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Antanavich et al.

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[54] **METHOD AND APPARATUS FOR MAKING CONCENTRATED PLASMA AND/OR TISSUE SEALANT**

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[57] **ABSTRACT**

[21] Appl. No.: **09/128,189**

An inexpensive device with a disposable cartridge for preparing tissue sealant is disclosed. The device is particularly applicable to stat preparation of autologous tissue sealant. A method of sealing tissue in which the tissue sealant is applied immediately after mixing platelet-rich plasma concentrate (from the device) with a solution of calcium and thrombin is also disclosed. Preparation in the operating room of 5 cc sealant from 50 cc patient blood requires less than 15 minutes and only one simple operator step. There is no risk of tracking error because processing can be done in the operating room. Chemicals added may be limited to anticoagulant (e.g., citrate) and calcium chloride. The disposable cartridge may fit in the palm of the hand and is hermetically sealed to eliminate possible exposure to patient blood and ensure sterility. Adhesive and tensile strengths are comparable or superior to pooled blood fibrin sealants made with precipitation methods.

[22] Filed: **Aug. 3, 1998**

Related U.S. Application Data

[62] Division of application No. 08/736,862, Oct. 22, 1996, Pat. No. 5,788,662, which is a continuation of application No. 08/351,010, Dec. 7, 1994, Pat. No. 5,585,007.

[51] **Int. Cl.**⁷ **B01D 21/26**; B01D 61/14; B01D 61/18

[52] **U.S. Cl.** **210/782**; 210/321.67; 210/650; 210/651; 210/787; 210/435; 494/36; 494/37; 422/101; 422/102

[58] **Field of Search** 210/782, 787, 210/789, 650, 651, 435, 436, 446, 321.67; 422/101, 102; 604/57; 494/36, 37

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Antifibrinolytic agents (such as aprotinin) are not necessary because the tissue sealant contains high concentrations of natural inhibitors of fibrinolysis from the patient's blood. The tissue sealant also contains patient platelets and additional factors not present in available fibrin sealants that promote wound healing.

21 Claims, 4 Drawing Sheets

