Opportunity Title: Chemical Synthesis of Nucleic Acid-Based Drugs Fellowship - CDER
Opportunity Reference Code: FDA-CDER-2017-0022

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

Reference Code FDA-CDER-2017-0022

How to Apply 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
- Two educational or professional references

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

If you have questions, send an email to FDArpp@orau.org. Please include the reference code for this opportunity in your email.

Description A postgraduate research opportunity is available at the Food and Drug Administration (FDA), Center for Drug Evaluation and Research (CDER), in the Office of Pharmaceutical Quality/Office of Biotechnology Products.

The need for producing RNA sequences, in sufficient quantity and purity for pharmaceutical applications prompted the current renaissance in the development of rapid and efficient methods for RNA synthesis. Improving the chemical synthesis of therapeutic oligonucleotides should therefore enhance the clinical safety and efficacy profiles of these drugs and streamline the FDA review process of prospective nucleic acid-based drugs.

To meet such a challenge the participants may be involved in projects which:

- Synthesize iminooxymethyl pyruvate esters as potential 2'-hydroxyl protecting groups for ribonucleosides based on the decarboxylative properties of alpha-oxiimino acids
- Synthesize all the four ribonucleosides with 2'-O-iminooxymethyl pyruvate protecting groups
- Investigate and apply iminooxy pyruvate protection to the nucleobase of ribonucleosides
- Demonstrate that the decarboxylative removal of the new 2'-hydroxyl and nucleobase protecting groups improved the deprotection kinetics and purity of synthetic RNA sequences

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

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appointment is for 12 months, 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, MD area. Participants do not become employees of FDA or the program administrator, and there are no fringe benefits paid.

Qualifications

Applicants must have received a doctoral degree in organic chemistry or related disciplines received within five years of the desired starting date. Applicants with laboratory experience in nucleoside and nucleic acid chemistry preferred.

Familiarity with laboratory techniques used for the purification of nucleosides and oligonucleotides is preferred. These techniques include chromatography on silica gel, reversed-phase and ion-exchange HPLC-based methods. The candidate should be experienced with the use of product characterization techniques including UV/VIS and preferably NMR spectroscopies (1H, 13C and 31P). The candidate should also have some experience in the solid-phase synthesis of DNA/RNA oligonucleotides. Evidence of scientific productivity should be provided through publications (2-3, based on doctoral work) published in peer-reviewed journals.

Eligibility Requirements

- **Degree:** Doctoral Degree.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (2 👁)
  - **Life Health and Medical Sciences** (1 👁)