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(54) Title: BIOLOGICAL CONTROL OF NANOPARTICLES

(57) Abstract: The present invention includes compositions and methods for selective binding of amino acid oligomers to semiconductor and elemental carbon-containing materials. One form of the present invention is a method for controlling the particle size of the semiconductor or elemental carbon-containing material by interacting an amino acid oligomer that specifically binds the material with solutions that can result in the formation of the material. The same method can be used to control the aspect ratio of the nanocrystal particles of the semiconductor material. Another form of the present invention is a method to create nanowires from the semiconductor or elemental carbon-containing material. Yet another form of the present invention is a biologic scaffold comprising a substrate capable of binding one or more biologic materials, one or more biologic materials attached to the substrate, and one or more elemental carbon-containing molecules attached to one or more biologic materials.