

The CARB Research Program

Opportunities to Collaborate

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OND Research –
Seeking Collaborators, Funding Opportunities Available
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Disclosures

- No conflict of interest to disclose

A Few Housekeeping Notes

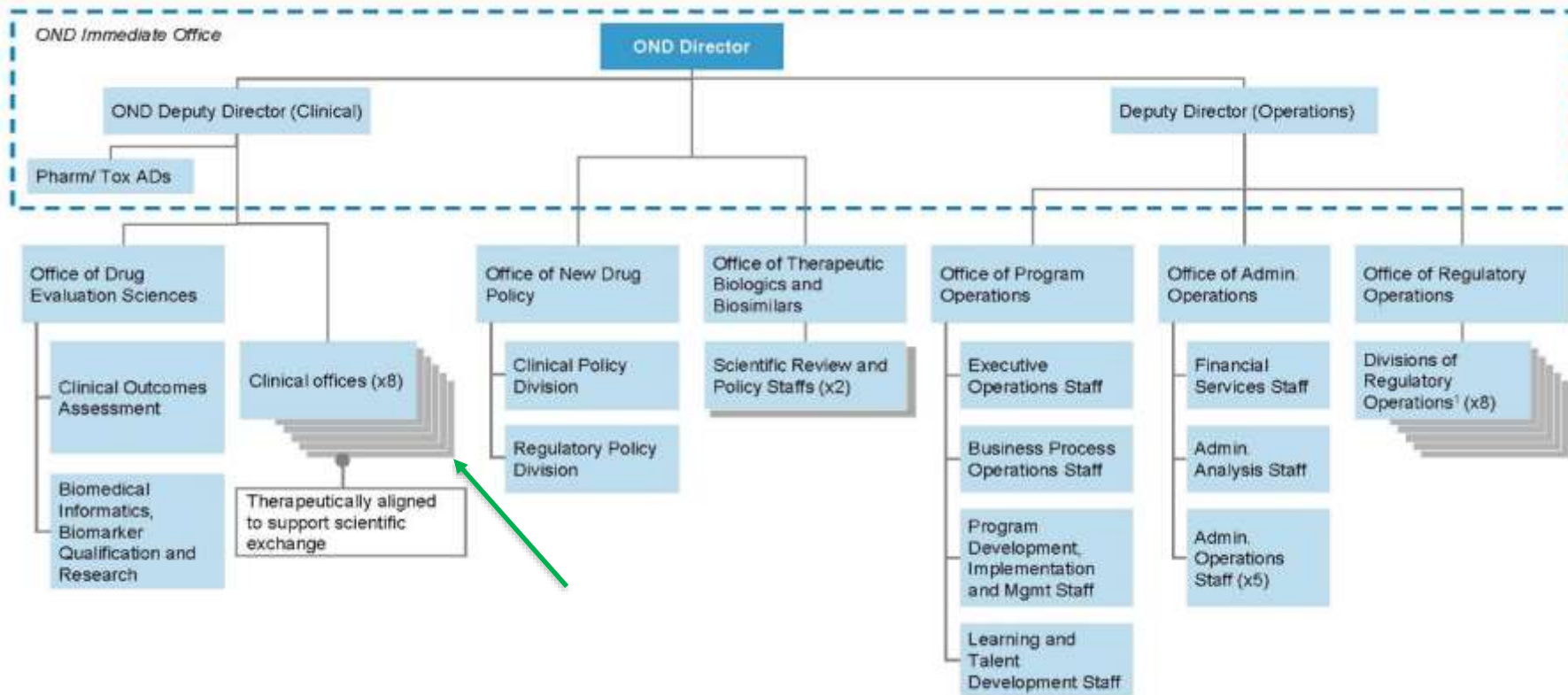


- Submit questions via the webinar's "Q&A" pod
- Questions should be relevant to the topic(s) addressed today
- Questions will be answered at the end of each section
- Slides are intended as a basic summary only – refer to the official Funding Announcements for details

