



US005407581A

# United States Patent [19]

[11] Patent Number: **5,407,581**

**Onodera et al.**

[45] Date of Patent: **Apr. 18, 1995**

[54] **FILTER MEDIUM HAVING A LIMITED SURFACE NEGATIVE CHARGE FOR TREATING A BLOOD MATERIAL**

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[21] Appl. No.: **32,487**

[22] Filed: **Mar. 17, 1993**

[30] **Foreign Application Priority Data**

Mar. 17, 1992 [JP] Japan ..... 4-090093

[51] Int. Cl.<sup>6</sup> ..... **B01D 37/00; B01D 39/16**

[52] U.S. Cl. .... **210/654; 210/767; 210/321.69; 210/508; 210/929; 502/403**

[58] **Field of Search** ..... 210/635, 636, 638, 639, 210/651, 660, 679, 692, 767, 321.69, 496, 500.21, 502.1, 508, 929, 652, 654; 502/402-404, 54.1; 530/354, 356, 394, 413, 415, 813, 815

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[57] **ABSTRACT**

Disclosed is a filter medium for treating a blood material selected from the group consisting of a leukocyte-containing suspension and plasma, comprising a polymeric, porous element having, in a surface portion thereof, a negative charge and having a surface electric charge of not smaller than  $-30 \mu\text{eq/g}$  of the polymeric, porous element. The filter medium and an apparatus having the filter medium packed in a casing having an inlet and an outlet, can be advantageously used for treating a blood material, for example, for separating leukocytes from a leukocyte-containing suspension including whole blood, for blood dialysis or for removing undesired proteinous substances and the like from whole blood or plasma by adsorption-filtration, while effectively controlling a concentration of bradykinin (which is causative of anaphylactic reactions) in a treated blood to a level not exceeding 4,000 pg/ml.

**34 Claims, No Drawings**