

RADIUM CHELATION FOR TARGETED ALPHA PARTICLE THERAPY

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Technology Description

Researchers at Washington University in St. Louis have developed a method to chelate radium-223 and increase its utility in targeted alpha-particle therapy (TAT). TAT aims to deliver cytotoxic alpha-particles to cancer cells. Radium-223 is an alpha particle emitting isotope that targets to the bone and has been approved for treating metastatic prostate cancer. There is great interest in further developing the therapeutic potential of radium-223 by expanding its use for targeted therapy to other cancers as well. However, this has been challenging. To help overcome the challenges, the inventors have developed a method of complexing radium to the macrocyclic chelator, MACROPA. The resulting MACROPA-radium complex is stable and enables controlled distribution of radium. This technology allows development of targeted, radium-based, alpha-particle therapy for additional cancers.

Stage of Research

Proof-of-principle *in vivo* results show great promise. Additional validation studies are ongoing.

Applications

- Targeted alpha-particle therapy for cancer

Key Advantages

- Enables control of radium distribution
- Allows more effective targeting of cancer cells
- Radium can be labeled into MACROPA chelate effectively under mild conditions
- Potential to develop safer radiopharmaceuticals, including radium-223-labeled antibodies

Patents

- Provisional patent application has been filed.

Related Web Links

- [Dr. Thorek profile](#)