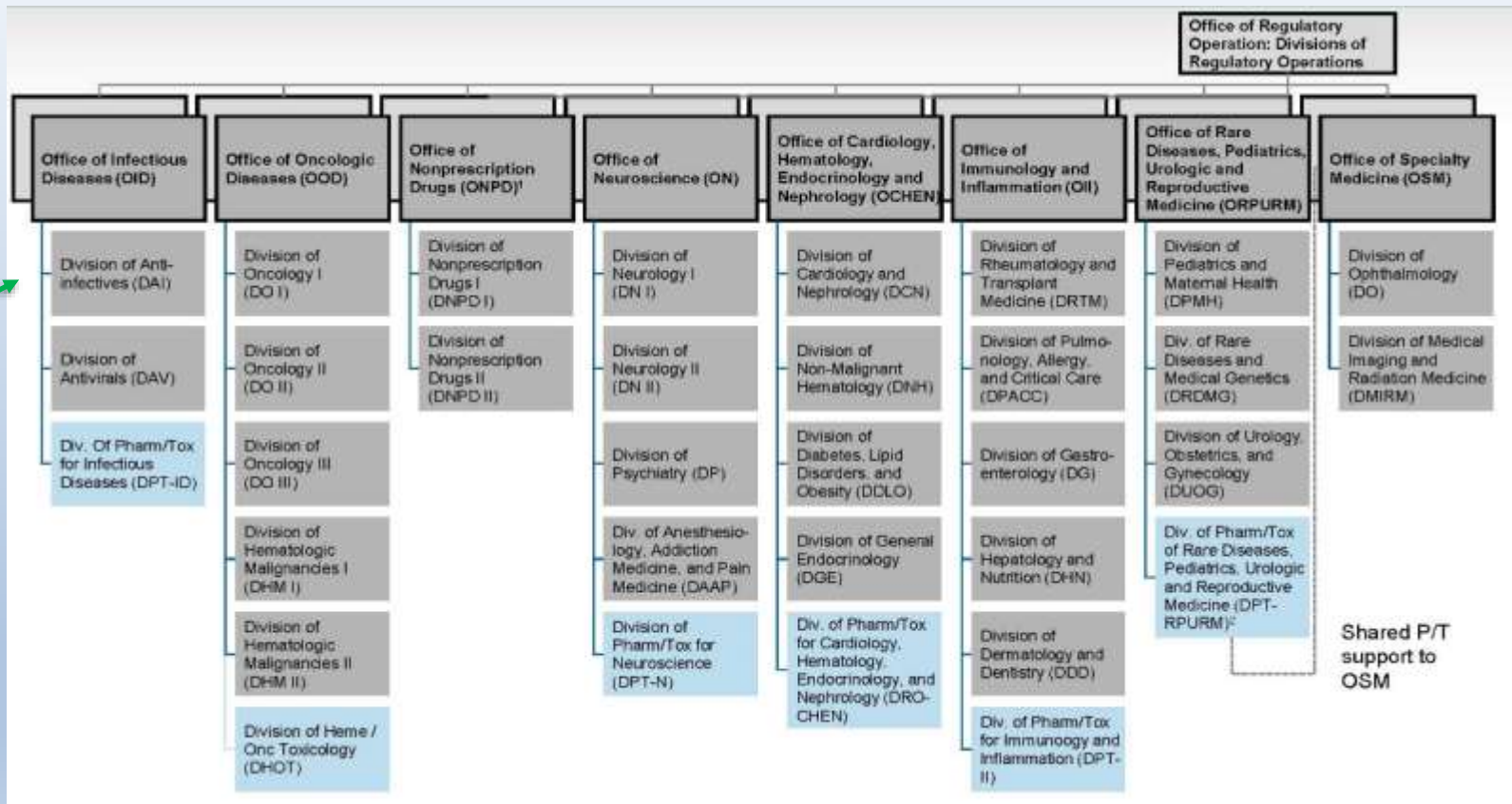
Agenda

1. Introduction & Background
2. Awarded Research Studies
3. Stakeholder Engagement
4. Funding Opportunities
5. Resources

Office of New Drugs (OND) Offices



Office of New Drugs (OND) Review Divisions



Office of Infectious Diseases



2 Divisions:

1. Division of Anti-Infective

- » **Antibacterial and Antifungal (antimicrobial)**
 - **Responsible for protecting the public health by assuring safe and effective drugs are available to the US population for antimicrobial products**
- » Antiparasitic
- » Antimalarial

2. Division of Antiviral

Public Health Impact

- As bacteria and fungi continue to develop resistance, standard treatment can become ineffective and bacterial and fungal infections threaten global health.
- Therefore, there is an urgent need to develop new antimicrobial drugs that are active against pathogens associated with antibacterial and antifungal drug resistance and poor clinical outcomes to improve patient health and well-being worldwide.

Overview of CARB



- On October, 2020, The National Action Plan for Combating Antibiotic-resistant Bacteria (**CARB**) was renewed for another 5 years.
 - This Plan follows the framework of CDC’s 2019 AR Threats Report and uses the term “antibiotic” to describe both antibacterial and antifungal drugs (which kill bacteria and fungi, respectively)
 - <https://aspe.hhs.gov/system/files/pdf/264126/CARB-National-Action-Plan-2020-2025.pdf>
- The Office of Infectious Diseases(OID) receives annual funding from Congress to support CARB-related regulatory science research
 - studies focus on identifying regulatory science research needs to facilitate the development of new drugs active against multi-drug resistant bacteria and fungi

Purpose of CARB Initiative

- Facilitate the development of new antibacterial and antifungal drugs to treat patients
- Advancing the science of clinical trial design
 - The design and conduct of clinical trials to evaluate new antimicrobial drugs in patients with serious bacterial and fungal infections is challenging and therefore of particular interest for FDA's regulatory science program.

Benefits of CARB Research Program

