CLAIMS

1. A freeze-dried powder composition for the preparation of gas-filled microvesicles, said composition comprising a phospholipid and a polyethylene glycol, wherein said polyethylene glycol has a percentage of folded polymeric chains higher than 34% and lower than 80%.

2. The composition according to claim 1 wherein said percentage of folded chains is of at least 40%~~,~~.

3. The composition according to claim 1 wherein said percentage of folded chains is of at least ~~42~~44%.

4. The composition according to claim 1~~, 2 or 3~~ wherein said polyethylene glycol is a PEG4000 having an average molecular weight in number (Mn) of ~~at least~~from 4000 g/mol to 4600 g/mol.

5. The composition according to claim 4 wherein said Mn is of at least 4025 g/mol.

6. The composition according to claim 1 wherein said phospholipid is distearoylphosphatidyl-choline (DSPC), dipalmitoylphosphatidylglycerol sodium (DPPG-Na) or a mixture thereof.

~~6~~7. The composition according to claim 4~~any of preceding claims 1 to 5~~ wherein said phospholipid is DSPC, DPPG-Na or a mixture thereof.

~~7~~8. The composition according to ~~any of preceding~~ claim~~s~~ 1~~ to 6~~, wherein said composition further comprises a fatty acid.

~~8~~9. The composition according to claim ~~7~~ 8 wherein said fatty acid is palmitic acid.

10. The composition according to claim 7 further comprising palmitic acid.

~~9~~11. The composition of claim ~~8~~ 10 comprising from 22 to 28 parts by weight of
PEG4000, from 0.15 to 0.25 parts by weight of DSPC, from 0.15 to 0.25 parts by weight of DPPG-Na and from 0.02 to 0.06 parts by weight of palmitic acid.

~~10~~12. The composition of claim ~~9~~ 11 comprising 24.56 mg of PEG4000, 0.19 mg of DSPC, 0.19 mg of DPPG-Na and 0.04 mg of palmitic acid.

~~11~~13. A sealed vial containing a freeze-dried powder composition according to ~~any of the preceding~~ claim~~s~~ 1 ~~to 10~~ in contact with a physiologically acceptable gas.

~~12~~14. A sealed vial containing a freeze-dried powder composition according to claim 11 in contact with a physiologically acceptable gas

15. The sealed vial according to claim 13, wherein said gas is a fluorinated gas.

16. The sealed vial according to claim 14, wherein said gas is a fluorinated gas.

~~13~~17. A method for manufacturing a lyophilized composition comprising a phospholipid and a polyethylene glycol, which comprises:

a. dissolving said phospholipid and said polyethylene glycol in a solvent, thereby ~~obtaining~~ forming a solution;

b. freezing the solution; and

c. removing the solvent by lyophilization;

wherein said polyethylene glycol has a percentage of folded polymeric chains higher than 34% and lower than 80%.

18. The method according to claim 17 wherein said phospholipid is DSPC, DPPG-Na or a mixture thereof.

~~14~~19. The method according to claim ~~13~~ 18 wherein said composition further comprises a fatty acid and said step a. comprises further dissolving said fatty acid in said solvent.

~~**15.** A suspension of gas-filled microvesicles obtained by dispersing a freeze-dried powder composition according to any of the claims 1 to 10, in the presence of a gas, in a physiologically acceptable liquid.~~

20. The method according to claim 19 wherein said composition comprises from 22 to 28 parts by weight of PEG4000, from 0.15 to 0.25 parts by weight of DSPC, from 0.15 to 0.25 parts by weight of DPPG-Na and from 0.02 to 0.06 parts by weight of palmitic acid.

21. A method for preparing a suspension of gas-filled microvesicles which comprises dispersing a freeze-dried powder composition according to claim 1, in the presence of a physiologically acceptable gas, in a physiologically acceptable liquid.

22. A method for preparing a suspension of gas-filled microvesicles which comprises dispersing a freeze-dried powder composition according to claim 11, in the presence of a physiologically acceptable gas, in a physiologically acceptable liquid.

23. The method according to claim 21 wherein said gas is sulfur hexafluoride.

24. The method according to claim 22 wherein said gas is sulfur hexafluoride.