

NASA TECH BRIEF

Manned Spacecraft Center



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Covalent Bonding Of Antibodies To Polystyrene Latex Beads: A Concept

A series of chemical reactions bonds antibodies to one-micron polystyrene latex beads. This technique could facilitate the purification of vaccines and the production of immunoabsorption columns exhibiting a relatively long stability.

Treatment with glacial acetic acid, fuming red nitric acid, and a solution of sodium hydroxide and sodium dithionate, in that order, converts the polystyrene beads into polyaminestyrene beads. Treatment with sodium nitrite and hydrochloric acid diazotizes the beads. The antibodies are added and the solution neutralized with sodium hydroxide. The tyrosine component of the antibody molecule forms covalent bonds with diazo groups on the bead surface bonding the antibody to the polystyrene.

The physical integrity of the beads is maintained, and the utility of the polystyrene beads, both inside and outside of a physiological system, is assured. The antibodies can be bound to the polystyrene surface without going through the time consuming procedure of dissolving the polystyrene, attaching the antibodies, and reforming the polystyrene.

This information may be of interest to biochemists, medical researchers, and pharmaceutical manufacturers.

Notes:

1. This invention is in the conceptual stage only.
2. Requests for further information may be directed to:

Technology Utilization Officer
Manned Spacecraft Center, Code JM7
Houston, Texas 77058
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Patent status:

No patent action is contemplated by NASA.

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