- Helps facilitate the development programs for antibacterial and antifungal drugs where limited resources or a lack of incentives is preventing the development of new antimicrobial drugs
- Creates new drug development tools or standards that are publicly available for use by industry or other stakeholders to meet patient needs

CARB Fiscal Year Research Priorities Align



- **Health and Human Services (HHS) Strategic Plan**
 - Strategic Goal 1: Reform, Strengthen, and Modernize the Nation’s Healthcare System
 - Strategic Objective 1.2: expand safe, high-quality healthcare options to reduce the incidence and impact of antibiotic-resistant infections
- **Food and Drug Administration (FDA) Strategic Plan for Regulatory Science**
 - Priority Area 2: Stimulate Innovation in Clinical Evaluations and Personalized Medicine to Improve Product Development and Patient Outcomes
 - Section 2.4: Facilitate Antibacterial Drug Development and Address Antibacterial Drug Resistance
- **Center for Drug Evaluation and Research (CDER) Research Goals**
 - Goal 5: Maintain scientific readiness to address emerging public health threats, enable regulatory integration of emerging technologies, and facilitate stakeholder adoption of novel approaches to drug development
 - Section b: Identify and develop novel data sources, tools, standards, methods, and models to facilitate medical countermeasures and antimicrobial resistance and other urgent public health issues

OID CARB Research Areas of Interest

- **Evaluate potential innovations in clinical trial design for new drugs***
 - such as enrollment strategies, data collection streamlining, drug development tools, clinical endpoints, and new statistical analytic approaches
- **Advance the science of in-vitro, animal model, pharmacokinetic studies, and/or real world evidence studies to facilitate drug development***
 - including studies focused on antimicrobial resistance and drug development for special populations such as patients with unmet need, children and patients with renal or hepatic dysfunction
- **Advance the science of antibacterial drug susceptibility testing***
 - To ensure that up to date susceptibility testing criteria (breakpoints) are available for patient care and antimicrobial stewardship

