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(54) Title: CONTROLLABLE ASSEMBLY AND DISASSEMBLY OF NANOPARTICLE SYSTEMS VIA PROTEIN AND DNA AGENTS

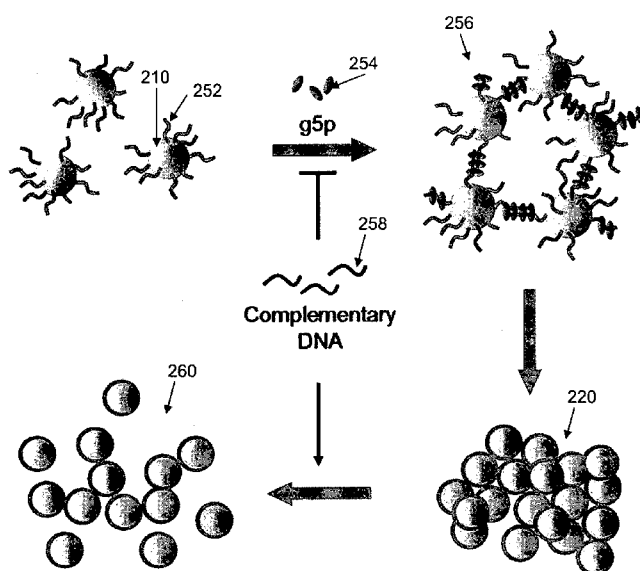


Figure 2

(57) Abstract: The invention relates to the use of peptides, proteins, and other oligomers to provide a means by which normally quenched nanoparticle fluorescence may be recovered upon detection of a target molecule. Further, the inventive technology provides a structure and method to carry out detection of target molecules without the need to label the target molecules before detection. In another aspect, a method for forming arbitrarily shaped two- and three- dimensional DNA binding protein-mediated nanoparticle structures and the resulting structures are described. Specifically embodied is the use of the gene 5 protein (g5p). Proteins mediating structure formation may themselves be functionalized with a variety of useful moieties, including catalytic functional groups.



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