Award ID:
RP150551

Project Title:
Therapeutic Monoclonal Antibody Lead Optimization and Development
Core

Award Mechanism:
Core Facility Support Awards

Principal Investigator:
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Entity:
The University of Texas Health Science Center at Houston

Lay Summary:

Antibody therapy represents a major breakthrough in combating human diseases such as cancer. Its impact is reflected by the growing trend of monoclonal antibody drug discovery and development. In 2000, nine of the top 10 medicines were small molecules while only one was a recombinant protein. However, by the end of 2013, seven of the top 10 medicines were antibodies. This trend is continuing as about 50% of the new drugs in various stages of clinical development are antibodies, and cancer therapeutic antibodies constitute a majority. As the discovery of novel cancer targets accelerates, platform technologies to support early stage therapeutic antibody development are in great demand especially in the Texas cancer research community. Almost all academic researchers engaged in cancer drug target discovery employ antibodies as reagents in both in vitro and in vivo studies. Some of the antibodies exhibit significant efficacy in animal disease models and offer great potential for therapeutic development. However, unlike small-molecule drugs, both technological expertise and infrastructure for advancement of antibody leads are unavailable to most academic researchers. As a result, promising proof-of-concept antibodies discovered in academic labs are unable to advance further as cancer therapies. Currently, a dedicated core facility for therapeutic antibody lead discovery and optimization is inexistent in the Texas Medical Center (TMC) or in the state of Texas. The proposed therapeutic antibody core facility will provide critical support to bring proof-of-concept antibodies to preclinical development. By optimizing lead antibody candidates with "drug-like" properties, researchers will be more competitive in attracting external funding(s) to continue development of the optimized antibodies as breakthrough cancer therapies.