is a lack of an attractive, clear and transparent academic track for early career scientists. Current “tenure tracks” are in small silos within the different faculties and they are not clearly linked with the Collegium positions, or other major funding or fellowships obtained. As a result, there is no visible, attractive mechanism to recruit the best researchers to Turku.
- We need significant restructuring and investment to develop something similar to HiLIFE that has become a strong attractive entity, capable of competing for the best recruits internationally. BioCity Turku should review why this has not been achieved here and make a development plan to enable fulfillment of this goal.
- High quality translational biomedical research should be supported by encouraging talented young physician-scientists and clinicians to join BioCity community as independent group leaders and by providing opportunities for clinicians to dedicate time to research. BioCity Turku should bridge the gap between BioCity and Turku University Hospital by supporting long term collaboration between clinicians and fundamental science on campus.

2) Promoting the quality of science in the doctoral programs

- The scientific quality and training of the Doctoral Programs must be improved. Currently, there are many independent small programs, all acting individually with limited resources, often resulting in suboptimal quality of the research training.
- The two universities and the different faculties at the universities have different rules and regulation for the contents of a PhD. They also have their own funding principles for salaried positions and grants. However, the PhD education to become a scientist, is common for all our graduate students, warranting campus level training.
- The vision should be to promote the quality and ambition of the doctoral programs. The objective should be the establishment of a high profile, high quality and competitive life science doctoral program (or tightly coordinated umbrella of programs) to recruit the best and to provide the best possible training.
- Currently the doctoral programs are all organizing their own events, often suffering from poor attendance, low profile and quality. These should be replaced by a joint annual main event gathering all the graduate students and their supervisors aiming to generate a must-go flagship event. BioCity Turku should serve as an umbrella for doctoral programs to achieve this.

3) Renewing the research programs to promote collaboration and new leadership

- The benefit of the research programs is that they bring together research groups from different departments and faculties. However, the current 7 research programs have been predominantly the same for more than a decade and connections between them are limited. The programs should be renewed in the next call and their leadership should involve early career scientists.
- Collaboration between the research programs should be encouraged through investment in joint bottom-up research projects with seed funding schemes.
- The profile of the Frontiers of Science Seminars (FOS) should be further increased to ensure that our campus has a high quality seminar series by increasing the involvement of the research programs in hosting top international speakers.

4) Promoting societal impact and academic entrepreneurship

- Could BioCity Turku become a hub for combining academic research with companies?
- Develop a path to academic entrepreneurship through concrete structured support functions.
- Support science outreach activities and open sharing of science among scientist.

Implementation of the vision

1) Academic career paths – recruiting, supporting and retaining the best

- Copy the best parts of HiLIFE – restructure and redirect resources under one organizational structure: Branding BioCity Turku, fellowship systems (BioCity fellowships), funding internal grants for science collaboration (BioCity Blues skies initiative), integrate the collegium and tenure-track positions.
- Tenure-track system should be predictable and truly based on merit. Currently, there seems to be a huge disparity between units on what level (=career stage and proved success) the person can be accepted to tenure-track and how they are evaluated. Clear and visible criteria must be established.
- Establish a BioCity-wide Academy of Finland fellow support “top up”. This would allow young PIs who have obtained competitive AoF funding to achieve the best possible outcome of the prestigious fellowship. This could be e.g. paid graduate school positions, providing some basic core funding and implementing the new AoF 30% co-

funding rule (30% of the AoF fellow's salary can come from the host and this money can be used to fund the proposed research).

- Support leadership and define criteria that departments/faculties have to fulfill in terms of research conditions and support to ensure good starting conditions for new PIs. It should be first priority to make sure the new researchers "land running".
- The tenure-track positions should be transferrable between departments to enable creation of hubs of critical mass and close proximity of scientist with shared interest.
- The application processes for open tenure-track positions should be made high profile (BioCity-wide similar to the now prestigious HiLIFE positions in Helsinki) and the evaluation and decision making should be streamlined to achieve timely decisions. Now the decisions can take more than a year in the current faculty-based fragmented system.
- Fund BioCity fellowships for shared PhD/Postdoc projects between junior and senior PIs, between universities and disciplines, between fundamental scientists and clinicians to diverse collaboration.
- BioCity could take a position in its commitment to open science, and implement means to take this into account in all evaluations (where applicable). Including open data, open source, open access, participation in national networks, organizing events.

