Claims

1. The use of composition comprising a polymersome carrier having a circumferential membrane of an amphiphilic polymer and an immunogen integrated into the circumferential membrane of the amphiphilic polymer of the polymersome carrier, wherein the amphiphilic polymer is a poly(butadiene)-poly(ethylene oxide) (PB-PEO) diblock copolymer, and wherein the immunogen is a membrane-associated protein or lipid antigen, in the manufacture of a pharmaceutical composition for eliciting in a subject an immune response to an immunogen.

2. The use of claim 1, wherein the composition is to be injected into a subject.

3. The use of claim 2, wherein the composition is to be injected into the subject via intradermal, intraperitoneal, subcutaneous, intravenous, or intramuscular administration.

4. The use of any of claims 1 to 3, wherein the membrane-associated protein is a transmembrane protein, G protein-coupled receptor, neurotransmitter receptor, kinase, porin, ABC transporter, ion transporter, acetylcholine receptor, or cell adhesion receptor.

5. The use of any of claims 1 to 4, wherein the immunogen is a synthetic lipid.

6. The use of any of claims 1 to 4 wherein the immunogen is a natural lipid.

7. The use of any of claims 1 to 6, wherein the composition is to be administered via non-invasive administration.

8. The use of any of claims 1 to 7, wherein the PB-PEO diblock copolymer comprises 5-50 blocks PB and 5-50 blocks PEO.

9. The *in vitro* use of a composition in antibody discovery, vaccine discovery, or targeted delivery, wherein the composition comprises a polymersome carrier having a circumferential membrane of an amphiphilic polymer and an immunogen integrated into the circumferential membrane of the amphiphilic polymer of the polymersome carrier, wherein the amphiphilic polymer is a poly(butadiene)-poly(ethylene oxide) (PB-PEO) diblock copolymer, and wherein the immunogen is a membrane-associated protein or lipid antigen.