What is claimed:

1. Use of a homogeneous population of cells isolated from human umbilical cord in the manufacture of a medicament for the treatment of acute renal failure or chronic kidney disease, wherein the umbilical cord tissue is substantially free of blood, and wherein the population of cells is capable of self-renewal and expansion in culture and has the potential to differentiate; can undergo at least 40 doublings in culture; maintains a normal karyotype upon passaging; and has the following characteristics:

a) expresses each of CD10, CD13, CD44, CD73, cD90, PDGFr-alpha, PD-L2, and HLA-A,B,C;

b) does not express any of CD31, CD34, CD45, CD80, CD86, CD117, CD141, CD178, B7-H2, HLA-G, or HLA-DR,DP,DQ; and

c) increased expression of a gene for each of interleukin 8; reticulon 1; and chemokine (C-X-C motif) ligand 3 relative to a human cell that is a fibroblast, mesenchymal stem cell or iliac crest bone marrow cell.

2. The use of claim 1, wherein the population of cells expresses oxidized low density lipoprotein receptor 1, reticulon, chemokine receptor ligand 3, or granulocyte chemotactic protein 2.

3. The use of claim 1, wherein the population of cells secretes each of the factors MIP lbeta, IL-6, IL-8, GCP-2, HGF, KGF, FGF, HB-EGF, BDNF, TPO, RANTES and TIMP1; and does not secrete any of the factors SDF-lalpha, TGF-beta2, ANG2, PDGFbb and VEGF.

4. The use of claim 1, wherein the population of cells is administered by injection or infusion.

5. The use of claim 1, wherein the population of cells is administered encapsulated within an implantable device.

6. The use of cells of claim 1, wherein the population of cells is administered by implantation of a matrix comprising the population of cells.

7. The use of cells of claim 1, wherein the population of cells is administered with at least one other cell type.

8. The use of claim 7, wherein the at least one other cell type is administered simultaneously with, or before, or after, the population of cells.

9. The use of claim 1, wherein the population of cells is administered with at least one agent.

10. The use of claim 9, wherein the at least one agent is administered simultaneously with, before, or after administration of the population of cells obtained from human umbilical cord tissue.

11. The use of claim 1, wherein the population of cells exerts a trophic effect on the kidney of the patient.

12. The use of claim 1, wherein the damage to the kidney is induced by age, trauma, toxin exposure, drug exposure, radiation exposure, oxidation, immune-complex deposition, or transplant rejection.

13. Use of a pharmaceutical composition comprising a pharmaceutically acceptable carrier and a homogeneous population of cells isolated from human umbilical cord tissue in the manufacture of a medicament for the treatment of a patient having acute renal failure or chronic kidney disease, wherein the umbilical cord tissue is substantially free of blood, and wherein the population of cells is capable of self-renewal and expansion in culture and has the potential to differentiate; can undergo at least 40 doublings in culture; maintains a normal karyotype upon passaging; and has the following characteristics:

a) expresses each of CD10, CD13, CD44, CD73, CD90, PDGFr-alpha, PD-L2, and HLA-A,B,C;

b) does not express any of CD31, CD34, CD45, CD80, CD86, CD117, CD141, CD178, B7-H2, HLA-G, or HLA-DR,DP,DQ; and

c) increased expression of a gene for each of interleukin 8; reticulon 1; and chemokine (C-X-C motif) ligand 3 relative to a human cell that is a fibroblast, mesenchymal stein cell or iliac crest bone marrow cell.

14. The use of claim 13, wherein the damage to the kidney is induced by age, trauma, toxin exposure, drug exposure, radiation exposure, oxidation, immune-complex deposition, or transplant rejection.

15. The use of claim 13, further comprising at least one other cell type.

16. The use of claim 13, further comprising at least one agent.

17. The use of claim 13, formulated for administration by injection or infusion.

18. The use of claim 13, wherein the population of cells is encapsulated within an implantable device.

19. The use of claim 13, wherein the population of cells is seeded on a matrix.

20. Use of a kit comprising a pharmaceutically acceptable carrier and a homogeneous population of cells isolated from human umbilical cord tissue in the manufacture of a medicament for the treatment of a patient acute renal failure or chronic kidney disease, wherein the umbilical cord tissue is substantially free of blood, and wherein the population of cells is capable of self-renewal and expansion in culture and has the potential to differentiate; can undergo at least 40 doublings in culture; maintains a normal karyotype upon passaging; and has the following characteristics:

a) expresses each of CD10, CD13, CD44, CD73, CD90, PDGFr-alpha, PD-L2, and HLA-A,B,C;

b) does not express any of CD31, CD34, CD45, CD80, CD86, CD117, CD141, CD178, B7-H2, HLA-G, or HLA-DR,DP,DQ; and

c) increased expression of a gene for each of interleukin 8; reticulon 1; and chemokine (C-X-C motif) ligand 3 relative to a human cell that is a fibroblast, mesenchymal stem cell or iliac crest bone marrow cell.

