**Education and Outreach – Examples from DanStem**

**DanStem organized courses:** DanStem group leaders organize and co-organize a variety of undergraduate and PhD courses

- Two stem cell-themed PhD courses are offered annually:
  - On Stem Cell Research and Critical Thinking (24 participants)
  - A rotating PhD course with either experimental or theoretical focus on other stem cell-related topics such as developmental biology, regenerative medicine and/or human disease (app. 20 participants).

- Together with the NNF Center cluster, DanStem co-organizes the annual PhD course: Introduction to Molecular Bioscience (about 30 participants).

- A course with the same title ‘Introduction to molecular Bioscience’ is offered to MSc students and consists of lectures and individual tutorials over a period of 10 weeks (app. 20 participants).

- In the area of hematology the DanStem group leaders focussing on clinical translation in blood cancer are involved in undergraduate training for medical students by organizing a Medical Specialty focused course in Internal Medicine: Hematology; twice a year (Kirsten Grønbæk) and a PhD course on Hallmarks of Cancer (Theilgaard-Mönch).

- Kim Jensen, who is the head of the MoMed graduate school, is course director for several courses each year regarding project planning in different phases of the PhD training.

- DanStem PhD students co-organize a popular annual PhD course: For the Students by the Students, for which they arrange a varied program with lectures, workshops, poster presentations and networking.

**Other teaching activities:** In addition to organizing courses, DanStem staff contributes to about 10 local and national undergraduate and PhD courses and teaches annually at international courses and summer schools, e.g. co-organize the Zebrafish module at the prestigious Embryology course in Woods Hole, USA (Elke Ober); co-organize and lecture at the European Summer School on Stem Cell Biology and Regenerative Medicine (EMBO & FEBS lecture course), Hydra, Greece and offer courses at conferences e.g. a Flow cytometry course in Prague (2018).

**Workshops:** About six workshops on different technologies are offered each year, usually open to all students at the Faculty or the MoMed PhD school with topics such as flow cytometry, data visualization, programming, statistics, and image and data processing.

**Conferences:** DanStem has organized four Copenhagen BioScience Conferences together with the Novo Nordisk Foundation. Attracting leaders in the field, The Stem Cell Niche conferences are hubs of networking and scientific discussion and provide an environment and opportunity for close-knit interactions over several days.

DanStem scientists co-organize events with the NNF Center Cluster. Examples include a scientific meeting on aging research co-organized with the students of the CPH Bioscience PhD program (2018) a workshop on CRISPR technology (2018) and a conference on organoid research (2019).
Nationally, DanStem staff regularly present at the Annual Meeting of the Danish Stem Cell Society and actively take part in shaping the educational activities of the Danish Diabetes Academy, e.g., serving on the Committee for Education. On the Nordic level, the Center co-organized the 2017 joint conference with the Scandinavian Stem Cell and Developmental Biology Societies (SSCDB, Swedish, Norwegian, and Finish) and British Society for Developmental Biology (SSCDB/BSDB joint meeting).

DanStem Seminar Series and Stem Cell Club: DanStem hosts more than 20 seminars with international expert speakers each year. The seminars are open to all who are interested in the topic.

In 2015, DanStem established the “Copenhagen Stem Cell and Differentiation Club” as a quarterly scientific forum to exchange interesting research results to bring together the research community in the Øresund region.

Outreach activities:
Engagement of educators and school children
The Center’s largest outreach project is the annual Stem Cell Day for school students which is organized in the framework of the European Unistem Day since 2015. The Danish Stem Cell Day event for about 100-150 high school students from different schools each year. The students have the opportunity to hear lectures, and do hands-on activities on topics of stem cells, bioinformatics, embryonic development or cancer.

An annual half-day event for approximately 50-60 students from all over Denmark, who are involved in the Science Talent Academy, a 2-year science study program for talented students attending upper-secondary schools in Denmark. The visit also consists of hands-on activities, lectures, and direct interaction tailored to this target group.

DanStem aims to engage both teachers and school students. To reach out to educational multipliers, the Center organizes workshops for teachers who would like to develop tools for teaching of Stem Cell Research. The teachers themselves get an opportunity for professional development and a platform to communicate with scientists. These workshops previously took place in the framework of the annual Inspiration Day for teachers at the faculty of Science and in the future will be organized together with BRIC.

Besides larger events, DanStem hosts about two visits from national and international students and high school student group per year e.g. in 2018 from Horsens, Denmark and 2019 from Liege in Belgium. In addition, the Center advises on about 3-4 individual student projects for different purposes such as the Danish study direction projects (SRP) for high school students or the UCPH forskerspire competition.

Outreach to the general public
The Center partners with diverse national and international public engagement initiatives to spread the organizational effort and enhance outcomes. Examples include annually about 6 lectures at the Danish Researcher Day (Science is visiting), Danish Natural Science Festival (Order a scientist), and Lundbeck Lectures and about 3 events for lectures for laymen in local bars and pubs.
For Culture Night, DanStem participates at the Science Fair at the Faculty. The fair draws about 4000–7000 visitors to Panum each October. The audience includes adults and families.

Engagement of other stakeholders
DanStem offers 2-3 lectures and visits to patient groups and health care providers, especially groups with interest in Parkinson’s disease and diabetes. In these settings, the focus is to discuss the potential of stem cells for regenerative medicine and disease treatment and to share a realistic view about possible availability of treatments. In 2017 and 2018, DanStem/BRIC scientist Kristian Helin reached out to decision makers and lobbyists when he participated in debates on health and science politics and innovation, organized by UCPH at the Danish politics and democracy festival “Folkemødet,” which attracts more than 100,000 visitors per year and several hundred for each debate.

Engagement via social media
The Center uses several channels for digital engagement with the public. Twitter is the main channel for disseminating news and events. Using this medium, DanStem reaches a wide range of audiences and has garnered over 1100 followers to date. In addition, three DanStem GLs are highly active on Twitter in a professional capacity, with over 3000 followers in total.

Press releases
In the last 5 years, DanStem scientists were mentioned in approximately 30–40 press articles and press releases, with usually 2–3 multimedia appearances per year. Press releases and news stories are prepared internally at DanStem, with external writers, and in collaboration with SUND-KOM.

Educational videos
At the end of 2018, DanStem had produced 7 professional education movies and 10 short explanatory videos, e.g. on the birth of beta cells (12,500 views) and Where is the Pancreas (8,500 views on YouTube). The newest video, produced in 2018, is called ‘Beta Cell production’ and is currently being promoted.

Art contest
A recent highlight at the interface of DanStem’s scientific dissemination and external communication was the popular 2018 Cell-o-Fun: Art Through Science competition. Conceived and run by DanStem PhD students and postdocs, Cell-o-Fun was a project where scientific images were treated as objects of art. Overall, 33 images were submitted to the competition, voted on by the larger DanStem community, and three winning images were selected. Winning images were displayed in the DanStem common area as printed works, distributed as 2019 calendars, and used in a variety of communication materials.

Newsletter
DanStem started publishing external newsletter (“The DanStem Newsletter”) in 2014 in an effort to engage a variety of stakeholders and strengthen the DanStem brand and visibility. To date, 14 issues have been published. The newsletter, with an open subscription, is sent to over 400 recipients, including a variety of stakeholders such as funders, advisory groups, and collaborators. In 2018, DanStem established an Editorial Board of PhD students and postdocs, to work together with the Communication Coordinator on newsletter content.