Targeted alpha therapy has gained recognition for the treatment of cancers. The therapeutic efficacy of alpha particles lies in the short-range and high-linear energy transfer of these ionizing particles. Alpha particles emitted in decay have energies ranging from 4-9 MeV, yet travel micrometer distances through tissues breaking chemical bonds as a result of energy lost to the surrounding tissue.

A similar strategy can be used for the treatment of Alzheimer’s disease. Using an analog of [F-18]-flutemetamol, an FDA approved drug for Positron Emission Tomography (PET) imaging of Alzheimer’s patients, we propose the attachment of At-211, in lieu of F-18. At-211, a radiohalogen, exhibits a 7-hour half-life and decays via the emission of an alpha particle. We have chemically synthesized sufficient quantities (>50 mg) of a boronic acid precursor and are prepared to generate the astatinated compound.

The team’s distinct backgrounds are needed to help address this problem and will encourage partnerships throughout the university.

Follow-up funding would likely be obtained through the NIH, aiding the long-term viability of the collaboration.