CLAIMS

What is claimed is:

1. A method for creating an exosome treatment composition for treating, inhibiting, reducing, ameliorating, preventing, and/or reversing a disease or disorder in a subject, the method comprising:

a) identifying the hair, skin color, skin type, race, and ethnicity of an end user;

b) identifying a single nucleotide polymorphism (SNP) associated with the disease or disorder in the subject;

c) obtaining mesenchymal stem cells (MSCs) from a targeted donor having the same hair type, color, and ethnicity as the subject but with a single nucleotide polymorphism (SNP) profile that indicates the donor lacks the SNP associated with the disease or disorder; and

d) preparing an exosome preparation from the obtained MSCs, wherein the MSC and exosome preparation is created by culturing MSCs in media comprising growth conditions sufficient to generate exosomes that comprise and or secrete corrective SNPs and cytokines.

2. The method of claim 1, wherein the method further comprises identifying the type and amount of growth factors in the exosome preparation.

3. The method of claim 2, wherein growth factors are identified through proteomic analysis.

4. The method of claim 1, wherein the method further comprises characterizing the exosome RNA; preferably, wherein the exosome RNA is obtained by sequencing.

5. The method of claim 1, wherein the disease or disorder comprises baldness, atopic dermatitis, Autism spectrum disorder, Multiple sclerosis, chronic pain, depression, anxiety, bipolar disorder, osteoporosis, rheumatoid arthritis, celiac disease, type II diabetes, coronary heart disease, and/or hypertension.

6. The method of claim 5, wherein the baldness comprises male pattern baldness, androgenetic alopecia, alopecia areata, cicatricial alopecia, telogen effluvium, or female pattern baldness.

7. The method of claim 6, wherein the treatment composition stimulates the activation of hair follicles to promote hair growth.

8. The method of claim 5, wherein the cancer comprises pancreatic cancer or breast cancer.

9. The method of claim 1, wherein the SNP comprises one or more SNPs present in one or more genes encoding Interleukin 18 (IL-18), Androgen Receptor (AR), Histone deacetylase (HDAC)-4 (HDAC4), HDAC9, Paired Box 1(PAX1), Forkhead box A2 (FOXA2), TAR DNA Binding Protein (TARDBP), Autism Susceptibility Gene 2 (AUTS2), SET Binding Protein 1 (SETBP1), 17q21.31, tumor necrosis factor receptor superfamily member 6B (TNFRSF6B), Zinc finger CCCH-type with G patch domain-containing protein (ZGPAT), P2X purinoceptor 7 (P2RX7), Oxytocin Receptor, non-coding RNA (ncRNA), long non-coding RNA (lncRNA), human leukocyte antigen (HLA), Platelet Derived Growth Factor (PDGF) receptor (PDGFR) B (PDGFR-B), Tissue Inhibitors of Metalloprotease (TIMP) 1 (TIMP-1), TIMP-2, IL-23, Activin A, intracellular adhesion molecule (ICAM-2), Osteopontin (OPN), Insulin, Insulin growth factor binding protein four (IGF-BP4), Tumor Necrosis Factor (TNF) receptor 1 (TNF-R1), Ectodysplasin A2 receptor (XEDAR), and/or follistatin.

10. The method of claim 9, wherein the SNP comprises the IL-18 SNP rs1946518 and/or rs187238; or wherein the SNP comprises ncRNA SNP Rs11669309, Rs2298075, and/or Rs10237038; or wherein the SNP comprises the androgen receptor SNP Rs6152, Rs 2223841, and/or Rs2497938; or wherein the SNP comprises the oxytocin receptor SNP Rs237887, Rs 2268491, Rs2254298, and/or Rs 7632287; or wherein the SNP comprises the P2RX7 SNP Rs17525809, Rs28360447, Rs7958311, Rs1718119, Rs2230912, Rs28360457, Rs2230911, and/or Rs1653624; or wherein the SNP comprises the lncRNA SNP Rs8028149, Rs16868911, Rs11543230, Rs9309325, Rs12951337, Rs15428265, Rs12683158, and/or Rs6982502; or wherein the SNP comprises the HLA gene SNP Rs2269706; or wherein the SNP comprises the PAX1/FOXA2 SNP Rs1160312 and/or Rs6047844; or wherein the SNP comprises the HDAC9 SNP Rs2073963 and/or Rs2180439; or wherein the SNP comprises the HDAC4 SNP Rs9287638; or wherein the SNP comprises the TARDBP SNP Rs12565727; or wherein the SNP comprises the AUTS2 SNP Rs6945541; or wherein the SNP comprises the 17q21.31 SNP Rs12373124; or wherein the SNP comprises the SETBP1 SNP Rs10502861; or wherein the SNP comprises the TNFRSF6B/ZGPAT SNP Rs6010620.

11. An exosome treatment composition, the composition comprising:

a) a composition base; and

b) an exosome composition derived from MSCs from a donor having the same hair type, hair color, skin type, skin color, race, and/or ethnicity as an end user but with a single nucleotide polymorphism (SNP) profile that indicates the donor lacks an SNP associated with the disease or disorder suffered by the end user subject; wherein the exosome preparation

comprises cell conditioned media cultured under conditions comprising 0.1% to 5% oxygen and a pH from 6 to 7.4.

