Knowledge Transfer Office
香港城市大學
City University of Hong Kong

Method of Producing Antibody Fragment

Health & Wellness

Biomedical and Genetic Engineering/Chemical Products

Opportunity

Single domain antibodies (sdAbs) or nanobodies, allow a broad range of applications in biotechnical as well as biomedical uses due to their small size, high affinity, good stability and excellent penetrability.

The existing commercial sdAbs were produced by camelids, such as camel and llama. While the high cost of camelid farming (US$15000 per antibody) greatly impedes the development of sdAbs. Small-size sharks are ideal animal models for the production due to the lower cost of farming. Bamboo sharks are one of the smallest sharks which can product sdAbs, and the species can be bred artificially. All these indicate bamboo sharks are the appropriate animals for sdAbs production.

The invention provides a low-cost and high effective method for the production of targets-specific sdAbs.

Technology

In this invention, we established a low-cost and highly efficient platform for high affinity shark sdAb production using bacterial display and antibody engineering. After monthly immunizations with antigen-adjuvant emulsion, RNA from whole blood cells of immunized sharks was extracted and constructed by PCR amplification. By means of cDNA ligation, competent cells transformation, bacterial display, mass production of high affinity sdAbs will be obtained. This platform will provide sdAbs for disease diagnosis kit development and novel drug discovery.

Advantages

- Low-cost for mass production of sdAbs

Applications

- Biomedical use
- Biotechnical use
- Biosensor

IP Status
Patent granted

Technology Readiness Level (TRL) ? 9

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