WHAT IS CLAIMED IS:

1. A system for removing cytokines and other substances from blood of a subject in a closed fluid circuit, said system comprising a centrifugal apheresis pump connected to a catheter; a plasma separator connected to the pump; an adsorption chamber having an adsorption material comprising 50 to 70 % by weight of activated carbon and 30 to 50 % by weight of non-ionic resin; and a combining chamber, wherein the system is effective and configured to perform the following method steps:

(i) passing venous blood from the subject from a catheter connected to the centrifugal apheresis pump through the plasma separator, thereby separating the blood into blood cells and plasma;

(ii) passing the plasma directly received from the plasma separator directly through the adsorption chamber located in the circuit to form processed plasma, wherein the adsorption materials in the adsorption chamber are configured to adsorb cytokines in the plasma to form the processed plasma;

(iii) combining the processed plasma, received directly from the adsorption chamber, with the blood cells in the combining chamber to form processed blood, wherein the combining chamber is configured to form processed blood without exchanging any of the plasma for another fluid; and

(iv) subjecting the processed blood to be transfused into the subject directly after combining the processed plasma, such that no fluid besides the subject's blood is added to the circuit.

2. The system according to claim 1, wherein the non-ionic resin comprises at least one resin material selected from the group consisting of a non-ionic aliphatic ester resin, a non-ionic polystyrene divinyl benzene resin, an agarose media with hydrophobic interactive chromatography, and other non-biologic adsorptive resins.

3. The system according to claim 2, wherein the non-ionic aliphatic ester resin is AMBERLITE® XAD-7HP.

4. The system according to claim 2, wherein the non-ionic polystyrene divinyl benzene resin is AMBERCHROM® GC300C.

5. The system according to claim 2, wherein the activated carbon comprises at least one activated carbon material selected from the group consisting of uncoated coconut shell granule charcoal, uncoated organic granule charcoal, and uncoated synthetic carbon.

6. The system according to claim 1, wherein the adsorption chamber is constructed from a polymer selected from the group consisting of polycarbonate, polypropylene, a Lexan co-polymer, polytetrafluoroethylene, and other medical grade polymers suitable for injection or blow molding.

7. The system according to claim 1, wherein the adsorption chamber comprises:

a housing comprising a hollow tube with opposing open ends, said housing containing the activated carbon and non-ionic resin;

porous membrane filters covering each of the ends of the housing, each porous membrane filter creating a barrier for maintaining the activated carbon and non-ionic resin within the housing while allowing for passage therethrough of the plasma during performance of the method steps; and

endcaps fitted to each of the ends of the housing, wherein each endcap is configured to keep its corresponding porous membrane filter in place and to maintain a seal between the endcap and the corresponding end of the housing.

8. The system according to claim 7, wherein each endcap includes a groove molded into its entire inner circumference, said groove being configured to facilitate mating of each endcap with the corresponding end of the housing.

9. The system according to claim 8, wherein said groove is configured to receive a quantity of adhesive, and said adhesive being deposited in the groove so as to aid in adhering the porous membrane filter to the endcap.

10. The system according to claim 9, wherein another quantity of adhesive is deposited between each endcap and its corresponding porous membrane filter to provide further adhesion between the endcap and the corresponding end of the housing.

11. The system according to claim 7, wherein the ends of the housing are threaded and the corresponding endcaps are also threaded so as to mate with one another.

12. The system according to claim 7, wherein the housing is in the form of a tube comprising at least one of polypropylene, polytetrafluoroethylene, or other medical grade tubing materials.

13. The system according to claim 1, wherein the adsorption chamber and/or the materials in the adsorption chamber are coated with human serum albumin and an anticoagulant added to physiological saline as a delivery solution prior to clinical use.

14. The system according to claim 13, wherein the anticoagulant is selected from the group consisting of sodium heparin and citrate dextrose solution ACD-A.

15. The system according to claim 1, wherein said adsorption chamber is effective to remove toxins other than cytokines from blood of the subject.

16. Use of materials comprising 50 to 70 % by weight of activated carbon and 30 to 50 % by weight of non-ionic resin for removing cytokines and other substances from blood of a subject in a closed fluid circuit, said materials being in an adsorption chamber of the system according to any one of claims 1-15.

17. Use of the system according to any one of claims 1-15 for removing cytokines and other substances from blood of a subject in a closed fluid circuit, said system being an extracorporeal plasma system.

18. Use of materials comprising 50 to 70 % by weight of activated carbon and 30 to 50 % by weight of non-ionic resin for treating disease or condition selected from the group consisting of sepsis, liver failure, viral infection, acute respiratory distress, renal failure, inflammation, poisoning, drug overdose, autoimmune disease, tick-borne illness, chemical or nerve agent exposure, burn biliary obstruction, post-surgery inflammation, bacterial infection, complications caused by smoke inhalation, complications as a result of any form of injury or trauma, and complications as a result of any form of cancer or cancer treatment, said materials being in an adsorption chamber of the system according to any one of claims 1 to 15.

19. A method of using the system according to any one of claims 1 to 15 for treating disease or condition selected from the group consisting of sepsis, liver failure, viral infection, acute respiratory distress, renal failure, inflammation, poisoning, drug overdose, autoimmune disease, tick-borne illness, chemical or nerve agent exposure, burn biliary obstruction, post-surgery inflammation, bacterial infection, complications caused by smoke inhalation, complications as a result of any form of injury or trauma, and complications as a result of any form of cancer or cancer treatment, wherein the method comprising the steps of:

(i) passing venous blood from the subject from a catheter connected to a centrifugal apheresis pump through a plasma separator, thereby separating the blood into blood cells and plasma;

(ii) passing the plasma directly received from the plasma separator directly through an adsorption chamber located in the circuit to form processed plasma, wherein the adsorption materials in the adsorption chamber adsorb cytokines in the plasma to form the processed plasma, said materials comprising, by weight, 50 70% activated carbon and 30 50% non-ionic resin; and

(iii) combining the processed plasma, received directly from the adsorption chamber, with the blood cells in a combining chamber to form processed blood, without exchanging any of the plasma for another fluid; and

(iv) subjecting the processed blood to be transfused into the subject directly after combining the processed plasma, such that no fluid besides the subject's blood is added to the circuit.

20. The method according to claim 19, wherein said autoimmune disease is selected from the group consisting of inflammatory arthritis, psoriasis, Crohn's disease, ulcerative colitis, inflammatory bowel disease, and uveitis.

21. The method according to claim 19, wherein said inflammation is treated using an age defying anti-inflammation application selected from the group consisting of cosmetic, pain, and discomfort applications.

22. The method according to claim 19 is administered via use of a standard venous access in an outpatient treatment setting.

23. The method according to claim 19 further comprising a step of introducing an anticoagulant into the circuit.

24. The method according to claim 23, wherein the anticoagulant is a citrate dextrose solution ACD-D.

25. The method according to claim 19 further comprising a step of removing toxins from the venous blood with the adsorption chamber.

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