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(54) Title: **BIOCOMPATIBLE POLYMERS FOR USE IN ONCOLOGICAL IMAGING AND RADIATION**

(57) Abstract: Disclosed herein is a polymer for administering at a treatment site to form a hydrogel to physically space/isolate target tissue for radiotherapy, the polymer comprising a first monomer for binding water; a second monomer for imparting mechanical properties; optionally, a third monomer for binding to a natural or synthetic peptide or protein (NSPP); and a fourth monomer for imparting phase-transition behaviour. Preferably, the first monomer is OEGMA; the second monomer is PLA/HEMA; the third monomer is NAS; and the fourth monomer is NIPAAm, and the polymer comprises: OEGMA in an amount of from about 1 to about 15 mol%; PLA/HEMA in an amount of from 5 to about 50 mol%; NAS in an amount of from 0 to about 15 mol%; and NIPAAm in an amount of up to about 85 mol%. Preferably, the target tissue is a human prostate. Preferably, the polymer is administered at a concentration of up to about 280 mg/mL in aqueous solution such as saline.



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