CCBIO Opinion:
Text: Yves Aubert, CCBIO Research Advisor

Integration of Innovation

Importance of impact, innovation, and IPR

Until recently, a typical research project would end with the researcher writing up project results and publishing the findings in a peer-reviewed journal. At CCBIO, we understand that the creation and publication of project results are important milestones, but not the end of the journey. We have anticipated recent research and innovation policy changes at the national and European levels that push for academic research to create greater societal and commercial value. Such demands also hold true for the Norwegian Centers of Excellence, despite their strong focus on research.

The key word here – used by both the Research Council of Norway (RCN) and by the European Commission – is the generation of impact. Indeed, in 2019, scientific and societal impact of proposed research projects will for the first time be evaluated in all project proposals submitted to the RCN, regardless of program or call type. The generation of impact implies that research results need to be communicated to the public, systematically disseminated to all relevant end-users, and made available to be used by these end-user groups.

Innovation is characterized by a similar principle. Innovation is not merely an invention, or the creation of something novel that goes beyond the state-of-the-art, but is rather an invention that

is linked to an active process that ultimately turns the invention into a novel product or service which is then made available to the end-users. A typical, but not only, example for such a process is commercialization.

Successful innovation often depends on the securing of intellectual property rights (IPR), and the knowledge that the academic research, including potential future commercial exploitation of the research results, can be performed without infringing the IPR of someone else (freedom to operate). It is crucial that all researchers are informed about the rules surrounding IPR, such as the rule that a patent can only be granted for novel products, processes or methods if they have not yet entered the public domain. Any scientific publication, or presentation at a conference, means that the presented information has entered the public domain and is thereby no longer eligible for IPR protection. Ergo, patent filing prior to publication is essential, at least in Europe (there are differences to this rule in e.g. the USA), but often neglected by academia. The reality is that without IPR secured, commercialization in the biomedical field becomes nearly impossible, meaning that the academic research output will ultimately fail to reach the intended end-users (e.g., patients and clinicians) in significant numbers, outside the clinical trial setting.

How CCBIO creates impact: ongoing activities

Research performed at CCBIO carries much relevance to millions of patients suffering from different forms of cancer, to clinicians that are waiting for better diagnostic tools and better tailored treatment options to offer to their patients, to the family members that are so greatly affected by the ailment of their loved ones, and not least to the nations' health economies which are burdened by the loss of productivity and exorbitant treatment costs. The potential for societal impact of CCBIO is thus immense.

As a Center of Excellence, CCBIO is predestined to impact its core academic fields (tumor microenvironment, cancer biomarkers) through high impact publications, quality researcher education, and the dissemination and communication of new knowledge through public and academic channels.

In the years past, CCBIO has successfully managed to produce scientific output with significant impact on its scientific environment, and made it available through textbooks (Akslen & Watnick, 2017; Blanchard & Strand, 2017) and peer-reviewed publications. We have continued these activities in 2018 (see list of publications) and have been in an active dialogue with the interested public at different venues, including appearances at a public panel discussion on the "future of cancer treatment" (Litteraturhuset Bergen), contributions to a feature program on the future of the healthcare system in Norway by the national broadcasting station NRK, and through the CCBIO seminar series.

A core strength of CCBIO, recognized by both the mid-term evaluation panel and the center's international scientific advisory board, has been the center's ability to rapidly translate findings from basic research to clinical application through the initiation of multi-center clinical trials, implemented in collaboration with Haukeland University Hospital, and through commercial R&D efforts at the CCBIO partner companies with links to CCBIO PIs, BerGenBio (PI Lorens), Alden Cancer Therapy II (PIs Kalland and Gjertsen), and KinN Therapeutics (PIs Gjertsen and McCormack).

From its conception, CCBIO has put strong emphasis on ethical, economic and societal aspects of cancer research. CCBIO has reaffirmed its dedication to responsible research and innovation and has appointed Roger Strand as main PI and leader of a task group that also include Associate Investigators John Cairns and Ole Frithjof Norheim, to investigate the developments and expectations of personalized cancer medicine from the perspectives of political, ethical and societal impacts.

How CCBIO creates impact: future activities

We will continue with our core task of producing excellent research, and we will renew our effort to ensure that the potential scientific and societal impacts derived from our research will be maximized. To achieve this goal, we set a number of activities into motion:

A) Better education of scientific personnel on IPR. We recognize that the understanding of and literacy in IP-related matters is crucial to make new medical discoveries available to cancer patients through the process of commercialization. In January 2019, in partnership with the Medical Faculty of the University of Bergen, VIS (formerly BTO, the Bergen Technology Transfer Office), and Digital Life Norway, CCBIO will contribute towards a one-day and highly visible IPR seminar. We will continue this activity and reach out to researchers to provide relevant information on IP and IPR.

B) Establish an internal IP management and innovation plan. An IP management and innovation plan will not only outline background and foreground IP of collaborative research projects between internal CCBIO researchers, and with external project partners from academia and industry, but also allow to better track the innovation process of CCBIO projects and determine potential gaps in the process. This in turn will allow for timely actions to be taken to assure that the research results will deliver real-life solutions for patients and clinicians.

C) Integration of academic innovation with industry. We understand that the development of novel cancer biomarkers will ultimately depend on thriving partnerships with industrial partners. For this purpose, CCBIO will actively continue to reach out to potential industry partners to establish an even more efficient R&D process from biomarker discovery to clinically available diagnostic, prognostic or predictive tools. ••