WHAT IS CLAIMED IS:

1. A method for diagnosing a neurodegenerative disease in a subject, comprising isolating exosomes from the subject and assaying the exosomes for the presence of one or more biomarkers of a neurodegenerative disease, or dysregulation of one or more pathways associated with a brain disorder, disease, or injury.

2. The method of claim 1, wherein the biomarker is S100A8, S100A9, MAPK13, or a combination thereof.

3. The method of claim 1, wherein the biomarker is APP, Aβ, or Tau, or a combination thereof.

4. The method of claim 1, wherein the biomarker is MAPT, ADAMTS9, AKAP5, AQP1, ARC, CAMK2A, CASP4, CLEC3B, FAAH, GRIN1, HDAC9, MAP2K3, S100A8, S100A9, S100B, SLC16A6, SLC1A3, SLC25A4, SLC30A3, SLC38A2, SLC39A3, or any combination thereof.

5. The method of claim 1, wherein the biomarker is a biomarker of Alzheimer's Disease, selected from the group consisting of *Abat, Adamts9, Adss, Akap5, Alox12b, Ankrd55, Aqp1, Arc, Asb2, Atp6v1b2, Batf, Cadps2, Camk2a, Casp4, Ccl3, Ccl4, Cd14, Cd93, Ces1d, Cfi, Chst3, Clec3b, Cpne7, Cpt1b, Crtc2, Cxcl14, Dhcr24, Dsc2, Dtna, Dusp1, Eef2k, Elovl6, Epha2, Epha4, F3, Faah, Fbxo27, Fbxw9, Fkbp5, Fndc5, Fndc9, Gabra3, Gba, Gcnt2, Ggct, Ggps1, Grin1, Gsto1, Hdac9, Hmox1, Icam1, Igfbp2, Igfbp6, Il1b, Il31ra, Irf1, Itsn2, Kif9, Lama5, Ldb3, Lep, Lor, Lrrc39, Malat1, Map2k3, Mfap4, Mfng, Mybpc2, Myo5b, Myot, Nalcn, Nap1l5, Nfkb1, Nfkbiz, Nhlrc1, Nos2, Ogn, Pclo, Pcyox1l, Pecam1, Per2, Pfkm, Pgr, Piezo1, Pik3cg, Pim1, Plaur, Pld3, Plk2, Pmm1, Ptgs2, Rab3c, Rbfox1, Rhebl1, Rnase2b, S100a8, S100a9, S100b, Selp, Slc16a6, Slc1a3, Slc25a4, Slc30a3, Slc38a2, Slc39a3, Smtn, Sowahc, Spon2, Spp1, St3gal3, Stk36, Stoml1, Stx11, Tacstd2, Tbl1x, Tcf7l1, Tep1, Tgfb2, Tgfbr1, Tmem198, Tnfaip3, Tob2, Trim45, Trim54, Unc5d, Vipr1, Zbtb16,* and *Zc3h12c*, or any combination thereof.

6. The method of claim 1, wherein the brain disease is a neurodegenerative disease.

7. The method of claim 6, wherein the neurodegenerative disease comprises Alzheimer's Disease (AD), Parkinson's disease (PD), amyotrophic lateral sclerosis (ALS), and Huntington's disease (HD).

8. The method of claim 1, wherein the brain disease is a brain cancer.

9. The method of claim 1, wherein the brain disease is a stroke or ischemia.

10. The method of claim 1, wherein the brain injury is a traumatic brain injury.

11. A method for treating a subject with a brain disease, disorder, or injury, comprising delivering intracellularly into skin cells of the subject a polynucleotide comprising nucleic acid sequences encoding therapeutic genes to produce skin-derived exosomes containing the therapeutic gene or gene expression product thereof.

12. The method of claim 11, wherein the brain disease is a neurodegenerative disease.

13. The method of claim 12, wherein the neurodegenerative disease comprises Alzheimer's Disease (AD), Parkinson's disease (PD), amyotrophic lateral sclerosis (ALS), and Huntington's disease (HD).

14. The method of claim 11, wherein the brain disease is a brain cancer.

15. The method of claim 11, wherein the brain disease is a stroke or ischemia.

16. The method of claim 11, wherein the brain injury is a traumatic brain injury.

17. The method of claim 11, wherein the therapeutic gene is a vasculogenic factor.

18. The method of claim 17, wherein the vasculogenic factor comprises Etv2, Fli1, VEGFA, VEGFB, VEGFC, VEGFD, bFGF, Sox17, Oct4, Klf4, or any combination thereof.

19. The method of claim 11, wherein the therapeutic gene is a neurogenic factor.

20. The method of claim 17, wherein the neurogenic factor is selected from the group consisting of Ascl1, Ascl2, Ascl3, Ascl5, Neurog1, Neurog2, Neurog3, Neurod1, Neurod2, Neurod4, Neurod6, Atoh1, Atoh7, Atoh8, Myf5, Ptf1a, Brn3c, Brn3a, Brn3b, Brn1, Brn2, Brn4 , Oct4, Oct6, Pit1, Brn5, Myt1l, and Nurr1, or any combination thereof.

21. The method of claim 11, wherein the therapeutic gene is an siRNA or miRNA that inhibits APP.

22. The method of claim 21, wherein the miRNA is selected from the group consisting of hsa-miR-106b-5p, hsa-miR-101-3p, hsa-miR-520c-3p, hsa-miR-106a-5p, hsa-miR-20a-5p, hsa-miR-17-5p, hsa-miR-15a-5p, hsa-miR-130a-3p, hsa-let-7d-5p, hsa-let-7a-5p, hsa-miR-16-5p, hsa-miR-144-3p, hsa-miR-4422, hsa-let-7f-1-3p, hsa-let-7a-3p, hsa-let-7b-3p, hsa-miR-98-3p, hsa-miR-380-3p, hsa-miR-6835-3p, hsa-miR-4772-5p, hsa-miR-101-3p, hsa-miR-4719, hsa-miR-520f-3p, hsa-miR-3908, hsa-miR-4269, hsa-miR-323a-3p, hsa-miR-6715b-5p, hsa-miR-153-3p, hsa-miR-4495, hsa-miR-4786-5p, hsa-miR-3911, hsa-miR-6085, and hsa-miR-6813-5p, or any combination thereof.

23. The method of claim 11, wherein the therapeutic gene is an siRNA or miRNA that inhibits MAPT.

24. The method of claim 23, wherein the miRNA is selected from the group consisting of hsa-miR-34c-5p, hsa-miR-657, hsa-miR-4728-5p, and hsa-miR-3978, or any combination thereof.

25. The method of claim 11, wherein the therapeutic gene is an anti-Inflammatory gene.

26. The method of claim 25, wherein the anti-Inflammatory gene is selected from the group consisting of *PPARγ*, *Il-10, Il-27, Trem2,* and *IkBα,* and *Sirt1*, or any combination thereof.

27. The method of claim 11, wherein the therapeutic gene is an siRNA or miRNA that targets a pro-inflammatory gene.

28. The method of claim 27, wherein the pro-inflammatory gene is $P2X_4R$, TLR4, CX3CR1, or IL-1β.

29. A method for treating a neurological disease in a subject, comprising administering to the skin of the subject an agent that inhibits exosomal release from the skin to reducing trafficking to the brain.

30. The method of claim 29, wherein the agent is a neutral sphingomyelinase inhibitor.