Contribution ID: **111** Type: **not specified**

Bioconjugation of actinides using a peptoid scaffold

The targeted delivery of alpha-generating radionuclides such as actinium-225
and thorium-227 is emerging as a promising treatment approach for a range of cancers. Advances in protein engineering are driving new developments in targeted drug delivery through increased availability of monoclonal antibodies and similar delivery vehicles. This work utilizes a modular, solid-phase synthetic method to generate biopolymers suitable for chelating f-block elements. The peptoid platform, polymeric chains of N-substituted glycines, can incorporate essentially any functional group bearing a pendant primary amine, allowing us prepare a tetramer of 1,2-hydroxypyridinone (HOPO) moieties optimized for actinide chelation. Further inclusion of a range of suitable functionalities enables bioconjugation via maleimide-Cys, succinate ester-Lys, or azide-alkyne coupling chemistry. Antibody-peptoid conjugates provide a versatile platform for antigen-specific delivery of therapeutic alpha generators, as well as other radionuclides such as zirconium-89, a positron emitter ideally suited for PET imaging.

Funding Agency

United States Department of Energy

Email Address

jarees@lbl.gov

Presentation Type

Poster

Primary author: Dr REES, Julian (Lawrence Berkeley National Lab)

Co-author: Prof. ABERGEL, Rebecca (University of California, Berkeley)

Presenter: Dr REES, Julian (Lawrence Berkeley National Lab)