CLAIMS

1. A method of producing a protein profile comprising:

a) obtaining a small volume blood sample of between 5 µL and 100 µL;

b) leukodepleting at least a portion of the blood sample to produce a red blood cell-enriched sample;

c) incubating the red blood cells in the red blood cell-enriched sample in a medium; and

d) detecting one or more proteins in the medium,

wherein the protein profile produced comprises one or more proteins detected in the medium, and said one or more proteins are selected from the group consisting of chemokines, cytokines, growth factors, receptors, hormones, and enzymes.

2. The method of claim 1, wherein the one or more proteins detected in the medium are secreted or released from the red blood cells in the red blood cell-enriched sample into said medium.

3. The method of claim 1, wherein the one or more proteins is two or more proteins.

4. The method of claim 1, wherein the one or more proteins is three or more proteins.

5. The method of claim 1, wherein the one or more proteins is four or more proteins.

6. The method of any one of claims 1-5, wherein the protein profile produced comprises one or more proteins measured in the red blood cell-enriched sample.

7. The method of any one of claims 1-6, wherein the small volume blood sample is obtained from a subject.

8. The method of claim 7, wherein the subject is a human or a non-human animal.

9. The method of any one or claims 1-8, wherein the small volume blood sample is obtained by finger prick, heel prick, ear prick, or tail prick.

10. The method of any one of claims 1-9, wherein the small volume blood sample is obtained a number of times selected from the group consisting of one or more times per week, two or more times per week, three or more times per week, four or more times per week, five or more times per week, six or more times per week, and seven or more times per week.

11. The method of one of claims 1-10, wherein the presence of the one or more proteins is detected, or a-level of the one or more proteins is measured using one or more antibodies.

12. The method of any one of claims 1-11, wherein the one or more proteins detected are cytokines.

13. The method of any one of claims 1-12, wherein the one or more proteins are selected from the group consisting of basic FGF, CTACK, Eotaxin, G-CSF, GM-CSF, HGF, IFN-α2, IFN-γ, IL-10, IL-12p70, IL-13, IL-12p40, IL-15, IL-16, 1L-17A, IL-18, IL-lα, IL-1β, IL-2, IL-2ra, IL-3, IL-4, IL-5, IL-6, IL-7, IL-9, IP- 10, LIF, M-CSF, MIG, MlP- lα, MIP-1β, PDGF-BB, SDF-lα, TNF-α, TNF-β, TRAIL, VEGF, CRP, and DDT.

14. The method of any one of claims 1-13, wherein the one or more proteins are selected from the group consisting of basic FGF, HGF, IFN-α2, IL-3, IL-16, PDGF-BB, SDF-lα, and VEGF.

15. The method of any one of claims 1-14, wherein the one or more proteins are detected or measured from one or more places selected from the group consisting of: a surface of red blood cells, an interior of red blood cells, a lysate of red blood cells, a supernatant of the red blood cells, a medium containing red blood cells, and a medium that previously contained the red blood cells.

16. The method of any one of claims 1-15, wherein the medium contains red blood cells or the lysate of red blood cells.

17. The method of any one of claims 1-16, wherein the medium previously contained red blood cells or the lysate of red blood cells.

18. The method of any one of claims 1-17, wherein the red blood cells are leukodepleted by dextran sedimentation.

19. A method of producing a disease protein profile comprising:

a.) obtaining at least one protein profile produced according to any one of claims 1-18 from:

(i) a subject having a disease or disorder, and

(ii) at least one subject not having the disease or disorder; and

b.) comparing the protein profile of the subject having the disease or disorder to the protein profile of the at least one subject not having the disease or disorder,

wherein the disease protein profile produced comprises one or more proteins that have a different presence or level in the protein profile from the subject having the disease or disorder compared to the protein profile of the at least one subject not having the disease or disorder.

20. The method of claim 19, wherein the disease protein profile is a cancer protein profile comprising one or more proteins selected from the group consisting of IL-1, IL-2, IL-4, IL-5, IL-6, IL-8, IL-10, IL-12, IL-15, IL-17, TNF-α, TGF-β, and IFN-γ.

21. The method of claim 19, wherein the disease profile is a preeclampsia protein profile comprising one or more proteins selected from the group consisting of TNF-α, IFN-γ, IL-4, IL-5, IL-10, IL-1β, IL-6, IL-8, and IL-12.

22. The method of claim 21, wherein the preeclampsia protein profile comprises one or more proteins selected from the group consisting of IL-6, IL-8, and IFN-γ.

23. A method for determining whether a subject has a disease or disorder comprising:

a.) obtaining a protein profile of the subject produced according to any one of claims 1-18; and

b.) comparing the protein profile of the subject to a disease protein profile,

wherein similarities in the presence or level of one or more proteins in the protein profile of the subject compared to the presence or level of the one or more proteins in the disease protein profile indicate the subject has the disease or disorder.