

CLAIMS**WHAT IS CLAIMED:**

1. A method of producing a protein profile comprising:
 - a.) obtaining a blood sample;
 - b.) leukodepleting at least a portion of the blood sample to produce a red blood cell-enriched sample; and
 - c.) detecting the presence of one or more proteins in a small volume of the red blood cell-enriched sample, wherein the small volume is 5 μ L to 100 μ L, wherein the protein profile produced comprises one or more proteins detected in the red blood cell-enriched sample.
2. The method of claim 1, further comprising measuring the level of the one or more proteins detected in the red blood cell-enriched sample, wherein the protein profile produced comprises one or more proteins measured in the red blood cell-enriched sample.
3. The method of claim 2, further comprising contacting the red blood cell-enriched sample with at least one cationic salt prior to detecting the presence or measuring the level of the one or more proteins, wherein the cationic salt increases the detectable level of one or more proteins in the red blood cell-enriched sample.
4. A method of producing a protein profile comprising:
 - a.) obtaining a blood sample;
 - b.) leukodepleting at least a portion of the blood sample to produce a red blood cell-enriched sample;
 - c.) isolating red blood cells and plasma in the red blood cell-enriched sample;
 - d.) measuring the level of one or more proteins in the red blood cells and the level of the one or more proteins in the plasma; and

e.) calculating a protein ratio comprising the level of the one or more proteins in the red blood cells to the level of the one or more proteins in the plasma,

wherein the protein profile produced comprises one or more proteins that have the protein ratio of at least 2:1.

5. A method of producing a protein profile comprising:
 - a.) obtaining a blood sample;
 - b.) leukodepleting at least a portion of the blood sample to produce a red blood cell-enriched sample;
 - c.) incubating 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.
6. The method of claim 5 further comprising measuring the level of the one or more proteins detected in the medium, wherein the protein profile produced comprises one or more proteins measured in the red blood cell-enriched sample.
7. The method of one or more of claims 1 to 6, wherein the 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 one or more of claims 1 to 8, wherein the blood sample obtained is a small volume blood sample, wherein the small volume is 5 μ L to 100 μ L.
10. The method of claim 9, wherein the small volume blood sample is obtained by finger prick, heel prick, ear prick, or tail prick.
11. The method of claim 9 or claim 10, 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.

12. The method of one or more of claims 1 to 11, wherein the presence of the one or more proteins is detected or the level of the one or more proteins is measured using one or more antibodies.
13. The method of one or more of claims 1 to 12, wherein the presence of three or more proteins is detected or the level of three or more proteins is measured in the red blood cell-enriched sample.
14. The method of one or more of claims 1 to 13, wherein the one or more proteins are selected from the group consisting of chemokines, cytokines, growth factors, receptors, intracellular signal transmitters, hormones, nuclear transcription factors, neurotransmitters, extracellular matrix components, and enzymes.
15. The method of one or more of claims 1 to 13, wherein the one or more proteins are selected from the group consisting of basic FGF, CTACK, Eotaxin, G-CSF, GM-CSF, HGF, IFN- α 2, IFN- γ , IL-10, IL-12p70, IL-13, IL-12p40, IL-15, IL-16, IL-17A, IL-18, IL-1 α , IL-1 β , IL-2, IL-2ra, IL-3, IL-4, IL-5, IL-6, IL-7, IL-9, IP-10, LIF, M-CSF, MIG, MIP-1 α , MIP-1 β , PDGF-BB, SDF-1 α , TNF- α , TNF- β , TRAIL, VEGF, CRP, and DDT.
16. The method of one or more of claims 1 to 15, wherein the red blood cells are leukodepleted by dextran sedimentation.
17. A method of producing a disease protein profile comprising:
 - a.) obtaining at least one protein profile produced according to one or more of claims 1 to 7 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.

18. The method of claim 17, 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 .
19. The method of claim 17, 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-1 β , IL-6, IL-8, and IL-12.
20. The method of claim 19, wherein the preeclampsia protein profile comprises one or more proteins selected from the group consisting of IL-6, IL-8, and IFN- γ .
21. A method for determining whether a subject has a disease or disorder comprising:
 - a.) obtaining a protein profile of the subject produced according to one or more of claims 1 to 7; 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.