Imprinted Polymer Nanoparticles

Tech ID: 24659 / UC Case 2007-533-0

BRIEF DESCRIPTION

Synthetic polymer nanoparticles (NPs) capable of recognizing specific biomacromolecules and can be used as substitutes for natural antibodies .

FULL DESCRIPTION

Researchers at UC Irvine developed a method to imprint polymer nanoparticles (NPs) that are composed of vinyl, acryl, and/or methacryl monomers. NPs are cross-linked in the presence of the target molecule (e.g., peptide), leaving behind an “imprint” of said molecule on the NPs. As a result, these synthetic or “plastic” antibodies have a high affinity for the target molecule and can specifically bind it in solution. These polymers can be used in biomoacromolecular purification (e.g., to purify n antibodies or hormones), in toxin removal (e.g., hemoperfusion), in diagnostics, as well as in therapeutic methods (e.g., therapeutic methods where antisera or monoclonal antibodies are normally employed).

SUGGESTED USES

-Protein or peptide purification

-Toxin removal

-Replacement of monoclonal antibodies as therapeutics

ADVANTAGES

-Cost: Synthetic antibodies are polymer-based, which are cheaper, easier to handle and purify, and have a longer shelf life than biologically-derived materials

-Safety: Synthetic treatments are at a lower risk of having biological contamination because they are not sourced from viral or bacterial pathogens

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	9,173,943	11/03/2015	2007-533

RELATED MATERIALS

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OTHER INFORMATION

CATEGORIZED AS

- **Biotechnology**
  - Health
- **Materials & Chemicals**
  - Biological
  - Polymers
- **Medical**
  - Disease: Cancer
  - New Chemical Entities, Drug Leads
  - Therapeutics
- **Nanotechnology**
  - NanoBio
- **Research Tools**
  - Reagents

RELATED CASES

2007-533-0

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