*topic area 2.4 of FDA's Broad Agency Announcement

FY21 Ongoing OLD CARB Research Studies

Ongoing Studies



Award Type	Study Name
FY17 BAA Contract	A Preclinical Mouse Model of <i>A. baumannii</i> Infection for Antibacterial Development
	Rabbit Models of <i>P. aeruginosa</i> Acute Pneumonia, Severe Sepsis, and VAP for Novel Antibacterial Development
FY18 BAA Contract	Development of a Mouse Model for Preclinical Screening of Investigational Drugs Against <i>P. aeruginosa</i>
FY19 TO under IDIQ Contract	Natural Language Processing of EHRs to Advance Understanding of Antimicrobial Resistance
FY19 U01 Grant	Development of a Novel PRO Tool for Use in Clinical Trials to Measure Symptoms in Patients with NCFB with and without NTM Lung Infection

Ongoing Studies

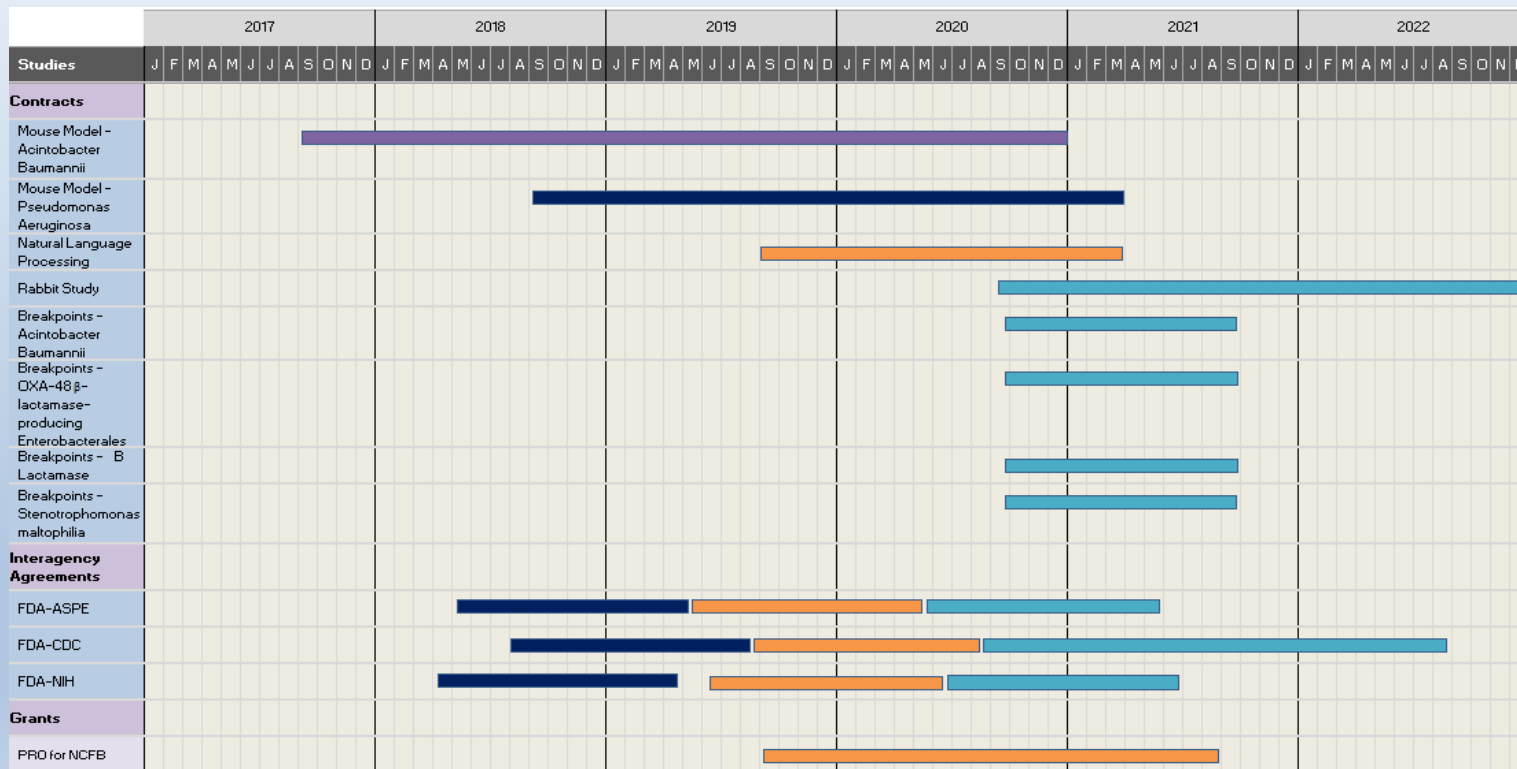
Award Type	Study Name
FY 18 - 19 IAA	Understanding Markets for Antibacterial Drug Development
	A Human Microbiome Disruption Model
	<p>FY18: Using Real-World Data to Estimate the Market Size for Novel Gram-negative Active Antibacterial Agents at United States Hospitals</p> <p>FY19: Clinical correlation of MIC data</p>
FY20 IAA	Understanding the Development and Use of Clinical Practice Guidelines for Infectious Diseases
	Microbiome Indices – Leveraging the Microbiome to Improve Patient Management and Control of Antibiotic Resistance in Cystic Fibrosis Patients
	Clinical correlation of MIC data

