We claim:

1. A method of producing a polymer or polymer-coated microparticles comprising:
combining protein powder and a polymer into a hydrocarbon solvent to form a non-aqueous first solution;
adding the first solution to a second solution, wherein the second solution comprises a fluorocarbon liquid and a fluorosurfactant;
agitating the combined solutions to form a non-aqueous emulsion comprising multiple emulsion hydrocarbon droplets in the fluorocarbon liquid;
removing the hydrocarbon solvent; and
removing the fluorocarbon liquid to isolate the microparticles, wherein the microparticles comprise the protein encapsulated within a matrix of the polymer.

2. The method of claim 1, wherein the microparticles comprise a single core-shell structure.

3. The method of claim 1, wherein the at least one microparticle comprises multiple cores dispersed within the polymer.

4. The method of any one of claims 1-3, wherein the microparticles comprise microparticles comprising a combination of a single core-structures encapsulated by the polymer and microparticles comprising multi-core structures encapsulated by the polymer.

5. The method of any one of claims 1-4, wherein the fluorocarbon liquid comprises a perfluoro C5-C18 compound.

6. The method of any one of claim 1-5, wherein the hydrocarbon solution is selected from the group consisting of dichloromethane, chloroform, toluene, ethyl acetate, tetrahydrofuran, or a combination thereof.

7. The method of any one of claims 1-6, wherein the fluorocarbon solution comprises l,l,2,2,3,3,4,4,4-nonafluoro-N,N- bis(1,1,2,2,3,3,4,4,4-nonafluorobutyl)butan-1-amine.

8. The method of any one of claims 1-7, wherein the hydrocarbon solvent comprises dichloromethane, ethyl acetate, or a combination thereof.

9. The method of any one of claims 1-8, wherein the fluorocarbon solution comprises hydrofluoroether.

10. The method of any one of claims 1-9, wherein the fluorosurfactant comprises Perfluoropolyether-b-Polyethylene glycol-b- Perfluoropolyether.

11. The method of any one of claims 1-10, wherein the polymer comprises polyorthoester (POE).

12. The method of any one of claims 1-10, wherein the polymer is selected from the group consisting of polylactic acid and poly(lactic-co-glycolic acid).

13. The method of any one of claims 1-12, wherein the protein is an antibody or antigen binding fragment thereof, a fusion protein, a recombinant protein, or a fragment or truncated version thereof.

14. The method of claim 13, wherein the protein is a VEGF Trap protein.

15. The method of claim 14, wherein the protein is a truncated form of VEGF Trap protein.

16. The method of any one of claims 1-15, wherein the microparticles have a diameter of 1 to 200 μm.

17. The method of any one of claims 1-16, wherein the protein powder comprises particles comprising a diameter of 0.5 to 20 μm of micronized protein.

18. The method of any one of claims 1-17, wherein protein powder is micronized by spray drying, electrospray drying, reversible precipitation, spray freezing, microtemplating, or a combination thereof.

19. The method of any one of claims 1-18, wherein the emulsion is formed using homogenization, vortexing, sonication, cavitation, agitation, or a combination thereof.

20. The method of any one of claim 1-19, wherein removing the hydrocarbon solvent while stirring the combined solutions.

21. The method of claim 20, wherein the hydrocarbon solvent is removed under vacuum to harden the microparticles.

22. The method of any one of claims 1-21, wherein the hydrocarbon solvent is removed by evaporation.

23. The method of any one of claims 1-22, wherein the fluorocarbon liquid is removed by filtration optionally under vacuum.

24. The method of any one of claims 22-23, wherein a hydrofluoroether is used as a cosolvent to extract the hydrocarbon.

25. A method for producing polymeric or polymer-coated microspheres comprising:
combining
(1) a dispersed phase comprising 1.0 to 30.0% w/w of total solid spray dried-protein suspended in a hydrocarbon solution, wherein the hydrocarbon solution comprises 5.0 to 35% w/v POE, into

(2) a continuous phase to form a non-aqueous emulsion of the dispersed phase comprising emulsion droplets, wherein the continuous phase comprises a fluorocarbon solution comprising 0.1 to 5.0% w/v fluorosurfactant;

hardening the emulsion droplets by removing the hydrocarbon liquids to form hardened polymer or polymer-coated microspheres.

26. The method of claim 25, wherein the non-aqueous emulsion is stirred, and the hydrocarbon solution is removed by evaporation under ambient atmospheric pressure or under vacuum while stirred.

27. The method of claim 26, wherein the hardened polymer or polymer-coated microspheres are harvested by vacuum filtration.

28. A method for producing polymer or polymer-coated microparticles, comprising:

combining a hydrocarbon solution comprising dissolved polymer and spray-dried protein powder to produce a dispersed phase;

combining the dispersed phase with a continuous phase to produce emulsion droplets of the dispersed phase in the continuous phase, wherein the continuous phase comprises a fluorocarbon liquid and 0.1 to 5.0% w/v of a fluorosurfactant; and

harvesting the polymer-coated microparticles.

29. The method of claim 28, wherein the spray-dried protein is an antibody, recombinant protein, fusion protein, or a fragment thereof.

30. The method of claim 29, wherein the protein is a VEGF Trap protein or a truncated VEGF Trap protein.

31. The method of claim 28, wherein the hydrocarbon solution is selected from the group consisting of dichloromethane, chloroform, toluene, ethyl acetate, tetrahydrofuran, or a combination thereof.

32. The method of any one of claims 28-31, wherein the fluorocarbon liquid comprises trifluoromethyl, bis(l,l,2,2,3,3,4,4,4-nonafluorobutyl)amine.

33. The method of any one of claims 28-32, wherein the microparticles are hardened by removing the hydrocarbon solution while stirring by evaporation or under vacuum.

34. The method of claim 33, further comprises harvesting the hardened microparticles.

35. The method of claim 9, wherein the hydrofluoroether comprises 4-Ethoxy-l,l,l,2,2,3,3,4,5,6,6,6-didecaflouro-5-(trifluoromethyl)hexane.

36. A method for producing microparticles comprising:

combining a first solution comprising a polymer in a hydrocarbon solvent with a second solution comprising a fluorocarbon solvent and a fluorosurfactant;

agitating the combined solutions to produce an emulsion;

removing the hydrocarbon solvent under vacuum while stirring the combined solutions to produce hardened microparticles;

harvesting the microparticles;

optionally washing the microparticles; and

drying the microparticles, wherein the microparticles are sustained release microparticles, and wherein the fluorocarbon solvent comprises hydrofluoroether.

37. The method of claim 36, wherein the hydrocarbon solvent is selected from the group consisting of dichloromethane, chloroform, toluene, ethyl acetate, tetrahydrofuran, acetonitrile, ethanol, methanol, propanol, dimethylformamide, dimethyl sulfoxide or a combination thereof.

38. The method of any one of claims 36 or 37, wherein the fluorocarbon solvent comprises trifluoromethyl, bis(l,l,2,2,3,3,4,4,4-nonafluorobutyl)amine.

39. The method of any one of claims 36-38, wherein the polymer comprises POE, polylactic acid, poly(lactic-co-glycolic acid), or a combination thereof.

40. The method of any one of claims 36-39, wherein the microparticles comprise a polymer cortex and a hollow core.

41. The method of any one of claims 36-40, wherein the microparticles have little or no pores or channels in the polymer cortex.

42. The method of any one of claims 36-41, wherein the diameter of the microparticles is tuned to a desired diameter by changing the hydrocarbon solvent, agitation speed, polymer concentration, or a combination thereof.