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Gallium Ga 68-NOTA-3PTATE-RGD

National Cancer Institute

Source

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A radiopharmaceutical agent composed of a modified form of the somatostatin analogue octreotate (TATE), linked, via a glutamate linker, to the cyclic tri-amino acid arginine-glycine-aspartic acid (RGD) motif (3PTATE-RGD), and labeled, via the macrocyclic chelating agent 1,4,7-triazacyclononane-N,N',N''-triacetic acid (NOTA) with the radioisotope gallium Ga 68, with potential somatostatin receptor type 2 (SSTR2) and alphaVbeta3 (aVb3) integrin imaging activity upon positron emission topography (PET) or single photon emission computed tomography (SPECT). After intravenous administration, gallium Ga 68-NOTA-3PTATE-RGD simultaneously binds to SSTR, with its TATE moiety (with a preference for SSTR2), and to the integrin receptor aVb3 with its RGD moiety. Both SSTR2 and aVb3 are expressed on the membrane of certain tumor cells while minimally or not expressed on healthy, normal cells. Upon PET imaging, SSTR2- and aVb3 integrin-expressing tumor cells can be visualized and expression levels can be quantified. SSTR2 and aVb3 play key roles in tumor proliferation and survival.