20. An *in-vitro* method of identifying a compound capable of modulating the function of an ion channel protein, wherein the ion channel protein is capable of allowing a known ion to pass, the method comprising:

- providing a vesicular system according to claims 11 or 12, wherein the membrane protein is the ion channel protein,
- contacting the immobilized vesicle with a candidate compound suspected to modulate the function of the ion channel protein, and
- detecting the passage of ions into or out of the immobilized vesicle.

21. A process of forming a vesicle with an associated membrane protein, comprising:

- providing a vesicle having a circumferential membrane of an amphiphilic polymer comprising a molecule with a non-polar moiety, wherein a portion of the non-polar moiety of the molecule is integrated into the circumferential membrane of the vesicle, wherein the molecule with the non-polar moiety is capable of coupling the vesicle to a surface via a covalent or non-covalent bond,

the non-polar moiety being one of an aliphatic, an alicyclic, an aromatic and an arylaliphatic moiety,

wherein the non-polar moiety comprises a main chain of 3 to about 30 carbon atoms and 0 to about 12 heteroatoms selected from Si, O, S, and Se; and

- contacting the vesicle with a cell-free expression system and a nucleic acid molecule encoding the membrane protein under conditions suitable for transcription and translation of the nucleic acid molecule such that the membrane protein is formed in situ and associated with the circumferential membrane of the amphiphilic polymer of the vesicle.

22. The process of claim 21, wherein a portion of the membrane protein is integrated into the circumferential membrane of the amphiphilic polymer of the vesicle.

23. The process of claim 21 or 22, wherein the cell-free expression system is selected from the group consisting of eukaryotic cell-free expression system, prokaryotic cell-free expression system, and archaic cell-free expression system.

24. The process of any one of claims 21 to 23, wherein the membrane protein comprises a transmembrane protein.

25. The process of claim 24, wherein the transmembrane protein is selected from the group consisting of G-protein coupled receptor, rhodopsin receptor, rhodopsin pheromone receptor, peptide hormone receptor, taste receptor, GABA receptor, opiate receptor, serotonin receptor, Ca^{2+} receptor, melanopsin, neurotransmitter receptor, voltage gated or a mechanically gated receptor, dopamine and serotonin (biogenic amine, endorphin/enkephalin) neuropeptide receptor, ionotropic receptor, receptor kinase, tyrosine kinase, porin/channel, sodium channel, OMP protein, ABC transporter (ATP-Binding Cassette - Transporter), ion transporter, pore-forming toxin and cell adhesion receptor.

26. The process of any one of claims 21 to 25, wherein the amphiphilic polymer has a glass transition temperature below ambient temperature.

27. The process of any one of claims 21 to 26, wherein the amphiphilic polymer comprises at least one monomer unit of a carboxylic acid, an amide, an amine, an alkylene, a dialkylsiloxane, an ether and an alkylene sulphide.

28. The process of claim 27, wherein the amphiphilic polymer is a diblock (A-B) or a triblock copolymer (A-B-A or A-B-C).

29. The process of claim 28, wherein the amphiphilic polymer comprises a polyether block selected from an oligo(oxyethylene) block, a poly(oxyethylene) block, an oligo(oxy-propylene) block, a poly(oxypropylene) block, an oligo(oxybutylene) block and a poly(oxybutylene) block.

30. The process of claim 29, wherein the amphiphilic polymer is a poly(butadiene)-poly(ethylene oxide) (PB-PEO) diblock copolymer.

31. A vesicle with an associated membrane protein obtained from a method of any one of claims 21 to 29.

32. Use of the vesicle with an associated membrane protein of claim 31 in ~~drug~~ screening for potential compounds that are useful for modulating the function of the membrane protein.