

# Actinium-225 Production for Medical Applications Using Best Cyclotron Systems—a Team BestGlobal Company

WASHINGTON, DC, USA, December 6, 2022 /EINPresswire.com/ -- Best Cyclotron Systems, a TeamBest Global (TBG) Company, has designed and installed a variety of cyclotrons for medical, industrial and research applications ranging from energy 1 MeV to 70 MeV. Many of these cyclotrons can be used for production of Actinium-225, an isotope potentially useful for therapeutic applications.

There has been great interest in targeted alpha therapy using Actinium-225 (Ac-225). In particular, prostate cancer patients have been treated Ac-225 with notable success (1). Ac-225 attached monoclonal antibody products have been used in clinical trials for treatment of leukemia (2). It is expected that targeted alpha therapy can lead to positive outcome, hence global efforts towards the production of Ac-225 have increased substantially.

Ac-225 has a 10-day half-life and decays with the emission of an alpha particle, subsequently following a decay path with four alpha particles being emitted. A large radiation dose can be delivered to the tumor site because of the very high Linear Energy Transfer (LET) of alpha particles.



TeamBest Global Companies logo — [www.teambest.com](http://www.teambest.com)

Proton Energy (MeV)	Yield (MBq/μAh)	Yield in (mCi/μAh)
15	4.34	0.117
20	15.6	0.420
25	18.3	0.490

Figure 1. Reaction Cross Sections for AC-225 Production.

Ac-225 can mainly be produced by two reactions. One is a proton induced spallation reaction at 70 MeV or higher using thorium as the production target. That reaction is accessible using the BEST B70 proton cyclotron. The second reaction is the proton induced (p,2n) reaction on Radium-226 (Ra-226). This reaction can be utilized at proton energies from 10 to 30 MeV and hence it is a candidate for production on the BEST B15, B20, B25 and B35 MeV cyclotrons.

The Ra-226(p,2n) cross sections and yields have been reported in the IAEA medical radioisotopes database(2). Including the results by Apostolidis et al. (3). Figure 1 shows the reaction cross sections for Ac-225 production.

The yields for this reaction on radium are given below (4).

BEST also offers a core solid target station for B15, B20-35 Cyclotrons that has a unique design.

“

Everyone deserves the Best healthcare. Our goal is to work with medical professionals to provide the Best products, technologies and services.”

*Krishnan Suthanthiran,  
President/Founder of  
TeamBest Global Companies*

The key feature to be considered is the isolation of the target and handling system from the environment to protect the laboratory personnel from the alpha emissions, not only from the produced Ac-225 but also from the Radon-222 present from the decay of radium. This radiation safety consideration is paramount in the operation of the target station adapted for Ac-225 production.

#### References

1. Kratochwil, C. et al., Targeted  $\alpha$ -Therapy of Metastatic Castration-Resistant Prostate Cancer with  $^{225}\text{Ac}$ -PSMA-617: Dosimetry Estimate and Empiric Dose Finding. *Journal of Nuclear Medicine*, 58(10) (2017) 1624.
2. R Garg, et al.,  $^{225}\text{Ac}$  labeled CD33 targeting antibody in acute myeloid leukemia models., *Cancer Med.*, 10, 1128-40 (2021).
3. Apostolidis C. et al., Cyclotron production of Ac-225 for targeted alpha therapy. *Applied Radiation and Isotopes* 62 (2005) 383.



Best Cure Foundation — [www.bestcure.md](http://www.bestcure.md)



Brachytherapy Research & Educational Foundation  
(BREF) [www.brachytherapy.org](http://www.brachytherapy.org)

4. IAEA website <https://www-nds.iaea.org/relnsd/vcharthtml/MEDVC hart.html>.

For more information about [Krishnan Suthanthiran](#), please visit his bio page at [http://www.teambest.com/about\\_bio.html](http://www.teambest.com/about_bio.html).

For more information about the BCF, please visit <http://www.bestcure.md>.

For more information about Krishnan Suthanthiran's presentation on Rethinking Medicine, please visit [http://www.teambest.com/news/Rethinking\\_Medicine\\_Global\\_Healthcare\\_TX\\_Oct19\\_2022\\_presentation.pdf](http://www.teambest.com/news/Rethinking_Medicine_Global_Healthcare_TX_Oct19_2022_presentation.pdf) and [http://www.teambest.com/10\\_04\\_2022\\_Rethinking\\_Medicine\\_Invite\\_TX-FINAL.pdf](http://www.teambest.com/10_04_2022_Rethinking_Medicine_Invite_TX-FINAL.pdf)

Previous press releases from Krishnan Suthanthiran:

[http://www.teambest.com/press/EINPresswire\\_OpenLetterPOTUSandFLOTUS.pdf](http://www.teambest.com/press/EINPresswire_OpenLetterPOTUSandFLOTUS.pdf)

[http://www.teambest.com/press/EINPresswire\\_OpenLetterBidens\\_HigherEducation.pdf](http://www.teambest.com/press/EINPresswire_OpenLetterBidens_HigherEducation.pdf)

<http://www.teambest.com/press/EINPresswire-582036591-krishnan-suthanthiran-honored-at-aapm-s-first-post-covid-annual-meeting.pdf>

<https://www.einpresswire.com/article/588302711/krishnan-suthanthiran-president-founder-of-teambest-global-companies-best-cure-foundation-to-publish-multi-volume-book>

About [TeamBest Global Companies](#):

TeamBest is a multinational medical company founded in 1977 in Springfield, Virginia, USA. TeamBest is driven by one primary goal—to provide the best products and services to customers.

The TeamBest family of companies, collectively known as Team Best Global, has been proudly developing, manufacturing, and delivering reliable medical equipment and supplies for more than 40 years. TeamBest includes over a dozen companies offering complementary products and services for brachytherapy, health physics, medical physics, radiation therapy, blood



Krishnan Suthanthiran, President & Founder of TeamBest Companies & Best Cure Foundation

irradiation, vascular brachytherapy, imaging, medical particle acceleration, cyclotrons, and proton-to-carbon heavy ion therapy systems. TeamBest is the single source for an expansive line of life-saving medical equipment and supplies. Its trusted team is constantly expanding and innovating to provide the most reliable products and technologies.

Today, TeamBest employs hundreds of talented engineers, scientists and others, offering thousands of products and services. TeamBest's independently-owned companies are proud to be represented in North America, Europe, Latin America, Africa, the Middle East and Asia.

"Everyone deserves the Best healthcare. Our goal is to work with medical professionals to provide the Best products, technologies and services. Our mission is to uphold our reputation for excellence in the healthcare field by developing, manufacturing and delivering cost-effective, high-quality products to benefit patients around the world," states Krishnan Suthanthiran.

Krishnan Suthanthiran - President & Founder  
TeamBest Global Companies & Best Cure Foundation  
+1 703-451-2378  
[email us here](#)

---

This press release can be viewed online at: <https://www.einpresswire.com/article/600803310>

EIN Presswire's priority is source transparency. We do not allow opaque clients, and our editors try to be careful about weeding out false and misleading content. As a user, if you see something we have missed, please do bring it to our attention. Your help is welcome. EIN Presswire, Everyone's Internet News Presswire™, tries to define some of the boundaries that are reasonable in today's world. Please see our Editorial Guidelines for more information.

© 1995-2022 Newsmatics Inc. All Right Reserved.