Ongoing Studies



Award Type	Study Name
FY20 BAA Contract	Development of Modernized <i>Acinetobacter Baumannii</i> Susceptibility Guidance for Recommended Antimicrobial Agents Using Pharmacometric Approaches
	Pharmacodynamics of Minocycline, Levofloxacin, and Trimethoprim/sulfamethoxazole against <i>Stenotrophomonas maltophilia</i> : Implications for Susceptibility Breakpoint Revisions
	Expanding Current and Future Susceptibility Testing Criteria with Genotypic Data: Comparative Efficacy of Human-Simulated Exposures of Ceftazidime/Avibactam, Imipenem/Relebactam, and Meropenem/Vaborbactam against OXA-48 β -lactamase-producing Enterobacterales in the Neutropenic Murine Thigh Infection Model
	Metallo- β -Lactamase Resistance in Enterobacterales: Is it Time to Rethink Our In Vitro Assessment Tools?
	Development of Rabbit Animal Models of Ventilator-Associated Bacterial Pneumonia Produced by Carbapenem-Resistant <i>Pseudomonas aeruginosa</i> and <i>Acinetobacter baumannii</i>

Awarded Research Studies



Stakeholder Engagement

- Based on public input, we begin to develop an annual list of regulatory science research needs specific for antimicrobial products
 - e.g. FDA workshops
 - as well as input from FDA's technical staff interfacing with drug development sponsors
- This input will be taken into consideration in helping the Office of Infectious Diseases develop the fiscal year Regulatory Science Research Priorities

Mechanisms to Collaborate

- Request for Proposals
- FDA's Broad Agency Announcement
- ORISE Fellowships

Request for Proposals (RFP)



- Requests for proposals (RFP), that identify OIR's fiscal year priorities and solicit research proposals, are publicly posted on the Office of Infectious Disease Research Webpage
 - Office of Infectious Disease Research Webpage
 - <https://www.fda.gov/about-fda/center-drug-evaluation-and-research-cder/office-infectious-diseases-research-activities>
- In addition, there are postings to Beta.Sam.gov and/or Grants.gov as appropriate:
 - Beta.Sam.gov (formerly FedBizOpps.gov)
 - contract mechanism
 - Grants.gov
 - grant mechanism

FDA's Broad Agency Announcement (BAA)



Topic area 2.4:

