

Material File Examples

The Material File will vary depending on the type of nanomaterial described. The following sections provide examples of Material Files for common types of nanomaterials identified across nanotechnology resources.

Dendrimer

A dendrimer is a polymeric molecule which has a highly-branched, three-dimensional architecture. Dendrimers are synthesized from monomers and new branches are added in discrete steps to form a tree-like architecture. A high level of synthetic control is achieved through iterative reactions and purification at each step to regulate the size, architecture, functionality and monodispersity of the molecules. These polymers have desirable pharmacokinetic properties and a polyvalent array of surface groups that make them potential drug delivery vesicles.

Material File	Material Intended Application	Material Characteristics	Supporting Information
m_NCL-20 m_NCL-21 m_NCL-22 m_NCL-23 m_NCL-24 m_NCL-25 m_NCL-26	Delivery of image contrast agent	Dendrimer Branch Dendrimer Generation	caNanoLab Sample NCL-20 caNanoLab Sample NCL-21 caNanoLab Sample NCL-22 caNanoLab Sample NCL-23 caNanoLab Sample NCL-24 caNanoLab Sample NCL-25 caNanoLab Sample NCL-26 Dendrimer-Based MRI Contrast Agents

Fullerene

A fullerene is one of the three known pure forms of carbon that exhibits a spherical shape with a hollow interior; named after Buckminster Fuller. The number of carbon atoms comprising fullerenes is variable; several stable spherical carbon structures containing 70 or more atoms have been documented.

Material File	Material Intended Application	Material Characteristics	Supporting Information
m_NCL-16 m_NCL-17 m_NCL-19 m_NCL-42 m_NCL-45	Therapeutic	Number of Carbons Theoretical Number of Groups	caNanoLab Sample NCL-16 caNanoLab Sample NCL-17 caNanoLab Sample NCL-19 caNanoLab Sample NCL-42 caNanoLab Sample NCL-45 Functionalized Fullerenes NCL20071A

Liposome

Liposomes are substances composed of layers of lipid that form hollow microscopic spheres within which drugs or agents could be contained for enhanced safety and efficacy. Based upon its size measured in nanometer range, a liposome can be categorized as a nanoparticle.

Material File	Material Intended Application	Material Characteristics	Supporting Information
m_NCL-48 m_NCL-49	Drug Delivery	Is Polymerized Polymer Name	NCL-48 NCL-49 Ceramide Liposomes NCL200702A

Carbon Nanotube

Carbon nanotubes (CNTs) are fullerene-like nanostructures that consist of graphene cylinders. The ends of the construct are closed with pentagonal-shaped rings.

Material File	Material Intended Application	Material Characteristics	Supporting Information
m_MSKCC_CU_UA	Targeting Imaging	Chirality Wall Type Average Length Diameter	caNanoLab Sample MSKCC_CU_UA-CVillaNL2008-02 Synthesis and biodistribution of oligonucleotide-functionalized, tumor-targetable carbon nanotubes