CLAIMS

1. A nanoparticle comprising:
   a) a porous core at least partially coated by an ionic liquid; and
   b) a targeting moiety conjugated to the porous core.

2. The nanoparticle of claim 1, wherein the porous core is hierarchically porous, optionally wherein the porous core comprises mesopores, further optionally wherein the porous core is characterised by an average pore size of about 7 nm to about 25 nm.

3. The nanoparticle of any one of claims 1 to 3, wherein the porous core is an organic-inorganic network material, optionally wherein the organic-inorganic network material is a periodic mesoporous organosilica (PMO) or a metal-organic framework (MOF), further optionally wherein a) the PMO is characterised by a defined pore symmetry selected from KIT-6 (cubic), SBA-16 (cubic), FDU-12 (cubic), MCM-48 (cubic), SBA-15 (hexagonal), and MCM-41 (hexagonal); or b) the MOF is characterised by a network structure selected from ZIF-8, ZIF-11, ZIF-67, MOF-5, M-MOF-74, MOF-199, MOF-545, MIL-53, MIL-101, CAU-1, and UiO-66.

4. The nanoparticle of claim 3, wherein the organic-inorganic network material comprises a network structure comprising two or more inorganic centres connected by an organic polymer, optionally wherein the organic polymer is selected from polyethylene glycol (PEG), polyethylene imine (PEI), polyethylene glycol amine (PEGN), diethylene glycol (DEG)-grafted PEI, triethylene glycol (TEG)-grafted PEI, and PEG-grafted PEI, further optionally wherein the organic polymer is characterised by a molecular weight of about 100 Da to about 10,000 Da.

5. The nanoparticle of any one of claims 1 to 4, wherein the ionic liquid comprises a choline cation and/or an amino acid anion, optionally wherein the amino acid is selected from glycine, histidine, cysteine, alanine, valine, serine or threonine, further optionally wherein the cation to anion ratio is about 1:1 to about 1:1.2.

6. The nanoparticle of any one of claims 1 to 5, wherein the nanoparticle comprises a coating of niosomes, liposomes and/or a biopolymer on an exterior surface of the nanoparticle.

7. The nanoparticle of any one of claims 1 to 6, wherein the nanoparticle is characterised by a diameter of about 50 nm to about 200 nm.

8. The nanoparticle of any one of claims 1 to 7, wherein the targeting moiety is an antigen-binding molecule, optionally wherein the antigen-binding molecule binds specifically to Thy1 (CD90), TuJ1 (β-tubulin III) or RBPMS (RNA-binding protein with multiple splicing), further optionally wherein the antigen-binding molecule is an antibody or an antigen-binding fragment thereof.

9. The nanoparticle of any one of claims 1 to 8, wherein the retinal cell is a retinal ganglion cell (RGC).

10. The nanoparticle of any one of claims 1 to 9, wherein the nanoparticle comprises a detectable label and/or at least one therapeutic agent selected from a small molecule, polypeptide, nucleic acid, gene editing system, and a fusion thereof, optionally wherein the at least one therapeutic agent is selected from erythropoietin (EPO), nerve growth factor (NGF), brain-derived neurotrophic factor (BDNF), neurotrophin-3 (NT-3), platelet-derived growth factor (PDGF), ciliary neurotrophic factor (CNTF), retinoic acid, a lithium salt, glyceryl phosphate, a corticosteroid, an omega-3 fatty acid, vitamin E (tocopherol), vitamin C (ascorbic acid), a nucleic acid vector, and a CRISPR-Cas gene editing system.

11. The nanoparticle of any one of claims 1 to 10, wherein the nanoparticle is prepared by a) contacting the organic-inorganic network material with an ionic liquid at a ratio of the ionic liquid to the organic-inorganic network material of 1:1 to 1:5 by weight; and/or b) conjugating the targeting moiety to the organic-inorganic network material at a ratio of the targeting moiety to the organic-inorganic network material of 1:2500 to 1:25,000 by weight.

12. A pharmaceutical composition comprising a nanoparticle of any one of claims 1 to11, and a pharmaceutically acceptable carrier.

13. The pharmaceutical composition of claim 12, wherein the pharmaceutical composition is formulated for administration intravenously, intraocularly, or topically to the eye, optionally wherein the pharmaceutical composition is formulated as an eye drop.

14. A nanoparticle of any one of claims 1 to 11, for use as a medicament.

15. Use of a nanoparticle of any one of claims 1 to 11 or a pharmaceutical composition of claim 12 or 13 in the manufacture of a medicament for treating a retinal disease in a subject, wherein the nanoparticle comprises at least one therapeutic agent, optionally wherein the retinal disease is selected from glaucoma, optic neuropathy, diabetic retinopathy, sickle cell retinopathy, ischemic retinopathy, retinopathy of prematurity, infectious retinitis, retinitis pigmentosa, Stargardt's disease, optic nerve injury, age-related macular degeneration (AMD), uveitis, macular edema, neovascular glaucoma, proliferative vitreoretinopathy, vitelliform maculopathy, and choroidal neovascularisation, further optionally wherein the nanoparticle is to be administered intravenously, intraocularly, or topically to the eye, and/or wherein the nanoparticle is to be administered to the subject at a concentration of up to about 100 μg/mL.