- Evaluate potential innovations in clinical trial design for new drugs
 - such as enrollment strategies, data collection streamlining, drug development tools, clinical endpoints, and new statistical analytic approaches
- Advance the science of in vitro, animal model, pharmacokinetic studies, and/or real world evidence studies
 - including studies focused on drug development for special populations such as patients with unmet need, children and patients with renal or hepatic dysfunction
- Evaluate strategies to enrich enrollment in clinical trials
- Advance the science of antibacterial drug susceptibility testing
 - for antibacterial drugs that are a high public health priority

FDA Solicitation Number FDABAA-20-00123 (topic area 2.4)

- <https://beta.sam.gov/opp/f91f23a1d5744e0b933bfb8f34f1d06c/view>

ORISE Fellowship Research Announcement



- ORISE fellows are recruited through an open competitive announcement posted on the Oak Ridge Institute for Science and Education Webpage
 - orise.ornl.gov/fda/
 - [OID Research Webpage](#)
- We plan to recruit 2 Antibacterial Drug Resistance Fellows in FY21 with experience in epidemiology, data analysis, and microbiology

Summary

- CARB Research Funding Opportunities will be posted in the coming months
 - [FDA's Broad Agency Announcement](#)
topic area 2.4
- 2 ORISE Fellowship Opportunities will be posted in the coming months.
 - [Research Participation Program at FDA](#)
through Oak Ridge Institute for Science and Education

Resources

Learn more about OID CARB Research Program:

<https://www.fda.gov/about-fda/center-drug-evaluation-and-research-cder/office-infectious-diseases-research-activities>

We post:

- Opportunities for collaboration/funding
- ORISE Fellowship Opportunities
- Related FDA Public Workshop links
- Background information on the National Action Plan for Combatting Antibiotic-Resistant Bacteria (CARB)

Office of Infectious Diseases Research Activities

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Antimicrobial Regulatory Science Research

Antibacterial drug resistance is a major threat to public health. In March 2015, The National Action Plan for Combating Antibiotic-Resistant Bacteria was developed in response to Executive Order 13676: Combating Antibiotic-Resistant Bacteria, which was issued on September 18, 2014. The National Action Plan outlines steps for implementing the National Strategy for Combating Antibiotic-Resistant Bacteria to address urgent and serious drug-resistant threats that affect people in the U.S. and around the world. Implementation of the National Action Plan will also support World Health Assembly resolution 67.23 (Antimicrobial Resistance), which urges countries to take urgent action at the national, regional, and local levels to combat resistance.

The FDA's roles in combatting antibacterial drug resistance include:

- Facilitating the development of new antibacterial drugs to treat patients; and
- Advancing the science of clinical trial design. The design and conduct of clinical trials to evaluate new antibacterial drugs in patients with serious bacterial infections is challenging and therefore of particular interest for FDA's regulatory science program.

What's New

- FY 2016 - FY 2020 Office of Infectious Diseases Research Priorities (PDF - 340KB)

Background

- National Action Plan for Combating Antibiotic-Resistant Bacteria (PDF - 447 KB)

Opportunities for Collaboration

- The FDA currently has an open announcement under the [FDA's Broad Agency Announcements](#) for the Advanced Research and Development of Regulatory Science. This is a competitive announcement where research proposals to facilitate antibacterial drug development and address antibacterial drug resistance are evaluated on an ongoing basis throughout the fiscal year. [Open](#)

Contact Information for CARB Research Program:

