Regulatory Science at CBER and OBRR

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Disclaimer

- I have no conflicts of interest to disclose
- The views and opinions presented here represent my own and should not be considered to represent advice or guidance on behalf of the U.S. Food and Drug Administration or the U.S. government

Outline

- Introduction to regulatory science
- CBER, Intramural Research, and the Regulatory Science Framework
- Extramural Programs
- Research in the Office of Blood Research and Review

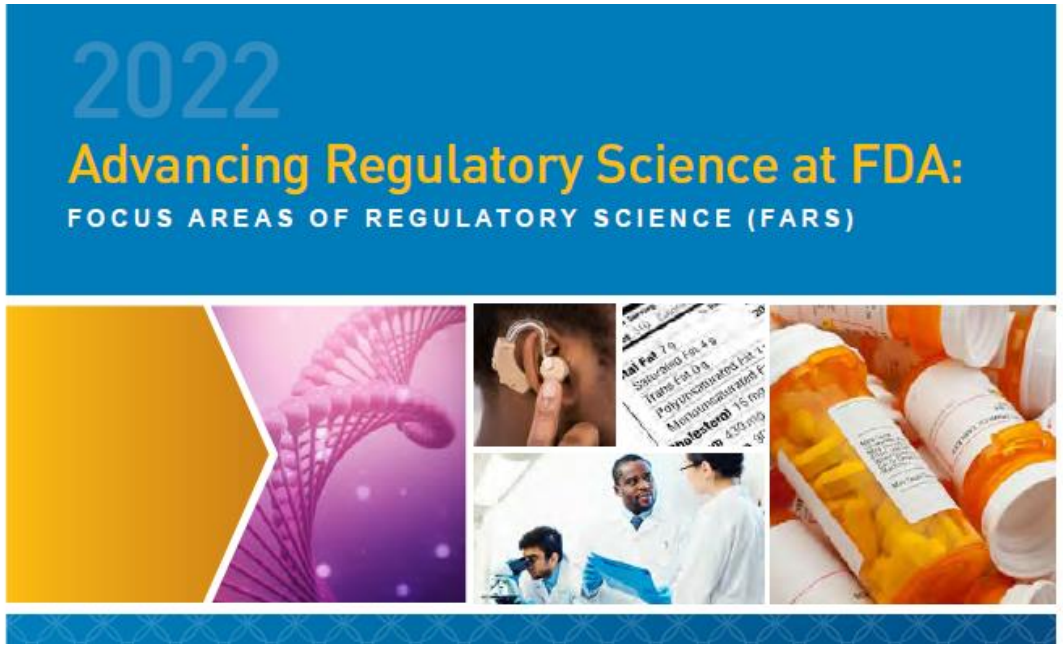
What is regulatory science?

The science of developing new tools, standards, and approaches to assess the safety, efficacy, quality, and performance of FDA-regulated products

Focus Areas of Regulatory Science (FARS)

In 2020, FDA formed an Agency-wide committee of scientific leaders to develop an efficient way to communicate to its stakeholders its regulatory science needs and activities

The committee developed the report “Advancing Regulatory Science at FDA: Focus Areas of Regulatory Science (FARS)”



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Focus Areas of Regulatory Science (FARS)

- Organized across four initiatives:
  - Public Health Emergency Preparedness and Response
  - Increasing Choice and Competition through Innovation
  - Unleashing the Power of Data
  - Empowering Patients and Consumers

