Production of Secretory IgA with Increased Stability

Tech ID: 20097 / UC Case 1997-545-0

BACKGROUND

The immunoglobulin secretory IgA (sIgA) is found in mucosal surfaces is often the first line of defense against infectious agents. Normally, sIgA is the product of two different cell types with heavy, light, and J chains produced by plasma cells, whereas the secretory component (SC) is added by cellular enzymes during transit of the dimeric IgA through the epithelial cell layer.The SC component of sIgA provides for stability at the mucosal surfaces. Currently available monoclonal IgA which lacks SC, while protective, is rapidly degraded. Attempts have been made to create sIgA in vitro by either co-culturing IgA producing cells with polarized epithelial cells or by adding SC exogenously to purified IgA, however, both methods provide very low yields of sIgA.

INNOVATION

UCLA researchers have developed a process to produce stable sIgA from a single mammalian cell in quantities practical for therapeutic uses. Vectors and cell lines for producing non-secretory IgA are readily available. In order to easily produce sIgA from these same cell types, a vector encoding the secretory signal is transfected into the IgA producing cell lines and stable transductants are cloned. In vitro and in vivo stability of the sIgA was measured and sIgA was found to have significantly greater stability than monoclonal IgA lacking SC. This invention provides a solution for the need for large quantities of sIgA monoclonal therapeutic antibodies.

APPLICATIONS

Production of stable, sIgA monoclonal antibodies.

ADVANTAGES

- Established IgA producing cell lines can be transfected with the SC component to produce sIgA with identical specificity.
- Can create new sIgA monoclonal antibodies produced in large quantities from a single cell line using standard antibody production techniques.
- sIgA has increased stability compared to currently available IgA monoclonal antibodies.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	6,300,104	10/09/2001	1997-545

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Vectors for the Recombinant Expression of Human Immunoglobulins
- Vectors for Antibody Expression

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OTHER INFORMATION

KEYWORDS

research tools, IgA, monoclonal, antibody, bioreactor technology

CATEGORIZED AS

- **Research Tools**
  - Antibodies
  - Expression System
  - Reagents

RELATED CASES

1997-545-0

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