Research Tools

Functionalized Substrate for Removal of Virus from Proteins, Particularly Antibodies

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WARF: P09314US02

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing an inexpensive substrate that provides an alternative to column chromatography for viral removal from human therapeutic proteins or other biological samples.

Overview

Removal of virus is essential for the manufacture of safe biotechnology-derived products such as therapeutic monoclonal antibodies. Currently, virus is removed using ion exchange chromatographic resin. Because this material is expensive, it is designed for cleaning and regeneration. As a result, viruses need to be reversibly bound to the resin so they can be removed during the regeneration step, which also is an expensive process.

Adsorptive membranes are relatively inexpensive, disposable materials currently used in protein purification. A UW–Madison researcher previously developed an adsorptive membrane that irreversibly binds viruses while allowing a protein of interest to pass through (see WARF reference number P06012US).

The Invention

UW–Madison researchers have now developed additional virus-binding ligands for the adsorptive membrane or other substrate. When a virus-containing protein solution is passed through the membrane, the virus is irreversibly trapped while antibodies or other proteins pass through.

Applications

- Removal of virus during biomanufacturing of human therapeutic proteins
- Removing virus from other biological samples

Key Benefits

- Provides an inexpensive alternative to current chromatographic technology
- Virus removal is more controlled.
- Viruses bind more quickly to the membrane ligands.
- Virus can be bound in high salt solutions.
- Eliminates labor-intensive chromatograph column packing and validation
- Reduces floor space and equipment requirements
- Streamlines regulatory compliance
- Other substrates may be used instead of the membranes.
- In addition to virus, other impurities such as endotoxin, DNA and host-cell protein also are removed.

Additional Information

For More Information About the Inventors

- Mark Etzel

Related Technologies

- WARF reference number P06012US describes the researcher's adsorptive membrane that irreversibly binds viruses while allowing a protein of interest to pass through.

Tech Fields

- Research Tools : Synthesis & purification

For current licensing status, please contact Jennifer Gottwald at jennifer@warf.org or 608-960-9854