

CORE CAPABILITIES AND SERVICES

BIOLOGICS PRODUCTION & CHARACTERIZATION

- antibody and bispecific antibody production and purification
- enzyme production and purification
- generation of protein conjugates
- mammalian and bacterial expression
- thorough characterization and quality control

BIOLOGICS DISCOVERY & ENGINEERING

- humanization of mouse antibodies
- human antibody discovery
- nanobody discovery
- antibody and TCR engineering using phage, yeast, or mammalian display
- enzyme engineering for reduced immunogenicity, increased activity, an/or increased selectivity

CELLULAR ASSAYS & MOUSE MODELS

- *in vitro* antibody-dependent cellular cytotoxicity and phagocytosis assays
- pharmacokinetics in human FcRn
- database of antibodies and cell lines

OUTREACH & TRAINING

- summer workshops on antibody display technologies for discovery and engineering
- undergraduate and high school internships

HOW WE WORK WITH RESEARCHERS

Our team has expertise in biologics discovery and development, including a track record of advancing protein therapies into the clinic. We partner with researchers to translate disease insights into new therapeutics. We are generously funded by CPRIT, allowing us to offer substantial subsidies to Texas cancer researchers!



CANCER PREVENTION & RESEARCH
INSTITUTE OF TEXAS

CONNECT WITH US



Contact us to discuss how we can partner with you!



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Visit our website to learn more at:

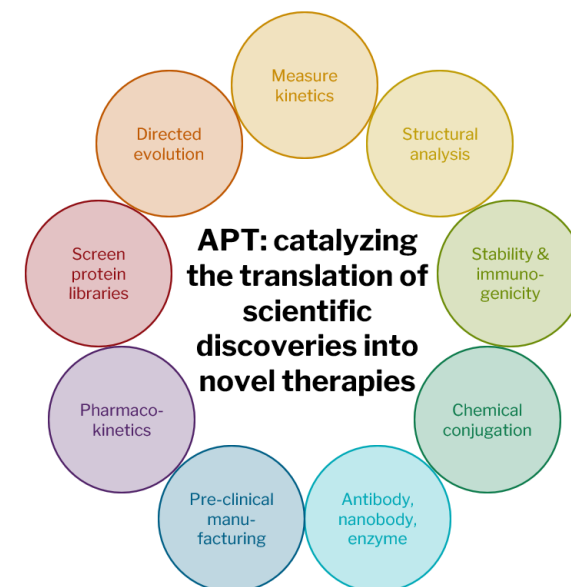
<https://biologics.utexas.edu/research/advanced-protein-therapeutics-core>



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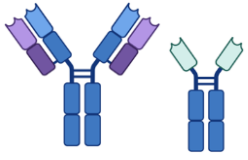
ADVANCED PROTEIN THERAPEUTICS CORE

The Advanced Protein Therapeutics Core (APT) leverages Texas' historic strengths in cancer research to translate scientific discoveries into novel protein therapies.



The University of Texas at Austin
McKetta Department
of Chemical Engineering
Cockrell School of Engineering

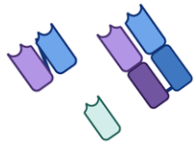
AVAILABLE ANTIBODY-BASED MODALITIES



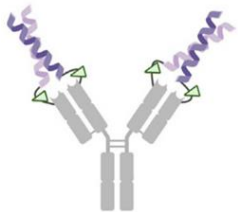
human, mouse, and rabbit IgGs with multiple Fc functionalities



bispecific antibodies of various formats



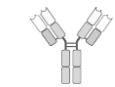
scFv, Fab, and nanobody binding domains



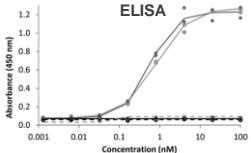
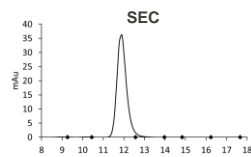
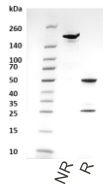
conditionally active antibodies

Images created with BioRender.com

ALL PROTEINS TESTED FOR QUALITY & FUNCTIONALITY



SDS-PAGE



CORE TECHNOLOGIES

ANTIBODY DISCOVERY

- human IgG
- mouse IgG
- camelid nanobodies

LIBRARY CONSTRUCTION

- directed evolution of existing or APT generated antibodies
- designed libraries based on structural data and binding/active site data
- random mutagenesis libraries when the epitope/paratope interaction is poorly defined

PHAGE SURFACE DISPLAY

- single chain (scFv) libraries
- large libraries (10^8 clones)
- fast turnaround

YEAST SURFACE DISPLAY

- large libraries ($>10^7$ clones)
- Fabs and low complexity proteins
- affinity maturation

MAMMALIAN SURFACE DISPLAY

- smaller libraries ($<10^7$ clones)
- complex proteins
- mammalian glycosylation profiles

EPITOPE/PARATOPE DEFINITION

- alanine scanning mutagenesis
- epitope binning

EQUIPMENT

PROTEIN PRODUCTION

- thermal cyclers
- biosafety cabinets
- bacterial expression equipment
- automated cell counter
- shaking and stationary mammalian cell culture equipment
- -80°C and -150°C cold storage
- FPLC

Multitron CO₂ Incubator/Shakers
Infors HT



Akta Pure 25L FPLC
Cytiva



PROTEIN CHARACTERIZATION

- SDS-PAGE equipment
- iBright gel imaging system
- SEC-MALS equipment
- flow cytometer
- fluorescence plate reader
- confocal plate reader



Attune NXT 3-laser Flow Cytometer
Thermo Fisher



Cytation C10 Confocal Imaging Plate Reader
Agilent BioTek