

TABLE 5

Scoring of Adhesions Formed in Material Evaluation						
Animal	Characteristic					
	Extent		Type		Tenacity	
	Control	Treatment	Control	Treatment	Control	Treatment
BAM 8	2	0+	3	0+	3	0+
BAM 9	3	1	3	1	3	1
BAM 10	0+	1	0+	3	0+	2
BAM 11	0*	0	0*	0	0*	0
BAM 12	4	4	3	3	3	3
BAM 13	2	1	3	2	3	2
BAM 14	1*	0	3*	0	3*	0
BAM 15	1	0**	1	0**	2	0**
BAM 16	1	0*	1	0*	2	0*
BAM 17	1	0*	1	0*	2	0*
Average	1.5	0.7	1.8	0.9	2.1	0.8

\*Uterine horn tacked to abdominal wall with only one suture

\*\*Uterine horn no longer sutured to abdominal wall

+ Fascia removed with peritoneum and muscle layers

TABLE 6

Adhesion Scoring		Adhesion Score
Characteristic	Adhesion Score	
<u>Extent (% sidewall involvement)</u>		
None	0	30
≤25	1	
≤50	2	
≤75	3	
>75	4	
<u>Type</u>		
None	0	35
Filmy, no vessels (transparent)	1	
Opaque, no vessels (translucent)	2	
Opaque, small vessels present grossly	3	
Opaque, larger vessels present grossly	4	
<u>Tenacity</u>		
None	0	40
Adhesions essentially fell apart	1	
Adhesions lysed with traction	2	
Adhesions required sharp dissection for lysis	3	

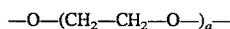
We claim:

1. An adhesive composition consisting essentially of

- i) a first aqueous mixture of about 20–60 wt/vol % serum albumin in about 0.01–0.25 molar buffer at a pH in a range of about 8.0–11.0,
- ii) a second aqueous mixture of about 50–800 mg/ml of a crosslinking agent having a molecular weight in a range of about 1,000–15,000, wherein the crosslinking agent is of the formula



wherein —PEG— is a diradical fragment represented by the formula



where a is an integer from 20–300;

wherein —LM— is a diradical fragment selected from the group consisting of a carbonate diradical of the formula, —C(O)—, a monoester diradical of the formula, —(CH<sub>2</sub>)<sub>b</sub>C(O)— where b is an integer from 1–5, a

diester diradical of the formula, —C(O)—(CH<sub>2</sub>)<sub>c</sub>—C(O)— where c is an integer from 2–10 and where the aliphatic portion of the diradical may be saturated or unsaturated, a dicarbonate diradical of the formula —C(O)—O—(CH<sub>2</sub>)<sub>d</sub>—O—C(O)— where d is an integer from 2–10, and an oligomeric diradical represented by the formulas —R—C(O)—, —R—C(O)—(CH<sub>2</sub>)<sub>c</sub>—C(O)—, or —R—C(O)—O—(CH<sub>2</sub>)<sub>d</sub>—O—C(O)— where c is an integer from 2–10, d is an integer from 2–10, and R is a polymer or copolymer having 1–10 monomeric fragments selected from the group consisting of lactide, glycolide, trimethylene carbonate, caprolactone and p-dioxanone; and

wherein —G is a leaving group selected from the group consisting of succinimidyl, maleimidyl, phthalimidyl, imidazolyl, nitrophenyl or tresyl, and

wherein a combination of the first and second mixtures is initially liquid and then cures on the surface of tissue to give a flexible, substantive matrix which bonds to the tissue and has a burst strength greater than about 10 mmHg.

2. The adhesive mixture of claim 1 wherein the protein in the first mixture is about 35–45 wt/vol % serum albumin.

3. The adhesive composition of claim 1 wherein the serum albumin is human serum albumin.

4. The adhesive composition of claim 1 wherein the buffer is 0.05–0.15 molar carbonate/bicarbonate buffer at a pH of about 9.0–10.5.

5. The adhesive composition of claim 1 wherein the second aqueous mixture is about 50–300 mg/ml of a crosslinking agent having a molecular weight in a range of about 1,000–5,000.

6. The adhesive composition of claim 1 wherein the ratio of a volume of the first mixture to a volume of the second mixture is in a range of about 1:10 to about 10:1.

7. The adhesive composition of claim 1 wherein —LM— is an oligomeric diradical —R—C(O)—(CH<sub>2</sub>)<sub>c</sub>—C(O)— where c is an integer from 2–10 and R is a polymer or copolymer having 1–10 monomeric fragments selected from the group consisting of lactide, glycolide, trimethylene carbonate, caprolactone and p-dioxanone.

8. The adhesive composition of claim 1 wherein —G is succinimidyl.

9. An in vivo method of adhering tissue comprising the steps of topically applying and bonding an adhesive mixture of claim 1 to the tissue.