(b) culturing said differentiating cells in a medium comprising nicotinamide and activin A to generate cells which are further differentiated towards the RPE lineage; and

(c) culturing said cells which are further differentiated towards the RPE lineage in a medium comprising nicotinamide, wherein said medium is devoid of activin A.

12. The cell population of claim 11, wherein steps (a)-(c) are effected under conditions wherein the atmospheric oxygen level is less than 10%.

13. A pharmaceutical composition comprising the cell population of any one of claims 1-12, as the active agent and a pharmaceutically acceptable carrier.

14. Use of the cell population of any one of claims 1-12 in the manufacture of a medicament for treating a retinal degeneration.

15. A method of generating retinal pigment epithelium (RPE) cells, comprising:

(a) culturing pluripotent stem cells in a medium comprising a differentiating agent so as to generate differentiating cells, wherein said medium is devoid of a member of the transforming growth factor β (TGF β) superfamily;

(b) culturing said differentiating cells in a medium comprising said member of the transforming growth factor β (TGF β) superfamily and said differentiating agent to generate cells which are further differentiated towards the RPE lineage; and

(c) culturing said cells which are further differentiated towards the RPE lineage in a medium comprising a differentiating agent so as to generate RPE cells, wherein said medium is devoid of a member of the transforming growth factor β (TGF β) superfamily, wherein steps (a)-(c) are effected under conditions wherein the atmospheric oxygen level is less than 10%;

and further wherein at least 95% of the population of RPE cells generated in step (c) co-express premelanosome protein (PMEL17) and cellular retinaldehyde binding protein (CRALBP) and the trans-epithelial electrical resistance of the population of cells is greater than 100 ohms.

16. The method of claim 15, wherein step (a) comprises:

i) culturing said cultured population of human pluripotent stem cells in a medium comprising nicotinamide, in the absence of activin A; under non-adherent conditions to generate a cluster of cells comprising differentiating cells; and subsequently

ii) culturing said differentiating cells of (i) in a medium comprising nicotinamide, in the absence of activin A under adherent conditions.

17. The method of claim 15, further comprising culturing said differentiated cells in a medium under conditions wherein the atmospheric oxygen level is greater than 10% in the presence of a differentiating agent following step (c).

18. The method of claim 15, wherein said member of the transforming growth factor β (TGF β) superfamily is selected from the group consisting of TGFβ1, TGFβ3 and activin A.

19. The method of claim 15, further comprising selecting polygonal cells following step (c).

20. The method of claim 16, wherein said pluripotent stem cells comprise embryonic stem cells, and said embryonic stem cells are propagated in a medium comprising bFGF and TGFβ.