



Canadian Association
of Physicists

Association canadienne
des physiciens et physiciennes

Contribution ID: 2407

Type: **Invited Speaker / Conférencier(ère) invité(e)**

Cyclotrons for Medicine

Monday 3 June 2019 10:45 (45 minutes)

Since its invention, cyclotrons have a history for applications in medicine. This can be either indirectly via the production of medical isotopes in nuclear medicine as well as directly for external beam therapy for the treatment of cancer. At TRIUMF, we have been involved in both over the year, by treating cancer with beams of pions and then with protons, as well as a long history of medical isotopes –gamma and positron emitters for diagnostics, and beta and alpha emitters for therapy.

In recent years Targeted Alpha Therapy (TAT) has shown impressive results in the treatment of incurable cancer. In TAT, alpha emitters like Ac-225 are attached to a targeting vector, a biomolecule, which accumulates in the cancer to be treated. As alpha emitters have high linear energy transfer (LET) and typically a short range in tissue, and together with its specific delivery system, they hold the promise to cure cancer that can not be treated with other therapies –surgery, chemotherapy or external beam therapy. Currently, there is a world-wide shortage of alpha emitters, which greatly hinders ongoing clinical trials. TRIUMF with its 520 MeV cyclotron, has the infrastructure in place to solve this shortage.

In this presentation, the highlights over the years as well as the current research and developments are discussed.

Author: HOEHR, Cornelia (TRIUMF)

Presenter: HOEHR, Cornelia (TRIUMF)

Session Classification: M1-6 Physics in Medicine and Biology 101 (DPMB) | Physique en médecine et biologie 101 (DPMB)

Track Classification: Physics in Medicine and Biology / Physique en médecine et en biologie (DPMB-DPMB)