

of 25% human albumin solution containing a sterile solution of Cardio-Green™ in a concentration of 10 mg/ml. The sample was tested and exposed to laser energy in the same manner as described in Examples 3-9. The results are shown in Table 7.

TABLE 7

Glycerine	2 parts
25% Human Albumin with 10 mg/ml of ICG dye	1 part
Incision Length	9 mm
Distance from limbus	2 mm
Normal Pre-Glue Bursting pressure	22 in. H ₂ O
Post-Welding Bursting pressure	32 in. H ₂ O
Viscosity	3

EXAMPLES 16-20

Freshly harvested rat skin was trimmed into strips and the edges of two strips brought into approximation. The adhesive mixtures shown in Table 8 were then topically applied. Energy was input until tissue soldering was effected to produce a weld of about 1 mm. Immediately after completion of the repair, weld length and break point (in grams) was measured. Samples 16-18 and control samples A, C and D were exposed to the same laser and under the same conditions described in connection with Examples 3-9. Control sample B and samples 19 and 20 were exposed to high frequency electrical diathermy (13.5 MHz electrocautery). The results are shown in Table 8.

TABLE 8

SAMPLE	COMPOSITION	MEAN TENSILE STRENGTH (G/CM ²)
CONTROL A)	indocyanine green 0.5%	<100
CONTROL B)	none	<100
CONTROL C)	human fibrinogen 70% + indocyanine green 0.5%	113
CONTROL D)	human albumin 25% + indocyanine green 0.5%	250
16	human albumin 12% + sodium hyaluronate 0.5% + indocyanine green 0.5%	441
17	human albumin 25% + dextran 15% + indocyanine green 0.5%	386
18	bovine collagen 13% + sodium hyaluronate 0.3% + indocyanine green 0.5%	531
19	human albumin 8% + sodium hyaluronate 0.7%	514
20	human albumin 25% + collagen (bovine gelatin) 20%	404

As shown in Table 8, compositions of the present invention exhibited a mean tensile strength far exceeding the tensile strength of the protein (human fibrinogen or albumin) alone.

EXAMPLE 21

A composition in accordance with the present invention was tested on three patients in accordance with the following. The patient population comprised end-stage renal disease patients requiring arteriovenous fistula for vascular access for hemodialysis. Consent for experimental treatment was obtained under an approved Institutional Review Board protocol. Using standard techniques the radial artery and a suitable forearm vein were isolated. 6-7 mm anastomoses were created between the artery and vein using a loop of 6 mm Gortex™ graft (standard wall). In one group of patients, this was reinforced with a glue mixture of 25% albumin (New York

Blood Center) and a 10 mg/ml solution of Healon™ (Pharmacia) in a 1:2 proportion, with the addition of Fluorescein dye (2 gts, 5 mg/ml). The glue was sealed to the edge of the anastomosis and suture holes using a KTP laser (532 nm, 1 mm spot size, 500 mW).

The other group of patients received no laser or glue treatment after completion of the sutured anastomosis. After unclamping, any blood leaking from the anastomosis was removed from the field with gauze sponges until bleeding ceased. By subtracting the initial weight of these sponges from the weight after use, the total blood loss from each anastomosis was obtained. The bleeding time was recorded as well and the results are shown in Table 9.

TABLE 9

Treatment Group	Gortex™ AVF with composition
Mean Blood Loss	Mean Bleeding Time
14.7 g	4 min
Control Group	Gortex AVF without composition
Mean Blood Loss	Mean Bleeding Time
24.0 g	4 min

Overall, the total blood loss was reduced with the composition of the present invention. As expected, the time to form a clot in any unsealed holes remained the same in the treatment and control groups.

We claim:

1. A platelet-free composition for bonding separated tissues together or for coating tissues or prosthetic materials comprising:

(a) at least one first component in an amount of at least 4.2% by weight based on the total weight of the composition, said first component being selected from the group consisting of naturally occurring peptides, synthetic peptides, and mixtures thereof; and

(b) at least one second component, which is different than the first component, adapted to support the first component to form a matrix, sol or gel with the first component.

2. The composition of claim 1 wherein the peptides are selected from simple proteins, conjugated proteins, and mixtures thereof.

3. The composition of claim 2, wherein the proteins are selected from the globular proteins, fibrous or structural proteins, and mixtures thereof.

4. The composition of claim 3, wherein the globular proteins are selected from synthetic or naturally occurring or synthetic serum proteins, salts thereof, and mixtures thereof.

5. The composition of claim 4 wherein the serum proteins are selected from albumin, α -globulins, β -globulins, γ -globulins, transthyretin, fibrinogen, and thrombin.

6. The composition of claim 3, wherein the fibrous or structural proteins are selected from synthetic or naturally occurring collagen, elastin, keratin, fibroin, fibrin, fibronectin, salts thereof, and mixtures thereof.

7. The composition of claim 1 wherein the amount of the peptide is in the range of from about 4.2% to 70% by weight.

8. The composition of claim 7 wherein the amount of the peptide is from about 8 to 35% by weight.

9. The composition of claim 1 wherein the second component is selected from naturally occurring or synthetic proteoglycans, glycoproteins, saccharides, poly-