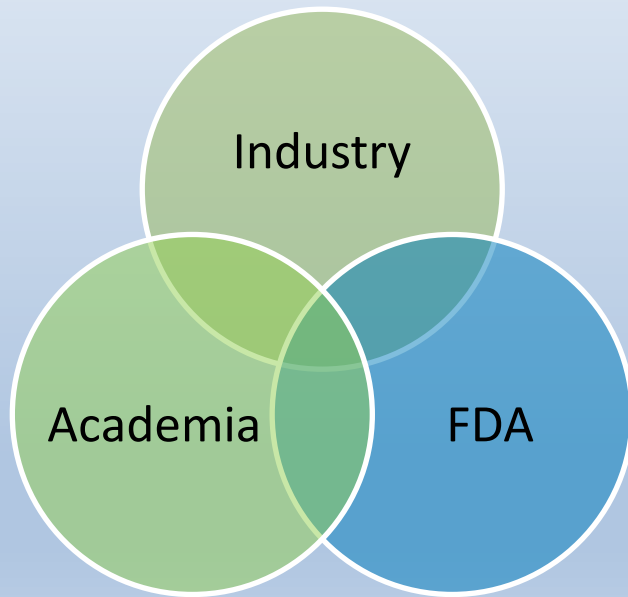
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Broad Agency Announcement (BAA)

Objective is to encourage science and technology based firms and educational institutions to participate in meeting FDA goals for basic and applied research in strategic scientific priority (SSP) to promote regulatory science.

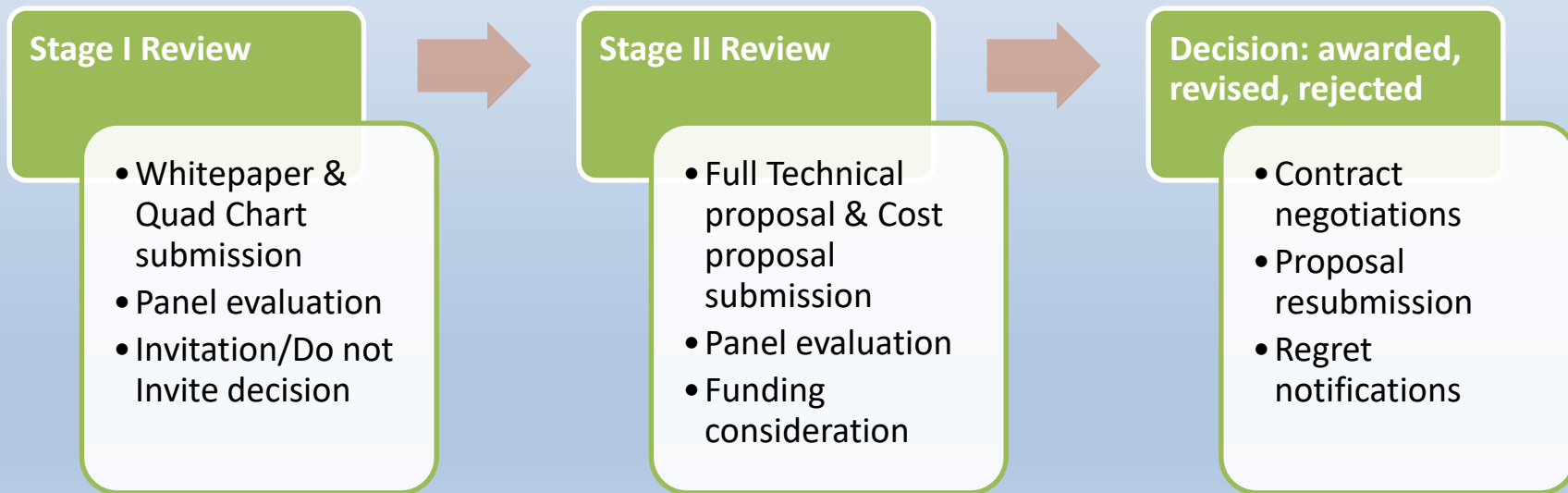
Advancing Regulatory Science at FDA:
A Strategic Plan



BAA – R&D Contract Mechanism



BAA Announcement – We accept submissions on a rolling basis. It is renewed every year with new fiscal year due dates and updated priorities that are aligned with the Strategic Science Plan.



Contact Information for FDA's Broad Agency Announcement:

FDABAA@FDA.HHS.GOV



Thank You!