2) Promoting the quality of science in the doctoral programs

- BioCity sets up a coordinating BioCity doctoral program umbrella (a BioCity-wide single graduate school would be desirable but maybe politically challenging) that is highly engaging, responsible for organizing BioCity-wide doctoral training events, meetings, mentoring and a flag ship annual joint graduate school event.
- The quality of student supervision can be very variable in the current system and a joint doctoral training engaging more students could facilitate peer-support and provide high-quality training more broadly.

3) Renewing the research programs to promote collaboration and new leadership

- If the research program concept is evaluated to be beneficial and is continued, the research programs should be re-defined through a transparent bottom-up approach where researcher-base can suggest program themes and the most popular are supported. The impact of the research programs should be increased through a substantial increase in funding.
- With the current research-program based organization, the scientists' engagement in building the Frontiers of Science (FOS) seminar series can be quite low and very variable between programs distributed. This seriously compromises the profile of our top seminar series.
- As an attractive alternative, we should consider BioCity Turku being one research program, with jointly organized PI lunches, FoS seminar series and topical mini-symposia several times a year (where campus scientists could suggest an exciting

theme, invite collaborators, rising stars and other high-level speakers who are not yet “FOS caliber”) in addition to the big annual BioCity symposium.

- Provide BioCity-wide grants with an easy application procedure for small-scale travel, workshop organization, collaboration to support PhD students/postdocs and encourage younger scientists to take up organization of scientific exciting events. Currently these funds are fragmented within the research programs and could be more impactful if made available broadly based on open applications.
- Encourage optimal use of resources and increased collaboration in BioCity:
 - A culture that strongly favors the sharing of research infrastructure/know-how should be promoted. All researchers should be encouraged to provide information and open-access on instrumentation and techniques. Currently, this is predominantly implemented only by Turku Bioscience. We will never be able to compete directly resource-wise with the top institutes so we must utilize team-play factors to compensate. It is also important to avoid unnecessary duplicate investments.
 - The new technical faculty/education programs expansion that is currently taking place in University of Turku (UTU) is a golden opportunity to add more technical approaches to the research base of the BioCity community. This could e.g. be achieved by engagement of professorships for developing scientific instrumentation, measurement or imaging technology; medical engineering geared towards our imaging (diagnostic) strong hold to develop custom made instruments with Åbo Akademi University (ÅAU) material sciences.

4) Promoting societal impact and academic entrepreneurship

- Support outreach and contacts with the society (citizen science); initiate interactions with public institutions and non-governmental organizations.
- Aim at organizing a major public outreach event every second year. Do this jointly with both UTU/ÅAU engaged.
- BioCity could reach out to local Biotech companies and discuss with them whether they are interested in joining BioCity. For example, companies could get info and access of our events and training opportunities. A company representation in various BioCity boards would be good. Involve companies in defining what form the BioCity-Companies interaction/collaboration should take.
- Create a platform to link interests of academic researchers and companies towards joint research projects that can be funded by e.g. Business Finland.
- Legal support needs to be developed – joining know-how to support and find ways to take things forward, possibly jointly by the two universities?
- Set-up a BioCity PoC funding scheme to enable scientist to get funding to generate much needed proof-of-concept data to attract company interest. Use the HiLIFE as an example. It provides Proof of Concept Grants (HiPoC) of ~30-40 k€ “to accelerate

utilization and commercialization of research findings and development of novel technologies”

- Reach out to university alumni to build business contacts in addition to our academic contacts.
- Expand the corporate corner concept to towards investor meetings.
- BioCity/Universities should promote start-up culture among students, PhD students and staff. Take full advantage of the newly established “start-up garage” (koneteknologiakeskus) to set-up a place with basic electronics tools, AutoCAD type computer design programs, 3D printer etc. where students/researchers develop demo devices and build/use homemade laboratory instruments. If possible, establish links to the new engineering curriculum.