21. The use of claim 20, wherein the kit further comprises at least one reagent for and instructions for culturing the population of cells.

22. The use of claim 20, wherein the kit further comprises a population of at least one other cell type.

23. The use of claim 20, wherein the kit further comprises at least one agent.

24. Use of a composition comprising a soluble cell fraction, lysate, extracellular matrix, or conditioned medium prepared from a homogeneous population of cells isolated from human umbilical cord tissue in the manufacture of a medicament for acute renal failure or chronic kidney disease, wherein the umbilical cord tissue is substantially free of blood, and wherein the population of cells is capable of self-renewal and expansion in culture and has the potential to differentiate; can undergo at least 40 doublings in culture; maintains a normal karyotype upon passaging; and has the following characteristics:

a) expresses each of CD10, CD13, CD44, CD73, CD90, PDGFr-alpha, PD-L2, and HLA

A,B,C;

b) does not express any of CD31, CD34, CD45, CD80, CD86, CD117, CD141, CD178, B7-H2, HLA-G, or HLA-DR,DP,DQ; and

c) increased expression of a gene for each of interleukin 8; reticulon 1; and chemokine (C-X-C motif) ligand 3 relative to a human cell that is a fibroblast, mesenchymal stem cell or iliac crest bone marrow cell.

25. Use of a pharmaceutical composition, comprising a pharmaceutically acceptable carrier and a lysate, extracellular matrix, or conditioned medium prepared from a homogeneous population of cells isolated from human umbilical cord tissue in the manufacture of a medicament for the acute renal failure or chronic kidney disease, wherein the umbilical cord tissue is substantially free of blood, and wherein the population of cells is capable of self-renewal and expansion in culture and has the potential to differentiate; can undergo at least 40 doublings in culture; maintains a normal karyotype upon passaging; and has the following characteristics:

a) expresses each of CD10, CD13, CD44, CD73, CD90, PDGFr-alpha, PD-L2, and HLA-A,B,C;

b) does not express any of CD31, CD34, CD45, CD80, CD86, CD117, CD141, CD178, B7-H2, HLA-G, or HLA-DR,DP,DQ; and

c) increased expression of a gene for each of interleukin 8; reticulon 1; and chemokine (C-X-C motif) ligand 3 relative to a human cell that is a fibroblast, mesenchymal stem cell or iliac crest bone marrow cell,

What is claimed:

1. Use of a homogeneous population of cells isolated from human umbilical cord in the manufacture of a medicament for the treatment of acute renal failure or chronic kidney disease, wherein the umbilical cord tissue is substantially free of blood, and wherein the population of cells is capable of self-renewal and expansion in culture and has the potential to differentiate; can undergo at least 40 doublings in culture; maintains a normal karyotype upon passaging; and has the following characteristics:

a) expresses each of CD10, CD13, CD44, CD73, cD90, PDGFr-alpha, PD-L2, and HLA-A,B,C;

b) does not express any of CD31, CD34, CD45, CD80, CD86, CD117, CD141, CD178, B7-H2, HLA-G, or HLA-DR,DP,DQ; and

c) increased expression of a gene for each of interleukin 8; reticulon 1; and chemokine (C-X-C motif) ligand 3 relative to a human cell that is a fibroblast, mesenchymal stem cell or iliac crest bone marrow cell.

2. The use of claim 1, wherein the population of cells expresses oxidized low density lipoprotein receptor 1, reticulon, chemokine receptor ligand 3, or granulocyte chemotactic protein 2.

3. The use of claim 1, wherein the population of cells secretes each of the factors MIP lbeta, IL-6, IL-8, GCP-2, HGF, KGF, FGF, HB-EGF, BDNF, TPO, RANTES and TIMP1; and does not secrete any of the factors SDF-lalpha, TGF-beta2, ANG2, PDGFbb and VEGF.

4. The use of claim 1, wherein the population of cells exerts a trophic effect on the kidney of the patient.

5. The use of claim 1, wherein the damage to the kidney is induced by age, trauma, toxin exposure, drug exposure, radiation exposure, oxidation, immune-complex deposition, or transplant rejection.

