THE UNIVERSITY OF TEXAS
MD Anderson Cancer Center

Making Cancer History®

Antibody Production Form

Recombinant Antibody Production Project

The goal of this project is to produce improved monoclonal antibodies for epigenetic research using single cell cloning technology.

Monoclonal antibodies are a central tool for epigenetic research. However, limited quantities, inconsistent quality, particularly with ChIP-seq, and the lack of modification-specific antibodies have impeded progress. Single cell cloning technology allows B cells expressing antigen-specific antibodies to be purified directly from immunized mice via FACS. Immunoglobulin genes are amplified from single cells, cloned into expression vectors and antibodies are produced *in vitro*.

The advantages over traditional hybridoma monoclonal production include: The potential for limitless supply with consistent quality, and reconfiguration or fusion of epitope tags, fluorescent protein or HRP. Since screening can potentially occur prior to cloning and production, this method is better suited to producing modification-specific antibodies.

This project is in the pilot phase. We have successfully cloned and produced antibodies from single cells. We are optimizing isolation of specific antibodies and expect to produce these in the near future. As part of the pilot phase we are collaboratively developing antibodies to targets that are also useful to MD Anderson Center for Cancer Epigenetics members.

Please provide some information for further consideration (see next page).

Protein, modification, species: Background:

1) Brief statement on why it is important to have this antibody, how the modification has been confirmed (any references would be helpful) and the desired assays to use the antibody with.

2) What will you use this antibody for?

3) Have antibodies to this antigen been attempted or made? How and what was the antigen? Is there any structural data available for the target?

Screen:

What assays or reagents do you have to measure antibody reactivity and specificity? Ultimately I am going need your help to confirm binding and specificity. A well designed screen is critical for success.

Configuration:

Since these are recombinant antibodies, we are able to engineer tags directly on them. We are currently cloning antibodies with a His-tag, Avi-tag and Flag tag onto the constant region. Do you desire other tags or have a reason not to have these?

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