

Media Release, November 4, 2020

Research Award for project on Prostate cancer

This year's Johanna Dürmüller-Bol DBMR Research Award of the Department for BioMedical Research (DBMR) of the University of Bern goes to Joanna Triscott. It will be awarded today on the "Day of BioMedical Research". Joanna Triscott receives the award, which is endowed with CHF 30,000, for her research on metabolic vulnerabilities in advanced prostate cancer.

An estimated 1 in 7 men in Europe will develop prostate cancer by the age of 60, with many worsening to untreatable disease. Unlike other cancer types, prostate cancer is heavily influenced by androgen hormone signaling. Androgens activate a molecule called Androgen Receptor (AR) that strongly influence the metabolic state of prostate cells to favour cellular growth and survival.

Standard treatment strategies for prostate cancer involve blocking AR using multiple approaches, including hormone reducing surgery and AR targeting drugs. While these approaches have improved the clinical treatment of prostate cancer, patients with hormone-insensitive disease may develop resistance to these therapies. "A need exists to understand better the mechanisms that control prostate cells' transition from a hormone-driven to resistant disease", says Dr. Joanna Triscott of the Precision Oncology Group at the Department for BioMedical Research (DBMR), University of Bern and Inselspital, University Hospital Bern.

First project worldwide on specific protein in prostate cancer

Special traits of the prostate may offer an explanation into why this organ is prone to form cancer and how it develops resistance to therapies. With specialized functions for reproduction, the biology of the prostate is unique. For example, prostate cells are heavily dependent on the regulation of molecules called lipids, which are used for key metabolic processes. Lipids provide energy, cell structure and act as signaling molecules. Research studies have found that lipid production and consumption increase when prostate cancer develops. As well, molecules that regulate members of the phosphatidylinositol (PI) lipid family are frequently altered in genetic analysis of patient tumors. There is a direct connection between some PI pathways and AR; however, there is still a great deal not known about the larger family of PI enzymes.

"I suggests that it may be possible to find vulnerabilities in aggressive prostate cancer by better understanding cell metabolism", Triscott explains. Her research involves an investigation into a relatively unknown PI enzyme called PIP4K2. PIP4K2 is responsible for generating a PI called PIP2 in an alternative way. "We will use pre-clinical models to compare what happens when PIP4K2 is turned off in prostate cells", says Triscott.

This project is the first to investigate the role of PIP4K2 in prostate biology when androgen hormones are blocked. Triscott will use markers to image different cells in the prostate gland before and after hormone depletion. She will also implement state-of-the-art single cell sequencing technology to uncover how PIP4K2 may control metabolic stress when prostate cells no longer depend on AR. With her experiments, Triscott will test if a decrease of PIP4K2 using genetic tools will impact the growth of established prostate tumor models. Her ambitious project will test new biological models for the study of cancer metabolism and will establish the first understanding of its importance in the prostate. “I hope to provide valuable insights into a lesser-known family of molecules, laying the groundwork for their development as novel drug targets”, says Triscott.

This work stems from a larger study funded by the Swiss National Science Foundation (SNSF) under the supervision of Prof. Dr. Mark Rubin, and a Marie Skłodowska-Curie Actions (MSCA) fellowship of the EU Commission awarded to Triscott in 2018. Joanna Triscott also credits the support of her scientific network for the recognition of her work, including Dr. Brooke Emerling (Sanford Burnham Prebys, USA) and multiple collaborators at Weill Cornell Medicine (New York City, USA). The Bern Center for Precision Medicine (BCPM) of the University of Bern and Inselspital, University Hospital of Bern, is also important for Triscott's precision medicine approach.

Short biography of Joanna Triscott

Joanna Catherine Caprio Triscott (born 1988) studied molecular genetics at the University of Alberta (Canada). In 2015 she received her PhD in Experimental Medicine from the University of British Columbia (Canada). After her PhD she worked at the Englander Institute for Precision Medicine, Weill Cornell Medicine in New York in the research group of Mark Rubin. When Rubin moved to Bern, she accepted his invitation to join the Department for BioMedical Research (DBMR) in 2017, where she is now working in Rubin's Precision Oncology group. In 2018 Joanna Triscott was awarded a Marie Skłodowska-Curie Individual Fellowship by the EU Commission. She has received several awards and honors and is involved in various programs fostering young scientists. Her research focuses on a yet little-explored family of enzymes involved in a variety of key cellular functions in order to learn more about their function in the prostate and to enable new therapeutic approaches against prostate cancer.

https://www.dbmr.unibe.ch/research/research_groups/precision_oncology/index_eng.html

Dr. Joanna Triscott is available for further information or an interview. See the following page for contact details.

Day of BioMedical Research 2020

The DBMR provides the best possible conditions to the researchers of the Inselspital and of the Faculty of Medicine of the University of Bern. The annual “Day of BioMedical Research” has established itself as a forum for researchers to present their work and to get insights into the research projects of their colleagues. This event is open to the public and will be held online this year.

Day of BioMedical Research and Presentation of the Johanna Dürmüller-Bol DBMR Research Award 2020

Date: Wednesday, November 4, 2020

Time: 15.30-18.00 CET

[Zoom Link](#)

Meeting ID: 938 6538 9977

Passcode: 532617

Please see the program [here](#).

DBMR: Over 25 years of biomedical research in Bern

The Department for BioMedical Research (DBMR) of the [Faculty of Medicine of the University of Bern](#), led by [Prof. Dr. med. Mark Rubin](#), was established in 1994 by the [University of Bern](#) and the [Inselspital](#) (Bern University Hospital). To realize its mission to bridge the gap between bench and bedside, the DBMR promotes an integrative perspective to clinical research with a strong emphasis in the development of translational approaches, the use of omics and other cutting-edge technologies, and extensive interaction and collaboration between laboratory-based and patient-oriented clinical research. The DBMR is also committed to fostering the careers of young academics.

[Further information](#)

The Johanna Dürmüller-Bol DBMR Research Award

The Fondation Johanna Dürmüller-Bol has donated the CHF 30,000 Research Prize since 2012 and will continue to support the Department for BioMedical Research DBMR until 2021. The Fondation aims to motivate and support young researchers from the Medical Faculty of the University of Bern in its fields of funding Medicine and Science. The project must be submitted by a researcher who is working at the Medical Faculty of the University of Bern and has not qualified as a professor, and it must be a clinically oriented project. This year, the Fondation Johanna Dürmüller-Bol celebrates its 20th anniversary.

More information on the Fondation Johanna Dürmüller-Bol: <https://fidb.ch/>

Contact:

Dr. Joanna Triscott, Department for BioMedical Research (DBMR), University of Bern
Phone +41 78 700 89 70 / joanna.triscott@dbmr.unibe.ch

Further information about the Day of BioMedical Research and the Award:

Prof. Mark Rubin, Director, Department for BioMedical Research (DBMR), University of Bern, and
Director Bern Center for Precision Medicine (BCPM), University of Bern and Inselspital, University
Hospital Bern
Phone +41 31 632 88 65 / mark.rubin@dbmr.unibe.ch