6. Use of a pharmaceutical composition comprising a pharmaceutically acceptable carrier and a homogeneous population of cells isolated from human umbilical cord tissue in the manufacture of a medicament for the treatment of a patient having acute renal failure or chronic kidney disease, wherein the umbilical cord tissue is substantially free of blood, and wherein the population of cells is capable of self-renewal and expansion in culture and has the potential to differentiate; can undergo at least 40 doublings in culture; maintains a normal karyotype upon passaging; and has the following characteristics:

a) expresses each of CD10, CD13, CD44, CD73, CD90, PDGFr-alpha, PD-L2, and HLA-A,B,C;

b) does not express any of CD31, CD34, CD45, CD80, CD86, CD117, CD141, CD178, B7-H2, HLA-G, or HLA-DR,DP,DQ; and

c) increased expression of a gene for each of interleukin 8; reticulon 1; and chemokine (C-X-C motif) ligand 3 relative to a human cell that is a fibroblast, mesenchymal stein cell or iliac crest bone marrow cell.

7. The use of claim 6, wherein the acute renal failure or chronic kidney disease is induced by age, trauma, toxin exposure, drug exposure, radiation exposure, oxidation, immune-complex deposition, or transplant rejection.

8. The use of claim 6, further comprising at least one other cell type.

9. The use of claim 6, further comprising at least one agent.

10. The use of claim 6, wherein the population of cells is encapsulated within an implantable device.

11. The use of claim 6, wherein the population of cells is seeded on a matrix.

12. Use of a kit comprising a pharmaceutically acceptable carrier and a homogeneous population of cells isolated from human umbilical cord tissue in the manufacture of a medicament for the treatment of a patient acute renal failure or chronic kidney disease, wherein the umbilical cord tissue is substantially free of blood, and wherein the population of cells is capable of self-renewal and expansion in culture and has the potential to differentiate; can undergo at least 40 doublings in culture; maintains a normal karyotype upon passaging; and has the following characteristics:

a) expresses each of CD10, CD13, CD44, CD73, CD90, PDGFr-alpha, PD-L2, and HLA-A,B,C;

b) does not express any of CD31, CD34, CD45, CD80, CD86, CD117, CD141, CD178, B7-H2, HLA-G, or HLA-DR,DP,DQ; and

c) increased expression of a gene for each of interleukin 8; reticulon 1; and chemokine (C-X-C motif) ligand 3 relative to a human cell that is a fibroblast, mesenchymal stem cell or iliac crest bone marrow cell.

13. The use of claim 12, wherein the kit further comprises at least one reagent for and instructions for culturing the population of cells.

14. The use of claim 12, wherein the kit further comprises a population of at least one other cell type.

15. The use of claim 12, wherein the kit further comprises at least one agent.

16. Use of a composition comprising a soluble cell fraction, lysate, extracellular matrix, or conditioned medium prepared from a homogeneous population of cells isolated from human umbilical cord tissue in the manufacture of a medicament for acute renal failure or chronic kidney disease, wherein the umbilical cord tissue is substantially free of blood, and wherein the population of cells is capable of self-renewal and expansion in culture and has the potential to differentiate; can undergo at least 40 doublings in culture; maintains a normal karyotype upon passaging; and has the following characteristics:

a) expresses each of CD10, CD13, CD44, CD73, CD90, PDGFr-alpha, PD-L2, and HLA

A,B,C;

b) does not express any of CD31, CD34, CD45, CD80, CD86, CD117, CD141, CD178, B7-H2, HLA-G, or HLA-DR,DP,DQ; and

c) increased expression of a gene for each of interleukin 8; reticulon 1; and chemokine (C-X-C motif) ligand 3 relative to a human cell that is a fibroblast, mesenchymal stem cell or iliac crest bone marrow cell.

17. Use of a pharmaceutical composition, comprising a pharmaceutically acceptable carrier and a lysate, extracellular matrix, or conditioned medium prepared from a homogeneous population of cells isolated from human umbilical cord tissue in the manufacture of a medicament for the acute renal failure or chronic kidney disease, wherein the umbilical cord tissue is substantially free of blood, and wherein the population of cells is capable of self-renewal and expansion in culture and has the potential to differentiate; can undergo at least 40 doublings in culture; maintains a normal karyotype upon passaging; and has the following characteristics:

a) expresses each of CD10, CD13, CD44, CD73, CD90, PDGFr-alpha, PD-L2, and HLA-A,B,C;

b) does not express any of CD31, CD34, CD45, CD80, CD86, CD117, CD141, CD178, B7-H2, HLA-G, or HLA-DR,DP,DQ; and

c) increased expression of a gene for each of interleukin 8; reticulon 1; and chemokine (C-X-C motif) ligand 3 relative to a human cell that is a fibroblast, mesenchymal stem cell or iliac crest bone marrow cell,