Our research group focuses on the design and processing of macromolecular nanoscale biomaterials to address important problems in the areas of biomedicine and bionanoscience. The nanobiomaterials of interest consist of polymeric, organic, and inorganic materials as well as hybrids having unique structural, electronic, magnetic, and optical properties. They will be prepared by well-defined methods in synthetic organic, materials, and controlled polymer chemistry as well as by supramolecular assemblies. Our particular interests are the integration of nanostructured biomaterials with biomedicine to develop advanced bionanomaterials that can interface biological processes as well as to understand their biological functions. Ultimately, nanoscale bioconjugates that are rationally designed and engineered hold promise for cancer prevention, diagnosis, and treatment. As the initial thrust, our group develops major biomaterials including novel nanogels, rapid thermoresponsive hydrogels, and nanocapsules, addressing important problems in the areas of biomedicine.

SELECTED PUBLICATIONS