http://wcms-internet.fda.gov/media/161381/download

FDA Intramural Research

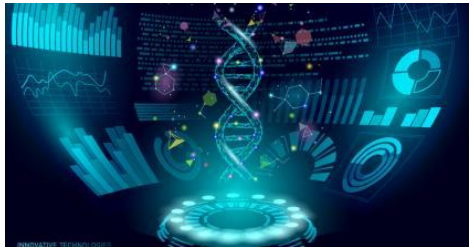
Not just CBER

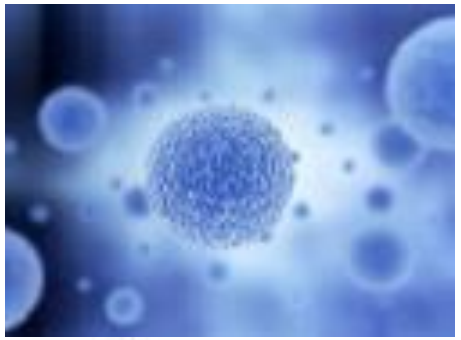
- Office of the Chief Scientist supports research and research collaboration programs and oversees cross-agency scientific working groups
- More than 2,500 researchers and analysts
- Variety of specialized facilities such as BSL-3 suites
- Core facilities with state-of-the-art technology
- Intramural Grant Programs
  - Includes Medical Counter Measures Initiative

  (https://www.fda.gov/emergency-preparedness-and-response/medical-countermeasures-mcms/mcm-regulatory-science)

https://www.fda.gov/science-research

CBER





CBER regulated products

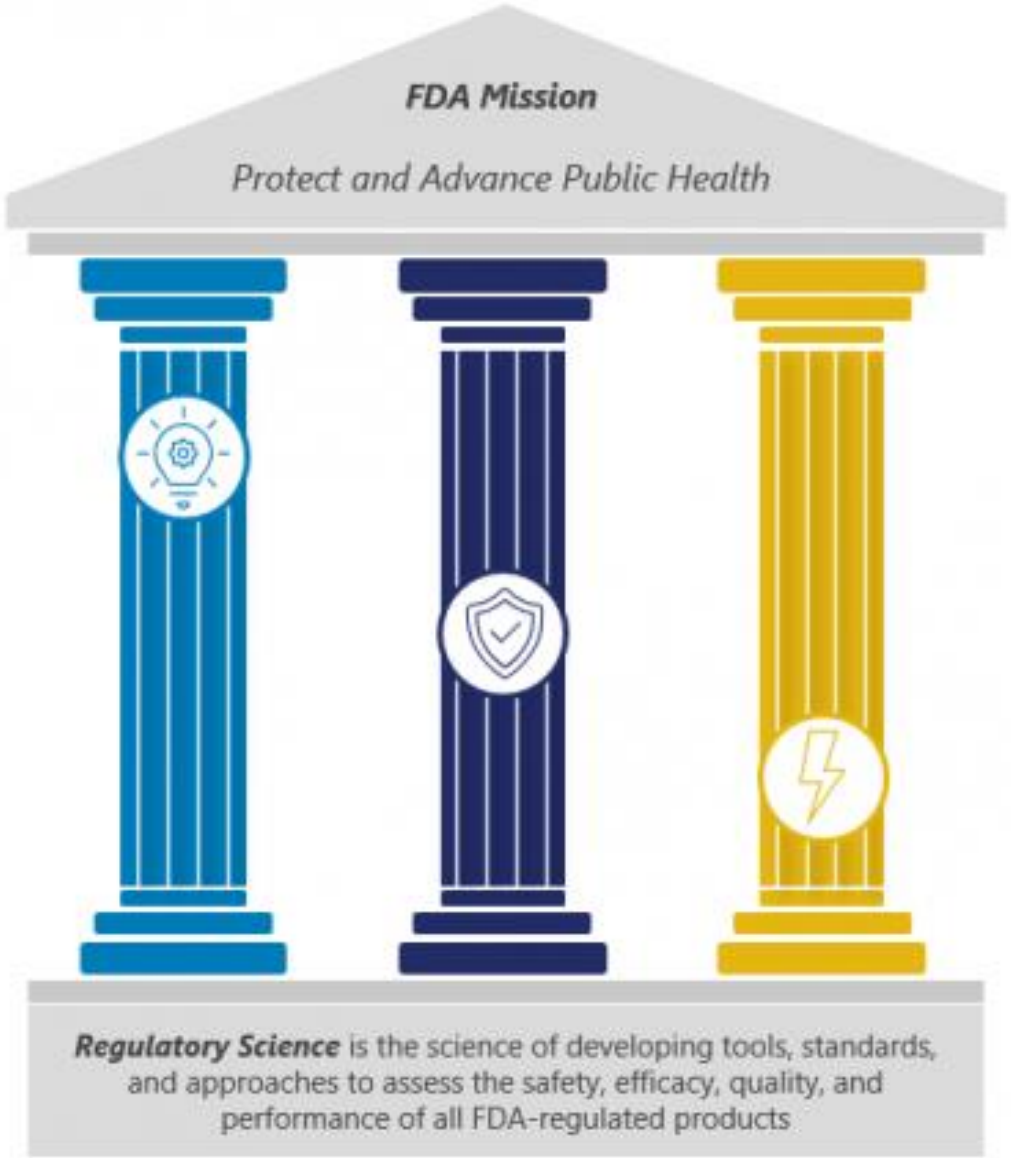
- Blood Products
- Gene Therapy
- Human Tissues and Cellular Products
- Vaccines – preventive and therapeutic
- Xenotransplantation products
- Allergenics
- Related Devices

