

PROSPECTIVE RADIOLABELED BOMBESIN CONJUGATES FOR PROSTATE CANCER IMAGING AND THERAPEUTIC AGENTS

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ABSTRACT

An active area of prostate cancer research is in the synthesis of radiolabeled peptides for *in vivo* tumor imaging or therapy. This method is possible since specific receptors are expressed in high concentration on certain tumor tissue. One receptor that is expressed in high concentration on prostate cancer tissue is the gastrin-releasing peptide (GRP). The amphibian peptide, bombesin (BBN), has high affinity and specificity to the GRP receptors; therefore, when BBN is radiolabeled with an appropriate radionuclide, non-invasive prostate tumor images and therapy can be obtained. The aim of this research was to produce kinetically inert bifunctional chelate complexes that would effectively contain the radionuclide Rhenium-188 (^{188}Re), Technetium-99m ($^{99\text{m}}\text{Tc}$), Copper-64 (^{64}Cu) or Bismuth-213 (^{213}Bi).