Claims

1. An adhesion barrier composition for use in reducing the formation of post-surgery tissue adhesion in a subject in need thereof or for use in preventing the formation of tissue adhesion during or post-surgery in a subject in need thereof, the adhesion barrier composition comprising:

a) sporopollenin; and

b) a biodegradable polymer;

wherein the weight ratio of sporopollenin is 1 wt/wt% to 80 wt/wt% relative to the total composition.

2. A use of an adhesion barrier composition in the manufacture of a medicament for reducing the formation of post-surgery tissue adhesion in a subject in need thereof or for preventing the formation of tissue adhesion during or post-surgery in a subject in need thereof, the adhesion barrier composition comprising:

a) sporopollenin; and

b) a biodegradable polymer;

wherein the weight ratio of sporopollenin is 1 wt/wt% to 80 wt/wt% relative to the total composition.

3. The adhesion barrier composition for use or use according to claim 1 or 2, wherein the surgery is selected from peritoneal, pericardial, obstetric, gynaecological, neurosurgical, arthroscopic, orthopaedic, plastic, reconstructive, muscle or tendon surgery.

4. An adhesion barrier composition comprising:

a) sporopollenin; and

b) a biodegradable polymer;

wherein the weight ratio of sporopollenin is 1 wt/wt% to 80 wt/wt% relative to the total composition.

5. The adhesion barrier composition or use according to any one of claims 1 to 4, wherein the sporopollenin comprises at least one of the following:

i) a polymer having ester bonds, wherein the sporopollenin is characterised with having at least 2% of the ester bond hydrolysed;

ii) a polymer having ether bonds, wherein the sporopollenin is characterised with having at least 2% of the ether bond hydrolysed;
iii) a polymer having peptide bonds, wherein at least 2% of the peptide bond is hydrolysed; and
iv) a lipid, wherein at least 2% of the lipid is saponificated.

6. The adhesion barrier composition, or use according to any one of claims 1 to 5, wherein the sporopollenin is derived from a pollen, the pollen originating from a flowering plant of the genus Baccharis, Helianthus or Camellia, Coreopsis, Callistephus, Dahalia, Solidago or a combination thereof.

7. The adhesion barrier composition, or use according to any one of claims 1 to 6, wherein the sporopollenin has a particle size of about 20 μm to about 50 μm.

8. The adhesion barrier composition, or use according to any one of claims 1 to 7, wherein the biodegradable polymer is selected from poly(glycolic) acid, polylactic acid, polydioxanone, polycaprolactone, calcium alginate, sodium hyalurate, hyaluronic acid or a combination thereof, and preferably polylactic acid (PLA).

9. The adhesion barrier composition or use according to any of claims 1 to 8, wherein the adhesion barrier composition further comprises an aqueous medium.

10. The adhesion barrier composition or use according to any of claims 1 to 9, wherein the adhesion barrier composition further comprises a lipid selected from lauric acid, palmitic acid, α-linolenic acid, myristic acid, stearic acid, oleic acid, linoleic acid, eicosenoic acid, glycerides or a combination thereof.

11. The adhesion barrier composition or use according to any of claims 1 to 10, wherein the adhesion barrier composition further comprising pollenkitt selected from an angiosperm.

12. The adhesion barrier composition or use according to any of claims 1 to 11, wherein the adhesion barrier composition further comprising intine selected from polysaccharides, cellulose, hemicellulose and pectin, or a combination thereof.

13. The adhesion barrier composition or use according to any of claims 1 to 12, wherein the adhesion barrier composition further comprising phenolic compound selected from gallic acid, caffeic acid, ferulic acid, p-coumaric, benzoic acid or a combination thereof,
wherein a weight ratio of the phenolic compound is at least 1 wt/wt% relative to the total composition.

14. The adhesion barrier composition or use according to any of claims 1 to 13, wherein the adhesion barrier composition is capable of being completely resorbed after 6 months on application.

15. The adhesion barrier composition or use according to any of claims 1 to 14, wherein the adhesion barrier composition is a film, gel or a liquid.

16. The adhesion barrier composition or use according to any of claims 1 to 15, wherein the adhesion barrier composition is an adhesion barrier film, the adhesion barrier film comprising:
a) a coating of sporopollenin; and
b) a biodegradable polymer film having two surfaces;
wherein the weight ratio of sporopollenin is 1 wt/wt% to 80 wt/wt% relative to the total composition; and
wherein sporopollenin coats at least one surface of the biodegradable polymer film.

17. The adhesion barrier composition or use according to claim 16, wherein the sporopollenin coats both surfaces of the biodegradable polymer film.

18. The adhesion barrier composition or use according to claim 16 or 17, wherein the at least one surface of the biodegradable polymer film is 100% covered by sporopollenin.

19. The adhesion barrier composition or use according to any of claims 16 to 18, wherein the coating of sporopollenin has a thickness of 50 µm to 200 µm.

20. A method of fabricating an adhesion barrier composition, comprising:
a) dispersing a sporopollenin in or on a biodegradable polymer;

wherein the weight ratio of sporopollenin is 1 wt/wt% to 80 wt/wt% relative to the total composition.