12. The exosome treatment composition of claim 11, wherein the SNP comprises one or more SNPs present in one or more genes encoding Interleukin 18 (IL-18), Androgen Receptor (AR), Histone deacetylase (HDAC)-4 (HDAC4), HDAC9, Paired Box 1(PAX1), Forkhead box A2 (FOXA2), TAR DNA Binding Protein (TARDBP), Autism Susceptibility Gene 2 (AUTS2), SET Binding Protein 1 (SETBP1), 17q21.31, tumor necrosis factor receptor superfamily member 6B (TNFRSF6B), Zinc finger CCCH-type with G patch domain-containing protein (ZGPAT), P2X purinoceptor 7 (P2RX7), Oxytocin Receptor, non-coding RNA (ncRNA), long non-coding RNA (lncRNA), human leukocyte antigen (HLA), Platelet Derived Growth Factor (PDGF) receptor (PDGFR) B (PDGFR-B), Tissue Inhibitors of Metalloprotease (TIMP) 1 (TIMP-1), TIMP-2, IL-23, Activin A, intrcellular adhesion molecule (ICAM-2), Osteopontin (OPN), Insulin, Insulin growth factor binding protein four (IGF-BP4), Tumor Necrosis Factor (TNF) receptor 1 (TNF-R1), Ectodysplasin A2 receptor (XEDAR), and/or follistatin.

13. The exosome treatment composition of claim 12, wherein the SNP comprises the IL-18 SNP rs1946518 and/or rs187238; or wherein the SNP comprises ncRNA SNP Rs11669309, Rs2298075, and/or Rs10237038; or wherein the SNP comprises the androgen receptor SNP Rs6152, Rs 2223841, and/or Rs2497938; or wherein the SNP comprises the oxytocin receptor SNP Rs237887, Rs 2268491, Rs2254298, and/or Rs 7632287; or wherein the SNP comprises the P2RX7 SNP Rs17525809, Rs28360447, Rs7958311, Rs1718119, Rs2230912, Rs28360457, Rs2230911, and/or Rs1653624; or wherein the SNP comprises the lncRNA SNP Rs8028149, Rs16868911, Rs11543230, Rs9309325, Rs12951337, Rs15428265, Rs12683158, and/or Rs6982502; or wherein the SNP comprises the HLA gene SNP Rs2269706; or wherein the SNP comprises the PAX1/FOXA2 SNP Rs1160312 and/or Rs6047844; or wherein the SNP comprises the HDAC9 SNP Rs2073963 and/or Rs2180439; or wherein the SNP comprises the HDAC4 SNP Rs9287638; or wherein the SNP comprises the TARDBP SNP Rs12565727; or wherein the SNP comprises the AUTS2 SNP Rs6945541; or wherein the SNP comprises the 17q21.31 SNP Rs12373124; or wherein the SNP comprises the SETBP1 SNP Rs10502861; or wherein the SNP comprises the TNFRSF6B/ZGPAT SNP Rs6010620.

14. Use of any of the exosome treatment composition of any of claims 11-13 in the manufacture of a medicament for treating, inhibiting, reducing, ameliorating, preventing, and/or reversing a disease or disorder in a subject, wherein the disease or disorder comprises

baldness, atopic dermatitis, Autism spectrum disorder, Multiple sclerosis, chronic pain, depression, anxiety, bipolar disorder, osteoporosis, rheumatoid arthritis, celiac disease, type II diabetes, coronary heart disease, and/or hypertension.

15. The use of claim 14, wherein the baldness comprises male pattern baldness, androgenetic alopecia, alopecia areata, cicatricial alopecia, telogen effluvium, or female pattern baldness.

16. The use of claim 15, wherein the single nucleotide polymorphism (SNP) associated with the disease or disorder in the subject comprises one or more of the SNPs Rs6152, Rs 2223841, Rs2497938, Rs1160312, 6047844, Rs2180439, Rs2073963, Rs12565727, Rs9287638, Rs6945541, Rs12373124, Rs10502861, Rs187238, and/or Rs1946518.

17. The use of claim 16, wherein the disease or disorder comprises autism spectrum disorder and the SNP associated with the autism spectrum disorder comprise one or more of the SNPs Rs237887, Rs 2268491, Rs2254298, and/or Rs 7632287; or wherein the disease or disorder comprises osteoporosis and the SNP associated with the osteoporosis comprises one or more of the SNPs Rs28360447, Rs28360457, Rs1718119, Rs2230911, and/or Rs1653624; or wherein the disease or disorder comprises Rheumatoid Arthritis and the SNP associated with the Rheumatoid Arthritis comprises the SNP Rs2269706; or wherein the disease or disorder comprises Multiple Sclerosis and the SNP associated with the Multiple Sclerosis comprises one or more of the SNPs Rs17525809 and/or Rs28360447; wherein the disease or disorder comprises chronic pain and the SNP associated with the chronic pain comprises one or more of the SNPs Rs28360447 and/or Rs7958311; or wherein the disease or disorder comprises atopic dermatitis and the SNP associated with the atopic dermatitis comprises the SNP Rs6010620; or wherein the disease or disorder comprises hypertension and the SNP associated with the hypertension comprises the SNP Rs11669309; or wherein the disease or disorder comprises coronary heart disease and the SNP associated with the heart disease comprises the SNP Rs6982502; wherein the disease or disorder comprises type II diabetes and the SNP associated with the type II diabetes comprises the SNP Rs12683158; or wherein the disease or disorder comprises celiac disease and the SNP associated with the celiac disease comprises the SNP Rs15428265; or wherein the disease or disorder anxiety and the SNP associated with the anxiety comprises the SNP Rs1718119; or wherein the disease or disorder comprises bipolar disorder and the SNP associated with the bipolar disorder comprises the SNP Rs2230912; or wherein the disease or disorder comprises depression and the SNP associated with the depression comprises the SNP Rs8028149; or wherein the disease or disorder comprises the

one or more of the SNPs Rs16868911, Rs11543230, Rs9309325, and/or Rs12951337.