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(54) Title: IMPROVED METHODS AND COMPOSITIONS FOR F-18 LABELING OF PROTEINS, PEPTIDES AND OTHER MOLECULES

(57) Abstract: The present application discloses compositions and methods of synthesis and use of F-18 labeled molecules of use, for example, in PET imaging techniques. In particular embodiments, the labeled molecules may be peptides or proteins, although other types of molecules including but not limited to aptamers, oligonucleotides and nucleic acids may be labeled and utilized for such imaging studies. In preferred embodiments, the F-18 label may be conjugated to a targeting molecule by formation of a metal complex and binding of the F-18-metal complex to a chelating moiety, such as DOTA, NOTA, DTPA, TETA or NETA. In other embodiments, the metal may first be conjugated to the chelating group and subsequently the F-18 bound to the metal. In other preferred embodiments, the F-18 labeled moiety may comprise a targetable conjugate that may be used in combination with a bispecific or multispecific antibody to target the F-18 to an antigen expressed on a cell or tissue associated with a disease, medical condition, or pathogen. Exemplary results show that F-18 labeled targetable conjugate peptides are stable in human serum at 37°C for several hours, sufficient time to perform PET imaging analysis.



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