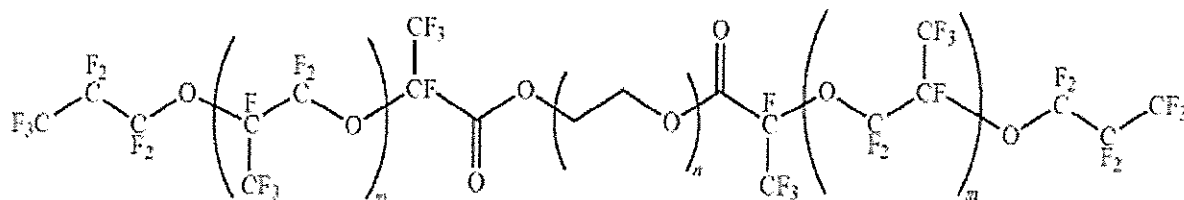


CLAIMS

1. A method of detecting a target nucleic acid, the method comprising:
 - (a) providing an oil composition comprising an oil and a fluorosurfactant mixture, wherein said fluorosurfactant mixture includes
 - a triblock copolymer comprising polyethylene glycol (PEG) polymer covalently linked by an ester bond to polyhexafluoropropylene oxide (PFPE) at both ends,
 - a diblock copolymer comprising a PEG block covalently linked by an ester bond to a PFPE block at only one end, and
 - a PFPE carboxylic acid;
 - (b) providing an aqueous composition comprising a target nucleic acid, a non-ionic non-fluorosurfactant and an intercalating dye;
 - (c) contacting the oil composition of a) with the aqueous composition of b), thereby generating a plurality of droplets suspended in a continuous phase;
 - (d) thermally cycling said plurality of droplets to amplify said target nucleic acid; and
 - (e) detecting said target nucleic acid, wherein said detecting comprises measuring fluorescence from said intercalating dye.

2. The method of claim 1, wherein said triblock copolymer is of the formula:



wherein m is a number from about 10 to 100; n is a number from about 10 to 60.

3. The method of claim 1, wherein said triblock copolymer constitutes at least about 90% (w/w) of the fluorosurfactant mixture.
4. The method of claim 2, wherein m is from about 20 to 40, and n is from about 15 to 30.
5. The method of claim 4, wherein m is about 35 and n is about 22.
6. The method of claim 1, wherein said triblock copolymer has a hydrophilic-lipophilic balance of at least about 0.5.
7. The method of claim 1, wherein said triblock copolymer has a hydrophilic-lipophilic balance of less than about 5.0.
8. The method of claim 1, wherein said triblock copolymer has a hydrophilic-lipophilic balance in a range from about 0.5 to 5.0.

9. The method of claim 1, wherein said triblock copolymer has a hydrophilic-lipophilic balance of about 1.5.

10. The method of claim 1, wherein said non-ionic non-fluorosurfactant is a copolymer of ethylene oxide and propylene oxide.

11. The method of claim 10, wherein said non-ionic non-fluorosurfactant is a triblock copolymer of polyethylene oxide-polypropylene oxide-polyethylene oxide.

12. The method of claim 1, wherein said non-ionic non-fluorosurfactant is Pluronic®.

13. The method of claim 1, wherein said non-ionic non-fluorosurfactant is Pluronic® F-98.

14. The method of claim 13, wherein the concentration of said Pluronic® F-98 is in a range from about 0.1%-3.0% (weight percent).

15. The method of claim 1, wherein said oil comprises a fluoruous oil.

16. The method of claim 15, wherein said fluoruous oil is 2-trifluoromethyl-3-ethoxydodeca-fluorohexane (HFE-7500) or 1,1,1,2,2,3,4,5,5,5-decafluoro-3-methoxy-4-(trifluoromethyl)pentane (HFE-7300).

17. The method of claim 1, wherein said continuous phase comprises said oil.
18. The method of claim 1, wherein said plurality of droplets is aqueous droplets encapsulated by said oil.
19. The method of claim 18, wherein less than about 5% of said intercalating dye is detected outside of the aqueous phase of said aqueous droplets after about 50 thermal cycles.
20. The method of claim 18, wherein less than about 10% of said intercalating dye is detected outside of the aqueous phase of said aqueous droplets after about 100 thermal cycles.
21. The method of claim 1, wherein on average each of said plurality of droplets comprises less than 5.5×10^{12} target nucleic acids after thermal cycling.
22. The method of claim 1, wherein said intercalating dye includes EvaGreen® dye.