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(54) Title: MICROSPHERE COMPRISING A LANTHANIDE METAL COMPLEX

(57) Abstract: The invention is directed to a method for preparing a microsphere comprising a lanthanide metal phosphate complex, a microsphere, a powder comprising a number of the microspheres, a suspension comprising the microsphere or the powder, the use of the microsphere, a method for detecting a tumour, and a therapeutic composition comprising the microsphere, the powder, or the suspension. The invention provides a method for preparing a microsphere that comprises a lanthanide metal phosphate complex, the method comprising: (a) providing an organic lanthanide metal complex microsphere, wherein the lanthanide metal is present in an amount of more than 20 wt.%, based on total weight of the microspheres, and wherein the organic lanthanide metal complex comprises a lanthanide ion and organic ligands with which the lanthanide ion forms the complex; and thereafter (b) replacing at least part of the organic ligands in the organic lanthanide metal complex microsphere with phosphate in a chimie douce reaction, wherein the lanthanide metal is present in the resulting microsphere in an amount of more than 20 wt.%, based on total weight of the microsphere, and wherein the lanthanide metal complex in the resulting microsphere comprises a lanthanide ion and phosphate.