irregularity in its surface is used as a medium (Patent Document 1), and, in terms of the medium that adsorbs activated leukocytes and cytokines at the same time, there are reports wherein a nonwoven fabric or bead whose surface is modified with amino groups is used as a medium (Patent Documents 2 and 3).

PRIOR ART DOCUMENTS

[Patent Documents]

[0004]

[Patent Document 1] JP 2501500 B

[Patent Document 2] JP 2006-312804 A

[Patent Document 3] JP 7-080062 A

SUMMARY ~~OF THE INVENTION~~

PROBLEMS TO BE SOLVED ~~BY THE INVENTION~~

[0005]

However, known adsorption carriers used for selective adsorption of activated leukocytes cannot be said to have a sufficient adsorption capacity at present, and, therefore, in order to increase the therapeutic effect of leukocytapheresis in an inflammatory disease patient, it is thought that the adsorption capacity needs to be improved especially for granulocytes and monocytes among leukocytes.

[0006]

In view of this, the present disclosure~~invention~~ aims to provide a carrier for blood component adsorption that enables selective and efficient adsorption removal of granulocytes and monocytes, and, at the same time, enables adsorption removal of inflammatory cytokines.

MEANS FOR SOLVING THE PROBLEMS

[0007]

In order to solve the above-described problem, the present inventors intensively studied to discover a carrier for blood component adsorption that enables

efficient adsorption removal of granulocytes and monocytes as well as inflammatory cytokines, thereby completing the present ~~invention~~disclosure.

[0008]

That is, the present ~~invention~~ disclosure provides the carrier for blood component adsorption and the column for blood component adsorption described in the (1) to (9) below.

(1) In a first aspect, there is provided ~~A~~a carrier for blood component adsorption comprising a water-insoluble carrier having a surface to which a functional group(s) containing a silyl group and an amino group is/are introduced.

(2) The carrier for blood component adsorption according to the above-described (1), wherein the water-insoluble carrier has a proton adsorption capacity of 1.5×10^{-5} to 3.0×10^{-3} eq/g.

(3) The carrier for blood component adsorption according to the above-described (1) or (2), wherein the silicon atom of the silyl group and the nitrogen atom of the amino group are linked together by an alkyl chain.

(4) The carrier for blood component adsorption according to the above-described (3), wherein the alkyl chain is an alkyl chain having not more than 6 carbon atoms.

(5) The carrier for blood component adsorption according to any one of the above-described (1) to (4), wherein the silyl group has an alkyl group and/or alkoxy group.

(6) The carrier for blood component adsorption according to the above-described (5), wherein the alkyl group is a methyl group or ethyl group.

(7) The carrier for blood component adsorption according to the above-described (5) or (6), wherein the alkoxy group is a methoxy group or ethoxy group.

(8) The carrier for blood component adsorption according to any one of the above-described (1) to (7), wherein the water-insoluble carrier is composed of a fiber or particle.

(9) The carrier for blood component adsorption according to the above-described (8), wherein the fiber has a fiber diameter of, or the particle has a particle diameter of, 0.5 to 20 μm.

(10) In a second aspect, there is provided ~~A~~a column for blood component adsorption filled with the carrier for blood component adsorption according to any one of the above-described (1) to (9).

EFFECT ~~OF THE INVENTION~~

[0009]

With the carrier for blood component adsorption of the present ~~invention~~disclosure, granulocytes and monocytes can be efficiently removed by adsorption from blood of a patient with an inflammatory disease, and inflammatory cytokines can also be removed by adsorption at the same time. Further, a column for blood component adsorption filled with the carrier for blood component adsorption of the present disclosure~~invention~~ can be used for leukocytapheresis, and can produce a preferred therapeutic effect in treatment of a severe inflammatory disease.

BEST MODE FOR CARRYING OUT THE INVENTION

[0010]

The carrier for blood component adsorption of the present invention is characterized in that it comprises a water-insoluble carrier having a surface to which a functional group(s) containing a silyl group and an amino group is/are introduced.

[0011]

The "carrier for blood component adsorption" means a material with which a blood component(s) can be removed from blood by adsorption.

[0012]

The blood component means a component constituting blood, and examples of the blood component includes blood cell components such as erythrocytes, leukocytes and platelets; and humoral factors such as inflammatory cytokines. For the purpose of treatment of an inflammatory disease, leukocytes and inflammatory