

Opportunity Title: FDA Modeling and Simulation Fellowships

Opportunity Reference Code: FDA-CDER-2023-1239A

Organization U.S. Food and Drug Administration (FDA)

Reference Code FDA-CDER-2023-1239A

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A complete application consists of:

- An application
- Transcripts – [Click here for detailed information about acceptable transcripts](#)
- A current resume/CV, including academic history, employment history, relevant experiences, and publication list
- One educational or professional recommendation

All documents must be in English or include an official English translation.

If you have questions, send an email to ORISE.FDA.CDER@oraui.org. Please include the reference code for this opportunity in your email.

Description *Applications will be reviewed on a rolling-basis.

CDER Office/Lab and Location: Multiple research opportunities are currently available at the Center for Drug Evaluation and Research (CDER), Food and Drug Administration (FDA) in Silver Spring, Maryland.

The Division of Quantitative Methods and Modeling (DQMM) in the Office of Research and Standards (ORS) within the Office of Generic Drugs (OGD) provides expertise in advanced quantitative methods for the generic drug research program and conducts regulatory science and research activities based on quantitative approaches. Some of the responsibilities residing in DQMM include providing quantitative method support for guidance development, abbreviated new drug application (ANDA) reviews, citizen petitions, controlled correspondence, pre-ANDA meetings, methodology development for bioequivalence evaluation, active ingredient sameness demonstration, and post marketing safety surveillance. This Division coordinates modeling, simulation, data analysis and data mining, and establishes the scientific computing infrastructure for OGD. DQMM is also developing innovative quantitative approaches to improve regulatory decision making for generic drugs by fully utilizing the large amount of data available to FDA.

DQMM is a fast-paced, dynamic scientific environment with opportunities to collaborate with dedicated, energetic senior researchers who want to make a difference and improve public health. We are looking for several qualified individuals to participate in research activities that support our mission of providing high quality generic drugs to the American consumer.

Research Project: This opportunity in DQMM will provide an outstanding opportunity to learn and apply quantitative analysis, modeling, and simulation to support the aforementioned activities. Under the guidance of a mentor, the research participant will be involved in the following areas:

- Modeling and simulation of modified release solid oral products (including physiologically based pharmacokinetic (PBPK) absorption models, in vitro - in vivo correlations and pharmacokinetic/pharmacodynamic [PK/PD] modeling) to ensure the consistency and quality of bioequivalence recommendations from OGD
- Modeling and simulation to reduce/replace in vivo bioequivalence studies (i.e., in vivo PK



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bioequivalence studies, clinical endpoint or pharmacodynamic endpoint bioequivalence studies) for complex generic products and other generic products with clinical study challenges including long acting injectable and implantable products, oncology drug products, orphan drug products

- Develop and apply PBPK absorption models for oral drug products to support biowaiver and risk-based BE assessment
- Innovative approaches to establish active ingredient sameness/pharmaceutical equivalence for complex drug substances
- Application of PBPK and/or computational fluid dynamics models for non-oral drug products to help develop new bioequivalence methods for locally-acting drug products administered via non-oral routes of administration
- PK/PD modeling of narrow therapeutic index drugs and complex drug products and clinical trial simulation to aid risk-based bioequivalence evaluation
- Conventional and model-based meta-analysis on drugs within same class or different classes
- Develop/apply novel analysis approaches to detect and assess safety signals of generic products
- Develop systems pharmacology-based methodologies to understand and predict drug actions underlying both therapeutic effect and adverse reactions
- Research and build data infrastructure and analysis tools to increase ANDA review efficiency and quality by integrating information from FDA datasets

This program, administered by ORAU through its contract with the U.S. Department of Energy to manage the Oak Ridge Institute for Science and Education, was established through an interagency agreement between DOE and FDA. The initial appointment is for one year, but may be renewed upon recommendation of FDA contingent on the availability of funds. The participant will receive a monthly stipend commensurate with educational level and experience. Proof of health insurance is required for participation in this program. The appointment is full-time at FDA in the Silver Spring, Maryland, area. Participants do not become employees of FDA, DOE or the program administrator, and there are no employment-related benefits.

Completion of a successful background investigation by the Office of Personnel Management is required for an applicant to be on-boarded at FDA. OPM can complete a background investigation only for individuals, including non-US Citizens, who have resided in the US for a total of three of the past five years.





FDA requires ORISE participants to read and sign their FDA Education and Training Agreement within 30 days of his/her start date, setting forth the conditions and expectations for his/her educational appointment at the agency. This agreement covers such topics as the following:

- Non-employee nature of the ORISE appointment;
- Prohibition on ORISE Fellows performing inherently governmental functions;
- Obligation of ORISE Fellows to convey all necessary rights to the FDA regarding intellectual property conceived or first reduced to practice during their fellowship;
- The fact that research materials and laboratory notebooks are the property of the FDA;
- ORISE fellow's obligation to protect and not to further disclose or use non-public information.

Qualifications The qualified candidate should have received a doctoral degree in one of the relevant fields. Pharmaceutical Sciences, Clinical Pharmacology, or Pharmacometrics is preferred. Degree must have been received within five years of the appointment start date.

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- Eligibility**
- **Degree:** Doctoral Degree received within the last 60 month(s).
- Requirements**
- **Discipline(s):**
 - **Chemistry and Materials Sciences** ([1](#) )
 - **Engineering** ([1](#) )
 - **Life Health and Medical Sciences** ([45](#) )
 - **Mathematics and Statistics** ([1](#) )

Affirmation I have lived in the United States for at least 36 out of the past 60 months.
(36 months do not have to be consecutive.)