CBER's research program

- The integration of mission-focused research and review
  - Prepare for future innovative products and regulatory and public health challenges
  - Develop tools and data that are available to all stakeholders and support development of product classes
  - Recruit and maintain highly trained scientists with necessary expertise to review regulatory submissions
    - Includes fellowship and training opportunities

CBER Research: https://www.fda.gov/vaccines-blood-biologics/science-research-biologics
CBER Research In Action: https://www.fda.gov/vaccines-blood-biologics/science-research-biologics/cber-research-action
CBER Collaborations and Partnerships: https://www.fda.gov/vaccines-blood-biologics/science-research-biologics/collaborations-and-partnerships

Regulatory Science Framework

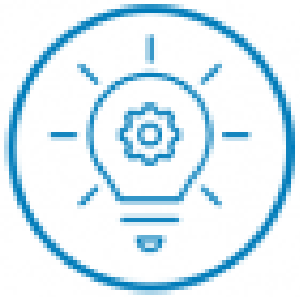


Modernize development and ***evaluation*** of FDA-regulated products

Strengthen post-market surveillance and ***labeling*** of FDA-regulated products

Invigorate public health preparedness and ***response*** of FDA, Patients & Consumers

https://www.fda.gov/science-research/advancing-regulatory-science/regulatory-science-framework



Modernize development and ***evaluation*** of FDA-regulated products

- Alternative Methods
- **Advanced Manufacturing Approaches**
- Analytical and Computational Methods
- **Biomarkers**
- **Clinical Outcome Assessment**
- **Complex and Novel Clinical Trial Design**
- Predictive Toxicology
- Methods for Assessing Behavioral, Economic, or Human Factors
- Approaches to Incorporate Patient and Consumer Input
- Methods to Assess Real-World Data (RWD) to serve as Real-World Evidence (RWE)
- Methods to Assess Data Source Interoperability

https://www.fda.gov/science-research/advancing-regulatory-science/regulatory-science-framework

Strengthen post-market surveillance and ***labeling*** of FDA-regulated products

- Methods to Assess Real-World Data to Support Regulatory Decision-Making
- Using and Validating Artificial Intelligence Approaches
- **Novel Clinical Trial Design, Statistical and Epidemiologic Methods**
- Automated Reporting Tools for Adverse Events and Active Surveillance
- Methods to Improve Communication About Risk to Patients and Consumers
- Approach to Expand Data Capacity, and Increase Data Quality and Use
- Efforts to Harmonize Existing and Emerging Data Standards

https://www.fda.gov/science-research/advancing-regulatory-science/regulatory-science-framework

Invigorate public health preparedness and **response** of FDA, Patients & Consumers

- **Reinforce Medical Countermeasures Initiative (MCMi)**
- Antimicrobial Resistance
- Patient and Consumer Engagement
- Substance Use and Misuse
- One Health Approaches
- **Global Product Safety net**
- **Emerging Technologies**

https://www.fda.gov/science-research/advancing-regulatory-science/regulatory-science-framework

