In one aspect, the invention refers to a method of producing an isolated neural stem cell microparticle as defined herein, comprising isolating the microparticle from a neural stem cell-conditioned medium. In another aspect, the invention refers to a method of producing a stem cell microparticle, comprising isolating a microparticle from a stem cell-conditioned medium wherein: (i) the stem cell-conditioned medium comprises one or more components which induce the release of microparticles by the stem cells into the medium, wherein the one or more components are selected from: transforming growth factor-beta (TGF-β), interferon-gamma (INF-γ) and tumour necrosis factor-alpha (TNF-α); (ii) the stem cells were co-cultured with a different cell type, optionally wherein the different cell type is an endothelial cell; and/or (iii) the stem cells were cultured in a multi-compartment bioreactor; optionally wherein the stem cell is a neural stem cell, optionally as defined herein. In one example, disclosed herein is a method of producing a stem cell microparticle, typically a neural stem cell microparticle. The method may comprise culturing the stem cells in an environment that allows stem cell differentiation and collecting the microparticles that are produced by the cells. The microparticles may be isolated from partially-differentiated neural stem cells. The stem cells may be cultured under conditions that allow the efficient removal of metabolic waste. In one example, an environment that allows stem cell differentiation is culture in a multi-compartment bioreactor, typically for a prolonged period of time (for example more than seven days). The method may comprise isolating a microparticle from a stem cell-conditioned medium. The stem cell-conditioned medium may comprise one or more additive components or agents which stimulate the release of microparticles by the stem cells into the medium. The one or more components may be selected from transforming growth factor-beta (TGF-β), interferon-gamma (IFN-γ) and/or tumour necrosis factor-alpha (TNF-α). The microparticles may be isolated from stem cell-conditioned medium wherein the stem cells were cultured under hypoxic conditions. The microparticles may be isolated from stem cell-conditioned medium produced by stem cells co-cultured with a different cell type, typically endothelial cells, in order to create the NSC niche environment.

One aspect of the invention provides a microparticle obtainable by a method according to the previous aspect of the invention.

In another aspect, the present invention refers to a composition comprising an isolated microparticle as described herein and a pharmaceutically acceptable excipient, carrier or diluent. In one example, there is disclosed herein a composition comprising a neural stem cell microparticle and a pharmaceutically acceptable excipient, carrier or diluent.

~~Yet another aspect of the invention provides~~Also disclosed is a method of screening for an agent that alters the production of a microparticle by a stem cell, comprising contacting a stem cell with a

candidate agent and observing whether the rate of production of microparticles by the contacted stem cell increases or decreases compared to a control.

~~In another aspect, the invention refers to~~Also disclosed is a kit for use in a method for producing the microparticle as defined herein comprising: (a) a medium; (b) a neural stem cell, wherein the neural stem cell is CTX0E03 having ECACC Accession No. 04091601, STR0C05 having ECACC Accession No.04110301 or HPC0A07 having ECACC Accession No.04092302; (c) optionally the one or more components as defined herein; (d) optionally the microparticle as defined herein suitable for use as a control; (e) optionally a detection agent suitable for specific detection of the produced microparticles; and (f) instructions for producing the microparticle as defined herein using the kit.

In one example, there is disclosed a kit for use in a method for producing a stem cell microparticle, comprising: (a) a medium suitable for culturing stem cells; (b) a stem cell; (c) optionally the one or more components of the fourth aspect of the invention; (d) optionally a stem cell microparticle suitable for use as a control; (e) optionally a detection agent suitable for specific detection of the produced microparticles; and (f) instructions for producing the stem cell microparticle using the kit.

One aspect of the invention provides a composition comprising two, three or all four of hsa-miR-1246, hsa-miR-4492, hsa-miR-4488 and hsa-miR-4532. This composition is optionally a

(i) the microparticle is an exosome and therapy is of a disease or condition requiring tissue replacement, regeneration or repair; or

(ii) the microparticle is a microvesicle and the therapy is of a disease requiring angiogenesis or a neurological disease, disorder or deficit.

11. A method of producing an isolated neural stem cell microparticle as defined in any of claims 1-7, comprising isolating the microparticle from a neural stem cell-conditioned medium.

12. A method of producing a stem cell microparticle, comprising isolating a microparticle from a stem cell-conditioned medium wherein:

(i) the stem cell-conditioned medium comprises one or more components which induce the release of microparticles by the stem cells into the medium, wherein the one or more components are selected from: transforming growth factor-beta (TGF-β), interferon-gamma (INF-γ) and tumour necrosis factor-alpha (TNF-α);

(ii) the stem cells were co-cultured with a different cell type, optionally wherein the different cell type is an endothelial cell; and/or

(iii) the stem cells were cultured in a multi-compartment bioreactor;

optionally wherein the stem cell is a neural stem cell, optionally as defined in claim 3.

13. A composition comprising an isolated microparticle according to any of claims 1-7 and a pharmaceutically acceptable excipient, carrier or diluent.

~~14. A kit for use in a method for producing the microparticle of any of claims 1-7 comprising: (a) a medium; (b) a neural stem cell, wherein the neural stem cell is CTX0E03 having ECACC Accession No. 04091601, STR0C05 having ECACC Accession No.04110301 or HPC0A07 having ECACC Accession No.04092302; (c) optionally the one or more components of claim 12(i); (d) optionally the microparticle of any of claims 1-7 suitable for use as a control; (e) optionally a detection agent suitable for specific detection of the produced microparticles; and (f) instructions for producing the microparticle of any of claims 1-7 using the kit.~~

~~15. A method of screening for an agent that alters the rate of production of a microparticle by a stem cell, comprising contacting a stem cell with a candidate agent and observing whether the rate production of microparticles by the contacted stem cell increases or decreases compared to a control.~~