

Mid-term evaluation of The UCPH 2016 Excellence Programme for Interdisciplinary Research

Center for Synthetic Biology "bioSYNergy"

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Mid-term evaluation conducted in May 2016, Copenhagen, by:

Professor Klaus Bock (Chair)

Professor John Gardner

Professor Peter C. Tyler

Professor Wim H.M. Saris

Professor Yasemin Soysal

Report crafted by:

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1. Research excellence and international impact of the project

Judging from the project's achievements so far, the level of scientific excellence is impressive. The project has generated studies of wide scientific and societal relevance. Publications include front pages in the world's leading journals, including Nature and Science. Several other groups world-wide are doing related research but the panel finds that bioSYNergy has a unique research profile with a unique international visibility. The panel finds that the citations performance of the "core" WPs are internationally excellent. It is noticeable that the project has established valuable and durable relations to Oxford University and Cambridge University as well as co-organized meetings with UC Berkeley. The ability to publish and attract external funding and engage in collaborations with international research groups is impressive.

2. Research based educational activities and researcher training

The project's ability to produce high quality educational contributions and engage with PhD-students is good. A summer course as well as a PhD program in biotech law has been developed including participation by practitioners in the field. Project participants has been instrumental in teaching entrepreneurship at Copenhagen Business School, making business plans for synthetic biology solutions and exposing early career students to business environments and end user-perspectives. The distribution of early-career researchers across the WPs is unbalanced with 30 PhDs students in synthetic biology, one PhD student in law, and 2 PhDs in communication and ethics. However, it was never an intention in bioSYNergy to reach equal numbers of PhD's in all areas, neither did the team apply for this. The panel notes, that over the years, the HUM/JUR group has been growing from one philosopher (in UNIK) to now having a well-functioning HUM/JUR-group of six-seven researchers.

3. Interdisciplinary collaboration, organisation and governance

The project's organization and governance has been visible and well-executed. A well-running secretariat has been instrumental in the success of the project. There is a proactive and collective communication of news both internationally and to external stakeholders working across different media and platforms, including traditional and new media, art installations, documentary films, social media etc. The project has had a strong presence in Danish press (PhD Cup etc.). The organization of project meetings and conferences has been excellent. The panel finds that a strong emphasis on international and global presence has helped to elevate the project to international success.

Some participating research fields seem less integrated into the project than others: law is very instrumental to the core project and ethics has gained increasingly significance. The contribution by the communications researchers have emerged somewhat in parallel with the discoveries by the science/health scientists.

That being said, the panel acknowledges that the research generated by the humanities researchers has been a stepping stone in the joint efforts to develop the bioSYnergy communication strategy. The ESOF-installation as well as continued efforts in establishing desired dialogues through the art-science-citizens interface as mediated by documentary films, collaboration with artists, performers, documentary film makers etc. is an essential part of the center-communication strategy.

4. Prospects for external funding

The project's strategy for attracting prospective external funding is excellent. The funding strategy is comprehensive, elaborated and successful. Several public and private foundations have been targeted with spin-out projects from BioSYnergy, including Novo Nordisk Foundation, Lundbeck Foundation, Innovation Fund Denmark etc. All prospective projects involve different partners from the ethics, biophysics, law and communication groups. The panel finds that the synergy profile of the project is a valuable asset when applying for future funding. Also, the overarching interdisciplinary integration of the center is a strength when applying for funding, while also a challenge in terms of reviewing procedures and foundational mandates.

5. External collaboration, innovation and impact

The project's level of external collaboration and impact is noticeable. With six patents and 12 licenses, there is potential for future income-generating activities and extensive public-private collaboration at many different levels and targeting several different industries. The panel finds that the project has a great potential for scalability and industrialization of research. It is noticeable that the project has been successful in setting up and nurturing collaborative relations across different networks ranging from the business sector, the public sector, ethical committees, international universities, artists, documentaries, makerspaces, citizen scientists etc.

6. Conclusion and future recommendations

Summarizing the overall assessment of the project's scientific excellence based on interdisciplinary collaboration, the panel finds that crucial parts of the projects could not have been accomplished without UCPH 2016 Funds. Also there is great potential for enrichment and exploitation of future ESS investments. The number of PhD students and postdocs in the law/communications/ethics areas could be increased. In sum, the panel finds that the project has generated an immense amount of collaboration that will be valuable to the university in the future.

Final assessment: The project is internationally excellent. There is evidence of world-leading excellence in several parts of the project. The interdisciplinary collaboration looks promising but is not yet fully developed leaving some themes underexplored.

7. Appendix: Members of the Panel

Professor Klaus Bock (Chair)

Vice President of the European Research Council

Research interests: Organic Chemistry

Professor John Gardner

Oxford University

Research interests: Law and philosophy

Professor Peter C. Tyler

University of Wellington

Research interests: Organic Chemistry

Professor Wim H.M. Saris

Maastricht University

Research interests: Human Nutrition

Professor Yasemin Soysal

University of Essex

Research interests: Sociology

Rapporteur

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