Extramural Funding Mechanisms

- Individual centers and offices, as well as the Office of the Chief Scientist, fund extramural research using various contract mechanisms and grants to address Agency regulatory science challenges
- Depending on availability of appropriated funds, FDA may have grant and contract programs to support extramural research in very targeted areas
- OCS supports two FDA-level extramural funding mechanisms:
  - Advancing Regulatory Science Broad Agency Announcement (BAA)
  - Centers of Excellence in Regulatory Science and Innovation Program (CERSI)

Broad Agency Announcement (BAA)

- Solicit innovative ideas and approaches to developing and evaluating FDA-regulated products by tapping into external knowledge and infrastructure in areas where FDA has limited expertise or capacities
- Industry, academia, and other government agencies
- Address high-priority needs within the Regulatory Science Framework

https://www.fda.gov/science-research/advancing-regulatory-science/regulatory-science-extramural-research-and-development-projects

BAA

- R&D Contract mechanism, up to 5 years
- Optional early concept paper
  - FDA may provide optional feedback on whether to submit Stage I package
- Stage I Submissions include freestanding Concept Paper and Full Proposal
- 2024 BAA Day – November 14, 2024
  - 2024 FDA Broad Agency Announcement Day - 11/14/2024 | FDA
  - https://www.fda.gov/science-research/advancing-regulatory-science/2024-fda-broad-agency-announcement-day-11142024
  - Includes discussion of FY2025 FDA Funding Priorities from several Centers and Offices

BAA

- List of contract awards and historical data are available on FDA website
  - In FY 2023, FDA received 264 applications, and awarded 39 contracts totaling ~$26.6 million
- FY25 BAA posted on SAM.gov on October 3, 2024
  - FDABAA-25-00123
  - Important dates:
    - 11/8/2024: OPTIONAL Early Concept Paper
    - 2/24/2025: Stage I Proposal

Centers of Excellence in Regulatory Science and Innovation (CERSI)

- Led by Office of Regulatory Science and Innovation
- Collaborative activities to target one or more of the focus areas in the Regulatory Science Framework

CERSI Johns Hopkins University

CERSI UCSF - Stanford

Triangle CERSI

CERSI University of Maryland

CERSI Yale-Mayo Clinic

CERSI

- Selected and awarded through a competitive process for a cooperative agreement under RFA-FD-23-004
- Fosters collaborative interactions with FDA scientific experts and funding offices
- Provides regulatory science information sharing opportunities, such as lectures, workshops, courses, scholar awards, fellowships, and competitions

https://www.fda.gov/science-research/advancing-regulatory-science/centers-excellence-regulatory-science-and-innovation-cersis

OBRR as an example of these programs in action

OBRR regulated products

- Blood and blood components for transfusion or further manufacture
- Devices used in manufacture of blood components
- Donor screening tests and confirmatory tests for transfusion-transmissible infections
- Immunohematology reagents and compatibility tests
- Pathogen reduction devices
- Plasma volume expanders
- Oxygen carrying solutions
- Blood collection containers and additive solutions
- Diagnostic tests for human retroviruses

OBRR research goals

- Assess and promote the safety and effectiveness of transfusion products and related devices and technologies
- Assess and promote the safety and effectiveness of donor screening tests and retroviral diagnostics
- Develop and facilitate application of novel technology toward universal PRT of the blood supply (e.g., through application to whole blood)

Intramural Initiatives to Advance PRT

- OBRR established an intramural pathogen reduction research program (Laboratory of Pathogen Reduction) that conducts collaborative research to advance promising candidate technologies
  - Includes development of model systems to measure component quality and inactivation of various pathogen types
  - Evaluate candidate technologies through Research Collaboration Agreements (RCAs) and Cooperative Research and Development Agreements (CRADAs)
- Additional OBRR labs examine other aspects of PRT

Extramural Initiatives to Advance PRT

- FDA hosted a public workshop on PRT for blood safety in 2018
  - https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6726584/

  Atreya, et al., Transfusion. 2019 Sep; 59(9): 3002–3025.
- Request for Application (RFA-FD-21-032): Integrated Pathogen Reduction Technologies for whole blood and blood components for transfusion
- Funded relevant programs under Broad Agency Announcement
- Extramural collaborations through FDA's Centers for Excellence in Regulatory Science and Innovation

Thank you