



## Ac-225 Spotlight: Nurturing TaT from Production to Patient Care and Beyond – Event Summary

[Click here to watch the full event recording.](#)

Held virtually in collaboration with Actineer Inc., the CNIC hosted a Scientific Webinar on April 11, 2024, titled "Ac-225 Spotlight: Nurturing TaT from Production to Patient Care and Beyond." The webinar offered a comprehensive exploration of the emerging radioisotope actinium-225 (Ac-225) and its specific production methods, potential uses in developing radiopharmaceuticals, current supply chain challenges, and revolutionary potential to advance cancer treatment in Targeted Alpha Therapy (TaT).

Acknowledging the life-saving implications of this important medical isotope, the Canadian Nuclear Isotope Council is committed to supporting the education and awareness of Ac-225 by bringing together key stakeholders from across the industry and using its platform to advocate for the increased production of medical isotopes.

### Panelists

- **Ram Mullur** - Vice President of CNL Isotopes Business and President of Actineer
- **Dr. Mike Sathegke** - Head of Nuclear Medicine, University of Pretoria and Steve Biko Academic Hospital, South Africa
- **Dr. Carolina de Aguiar Ferreira** - Assistant Professor of Radiology, Pharmacology & Toxicology and Biomedical Engineering at Michigan State University
- **Moderator: Melody Greaves** - Manager of Strategic Initiatives at the Canadian Nuclear Isotope Council

### Summary

#### Mr. Ram Mullur – Radiopharmaceutical Trends, Trajectories, and the Future of Actineer

Ram Mullur opened the discussions by mapping out the trends in cancer management that are shaping the demand for Ac-225 radiopharmaceuticals. With the advent of radioisotope labelling and diagnostic tools, Ram demonstrated how Ac-225 can attach itself to disease biomarkers and precisely damage cancer cells. Addressing production challenges, he acknowledged the complexities involved by citing complexities such as sourcing and handling rare materials, and the need for scalable production routes.

A central part of the discussion was the supply and demand trajectory of Ac-225. With only a few sites worldwide currently producing commercial quantities, the demand for Targeted Alpha Therapies is expected to spike by 2040. Actineer Inc, which is a joint venture by the Canadian Nuclear Laboratories and ITM Isotope Technologies Munich SE, will leverage their combined expertise in isotope production and radiopharmaceuticals to accelerate actinium-225 production and begin producing commercial quantities of the isotope in the next decade.

#### Dr. Mike Sathegke – Clinical Applications of Actinium-225



Dr. Mike Sathegke acknowledged the intrinsic complexity of diseases and highlighted the promise of innovation in alpha therapies to treat systemic diseases, most notably, through its effective deployment range and irradiation capabilities. He expressed the effectiveness of Ac-225 in PSMA-based radionuclide therapy for patients with metastatic castration-resistant prostate cancer, suggesting that alpha therapies release radiation that can overpower cancer cells and tumours.

Illustrating the tangible impact on patient care, he shared visual examples from glioblastoma cases, where the initial treatment with Ac-225 DOTATATE marked a significant improvement. The session also touched upon the potential for combining beta and alpha therapies, a 'cocktail' approach that may yield exceptional tumour responses. Finally, Dr. Sathegke highlighted the vital role of research in shaping the survival rates of therapies, stressing the importance of training in radiochemistry to achieve desired therapeutic outcomes and unlocking new pathways with PSMA-based alpha therapies.

### [Dr. Carolina de Aguiar Ferreira – Immunomodulation of Radiopharmaceutical Therapy: Differences between Alpha and Beta Emitters](#)

Dr. Carolina de Aguiar Ferreira began her discussion by contrasting the differences in treatment between External Beam Radiotherapy and Radiopharmaceutical Therapy (RTR), with the latter treatment bearing the ability to attack multiple tumours with the help of a carrier that drives systematic radiation. Dr. Ferreira also discussed the positive impact of alpha emitters in activating the immune system, hinting at the promise of combining RTR with immunotherapies.

Dr. Ferreira explored how Ac-225 has a decay chain that contains higher deposits, emitting more radiation that promotes DNA damage in a localized environment, effective for targeting micrometastases. She presented clinical studies that suggest Ac-225 stimulates a better tumour response for patients compared to beta emitters increasing the lifetime of patients with cancer. She concluded her presentation by emphasizing the importance of dosimetry in beta and alpha emitters, indicating that dose quantities, the timing of administration, and tumour characteristics are all important considerations in yielding positive results.

### [Final Remarks](#)

This webinar focused on how TaT can promote life-changing results for cancer patients, spotlighting the importance of robust research in isotope technologies to accelerate the journey to commercialization. Scientific webinars like this, facilitated under the leadership of the CNIC and innovation of Actineer Inc., are critical to understanding global perspectives and advancing patient outcomes with the power of isotopes.

### [About the CNIC](#)

The Canadian Nuclear Isotope Council (CNIC) is an independent organization consisting of representatives from various levels within the Canadian health sector, nuclear industry and research bodies, convened specifically to advocate for our country's role in the production of the world's isotope supply.

The CNIC invites leaders from Canada's isotope community and abroad to discuss common issues and strategic opportunities at the [Canadian Radiotheranostics Leaders' Summit on June 6-7, 2024](#).



Registration opens soon – please visit [www.canadianisotopes.ca](http://www.canadianisotopes.ca) or follow us on [LinkedIn](#) and [Twitter \(X\)](#) for more. Read the information package [here](#).