

# Method of Producing Antibody Fragment



Health & Wellness

Biomedical and Genetic Engineering

## 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 produce 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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