Claims

What is claimed is:

1. An agarose ultrafiltration membrane composite having a pore size less than 0.1 μm, wherein the composite comprises a porous support membrane having an asymmetric agarose layer on the porous support membrane, wherein the agarose layer comprises a thickness ranging from 1 to 100 μm, wherein the agarose layer infiltrates from 1-15 μm into at least a portion of thickness of the porous support membrane and wherein the agarose layer is comprised of a solution having zinc chloride and a crosslinking agent at a concentration ranging from 0.01wt.-% to 1.0 wt.-%, wherein the crosslinking agent comprises divinylsulfone.
2. The agarose ultrafiltration membrane composite according to claim 1, wherein the agarose layer comprises a thickness ranging from 1 to 20 μm.
3. The agarose ultrafiltration membrane composite of claim 1, wherein the porous support membrane comprises woven or nonwoven polymer material.
4. The agarose ultrafiltration membrane composite of claim 3, wherein the woven or non-woven polymer material is selected from the group consisting of polyester, polyamides, polyolefins, polyethylene (PE), polycaprolactam, poly(hexamethylene adipamide), polypropylene, aromatic polymers, polyethylene terephthalate (PET), polyether-ether ketone (PEEK), polysulfone, polyethersulfone (PES), halogenated polymers and, fluorinated polymers.
5. The agarose ultrafiltration membrane composite according to claim 4, wherein the fluorinated polymer is selected from polytetrafluoroethylene and polyvinylidene fluoride (PVDF).
6. The agarose ultrafiltration membrane composite of claim 1, wherein the porous support membrane comprises an average thickness ranging from 20 μm to 500 μm.