

Inorganic nanoparticles including semiconductor quantum dots, iron oxide nanoparticles, and gold nanoparticles have been developed as contrast agents for diagnostics by molecular imaging. Then within non-ionic iodine it is divided by the osmolarity or number of molecules in which lower osmolarity is preferred from the point of view of harmful effects. Compared with conventional contrast agents, nanoparticles offer several advantages: their optical and magnetic properties can be tailored by engineering the composition, structure, size and shape; Their surfaces can be modified using ligands to target specific biomarkers of disease; The contrast enhancement provided can be equivalent to millions of molecular counterparts; It can be combined with a range of different functions for multimedia shooting. Here we review recent advances in the development of inorganic nanoparticle-based contrast agents for molecular imaging, with a touch on contrast enhancement, surface modification, tissue targeting, clearance, and toxicity.