CARB-X
Combating Antibiotic Resistant Bacteria

Development Stages in Scope
Preventative mAb

The earliest eligible stage for CARB-X funding is Hit-to-Lead, and CARB-X defines a "Hit" as meeting the following MINIMAL entry criteria:

- mAb antigen/epitope has been identified, and supportive protection data in appropriate animal models have been generated.
- Presence and sequence heterogeneity of antigen/epitope across clinical isolates that are epidemiologically relevant to the proposed patient population have been determined

Typical activities during Hit-to-Lead (Lead Generation)

- Characterization of the protective effect of the mAb in animal model (PK/PD)
- Determination of the optimal mAb expression system
- Development functional assay(s) (e.g., SBA/OPA/neutralization)
- Preliminary characterization for product quality attributes (lab scale) such as purity, conformation, stability, yield, etc., as appropriate
- Formulation screening studies
- Standardization of methods to assess immunogenicity in relevant animal models

Typical activities during Lead Optimization

- Determination of final product formulation
- Identification of Key Quality Determinants
- Assess anti-drug antibody response in preclinical models
- Determination of quantitative PK/PD in animal models with route of immunization, regimen, and endpoints to reflect clinical plans
- Assay development to quantitate potency
- Cell bank generation (research)
- Reproducibility runs performed at lab scale and appropriate analytical characterization
- Assessment of stability profile
- Tech transfer and scale-up of mAb production
- Development of analytical assays for mAb product release
- Elaboration of a clinical development plan
- Pre-IND consultation (or guidance sought from another relevant regulatory body)

Typical activities during Pre-Clinical (IND Enabling)

- Production and release of Master (and Working, if appropriate) Cell banks
- Qualification and validation of the analytical release assays
- Upstream and downstream process development for GMP scale
- Engineering CMC run
- Toxicology studies
- GMP manufacture of mAb material for clinical study
- Product characterization at production scale to demonstrate purity, stability, and potency, and product released as per regulatory guidelines
- Submission of IND to US FDA (or clinical trial application to another relevant regulatory body)

Typical activities during Phase 1

- First-in-human, dose-escalation study in healthy volunteers to determine safety and PK

- Activities related to Phase 2 readiness, (e.g., manufacture, assay validation, plans for onward clinical development, etc.)