

Dr. Ralph DaCosta

Scientist, Princess Margaret Cancer Centre at University Health Network

Toronto, ON, CA

Dr. DaCosta is the senior co-inventor of the PRODIGITM and is one of Canada's leading experts in the area of biophotonics

Description

I am a Principal Investigator in the Division of Biophysics and Bioimaging, Ontario Cancer Institute, University Health Network (UHN). I hold the Cancer Care Ontario Research Chair in Cancer Imaging and am an appointed lecturer in the Department of Medical Biophysics at the University of Toronto. A major focus of my lab is the development and application of next-generation multimodal imaging and molecular probe technology platforms for i) detection of early disease, ii) elucidating disease mechanisms, iii) providing early monitoring of treatment response and iv) facilitating real-time image-guided interventions. A significant thrust of this work is to accelerate the translation of these "bioimaging" capabilities directly into multiple clinical domain. To this end, I am engaged in several basic research collaborations and clinical trials locally and internationally including in: endoscopic oncology, cancer stem cell biology, cancer immunotherapy, image-guided surgery, radiation oncology, cell- and virotherapy, regenerative medicine, and diabetes.

Specifically, my team is currently focused on: a) the application of optical molecular imaging methods to illuminate the processes activated by radiation therapy and other cancer treatments with the long term goal of real-time monitoring of tumour response in individual patients (e.g. for adaptive intervention); b) the use of novel cancer-targeting imaging agents with hybrid medical imaging systems (e.g. combining CT and optical) for enhancing the endoscopic detection of early cancers (called "molecular bioendoscopy"); and c) the development, translation and commercialization of handheld and portable "point-of-care" optical imaging systems for clinical applications (e.g. in wound care and intraoperative image-guidance).

I am always looking for qualified and enthusiastic students and post-doctoral fellows. Please contact me if you are interested in being a part of the innovative research being pursued by my team at the Ontario Cancer Centre.

Industry Expertise

Health and Wellness, Elder Care, Health Care - Services, Health Care - Providers, Health Care - Facilities

Topics

Molecular Imaging for Image-Guided Interventions, Multimodal Disease-Targeted and Reporter Imaging Agents, Advanced Preclinical Models for Basic Cancer Research, Optimization of Response to Radiation Therapy in Cancer, Optimization of Response to Novel Immunotherapy Strategies in Cancer, Point-Of-Care Imaging-Based Technologies for Clinical Applications, Photodynamic Therapy, Optical Diagnostics and Imaging, Optical Microscopy

Affiliations

University Health Network, Cancer Care Ontario Research Chair in Cancer Imaging, Ontario Cancer Institute, Department of Medical Biophysics, Faculty of Medicine, UofT, Radiation Medicine Program, Spatio-Temporal Targeted and Amplification of Radiation Response (STTARR) Innovation Center

Education

University of Toronto, Department of Medical Biophysics
PhD Medicine

Accomplishments

Cancer Care Ontario Research Chair in Cancer Imaging

The Cancer Care Ontario Research Chairs program, funded by the Ministry of Health and Long-Term Care, is designed to attract leading new scientists to Ontario and support outstanding scientists already working in the province. The Program focuses on four important areas - cancer imaging, health services research, population studies and experimental therapeutics.

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