Development of Affinity Restricted Access Media

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Technology description

This is a chromatography support with an active binding agent that is immobilized within the pores of the support and that provides better selectivity that conventional media for measurements of complex systems, such as blood or serum.

Technology Description

This technology is a Restricted Access Media (RAM) with an affinity agent immobilized within pores of a solid support. The pores are of such a size that small analytes may easily enter, but proteins or other macromolecules are excluded. This technique combines the bioselectivity of agents such as antibodies with the size selectivity of the RAM and becomes useful if the binding agent can have interactions with multiple analytes in blood or serum, such as the free and protein-bound hormones and drugs.

Preparation of restricted access medium using antibody as the ligand binding agent molecule.

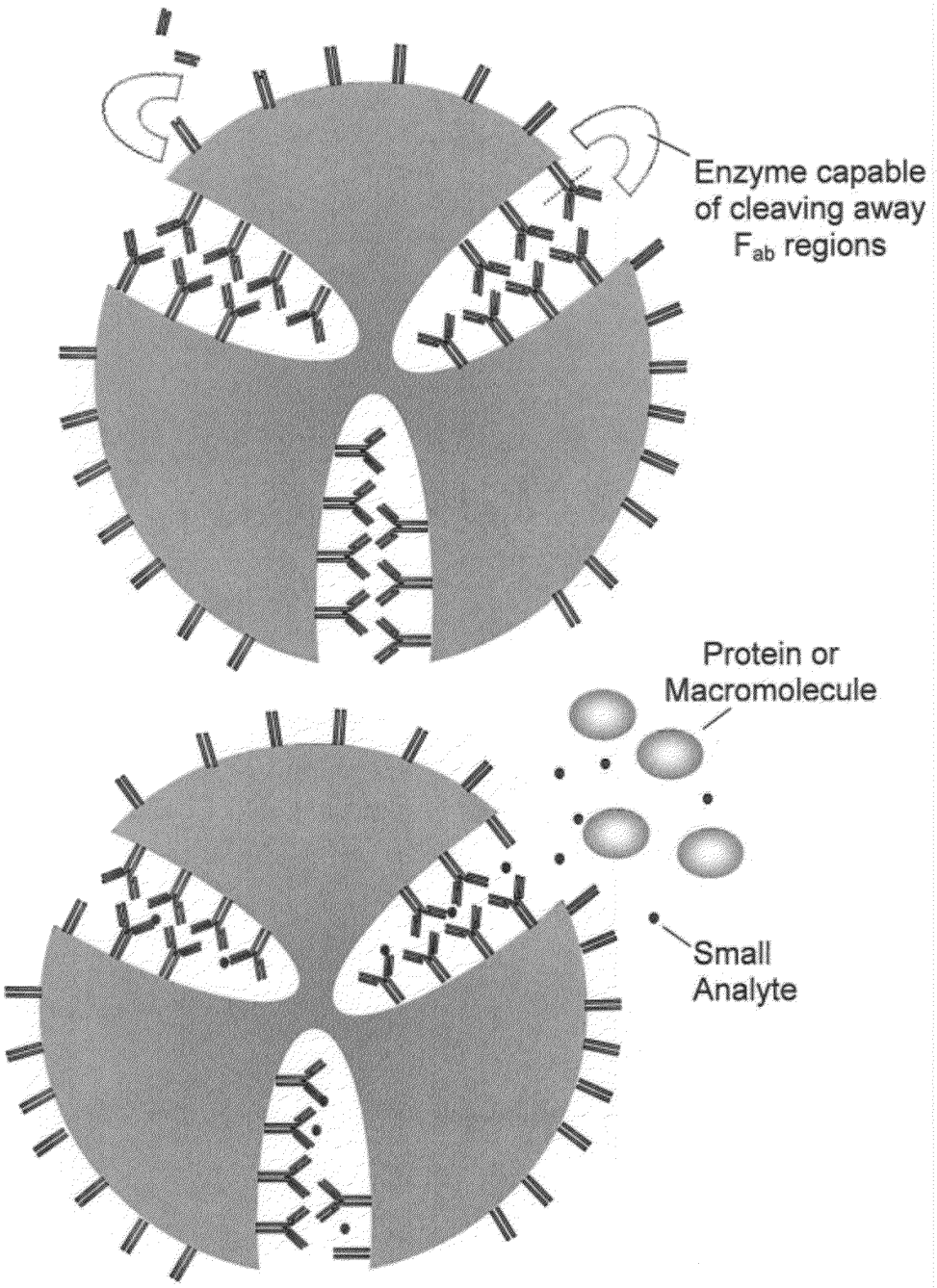

FIGURE 1

Inventive Feature(s)

Immobilization of the active agent (such as antibody) by chemical bonding within the pores of a solid support.

Publication(s)

Chunling Wa, Rangan Mallik and David S. Hage, " Development of Immunoaffinity Restricted Access Media for Rapid Extractions of Low-Mass Analytes ", Anal. Chem., 2008, 80 (22), pp 8751–8762

Abby J. Jackson, Hai Xuan and David S. Hage, " Entrapment of Proteins in Glycogen-Capped and Hydrazide-Activated Supports ", Anal. Biochem. 404 (2010) 106-108.

Abby J. Jackson, Jeanethe Anguizola, Erika L. Pfaunmiller, and David S. Hage, " Use of Entrapment and High-Performance Affinity Chromatography to Compare the Binding of Drugs and Site-Specific Probes with Normal and Glycated Human Serum Albumin ", Anal. Bioanal. Chem., 405 (2013) 5833-5841.

Related Technologies

1036 - Immobilization Method for Producing Active Alpha 1-Acid Glycoprotein (AGP)
#1235 - Entrapment of Biomolecules in Hydrazide-Activated Supports

About NUtech Ventures

NUtech Ventures is the non-profit technology commercialization affiliate of the University of Nebraska—Lincoln. Our mission is to facilitate the commercialization and practical use of innovations generated through the research activities at the University of Nebraska.

Application area

• Measurements of free drug and hormone concentrations in blood or serum
• Affinity chromatography – for the study of drug-protein interactions or chiral separations
• Solid phase immunoassays
• Drug evaluations – supports for high-throughput screening of drug candidates

Advantages

• High selectivity – combination of a size exclusion approach and an affinity agent for a given target (e.g., as based on an antibody-analyte interaction) provides high selectivity
• Not limited to sol-gel supports and can be used with relatively large volume systems

Institution

University of Nebraska, Lincoln

Inventors

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