

**Opportunity Title:** FDA Postgraduate COVID-19 Analysis Fellowship

**Opportunity Reference Code:** FDA-CBER-2020-0035

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

**Reference Code** FDA-CBER-2020-0035

**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
- 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.CBER@oraui.org](mailto:ORISE.FDA.CBER@oraui.org). Please include the reference code for this opportunity in your email.

**Application Deadline** 9/24/2020 3:00:00 PM Eastern Time Zone

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

A research opportunity is currently available with the Division of Plasma Protein Therapeutics (DPPT), in the Office of Tissues and Advanced Therapies (OTAT), at the Center for Biologics Evaluation and Research (CBER), Food and Drug Administration (FDA) located in Silver Spring, Maryland.

The recent emergence of SARS-CoV-2, the causative agent of COVID-19, has sparked a global search for effective therapies and a vaccine. DPPT has a research opportunity for a recent graduate in computational biology / bioinformatics / computer science to be involved with a project related to COVID-19. The project focuses on using computational models to predict efficacy of novel drugs and biologics, including neutralizing antibodies, against SARS-CoV-2. The project also has a focus on vaccine design through sequence deoptimization. This will involve the use of existing bioinformatics pipelines and development of novel computational tools.

Under the guidance of a mentor, the selected participant will receive training in computer science, bioinformatics, and/or computational biology. Specifically, most of our projects have a component of machine learning and the participant will learn to use these on large biological datasets, including RNA-seq. The participant will be learning bioinformatics tools to answer questions such as, translation rate of viral and host genes, analysis of polymorphisms in the population that may have predisposition to get infected, sequence analysis to design vaccine, optimization and de-optimization of viral sequences.

The following articles in the literature provide examples of the range of research performed in our group:

Sequence analysis of SARS-CoV-2 genome reveals features important for vaccine design  
Jacob Kames, David D. Holcomb, View ORCID ProfileOfer Kimchi, Michael DiCuccio, Nobuko Hamasaki-Katagiri, Tony Wang, Anton A. Komar, Aikaterini Alexaki, View ORCID ProfileChava Kimchi-Sarfaty

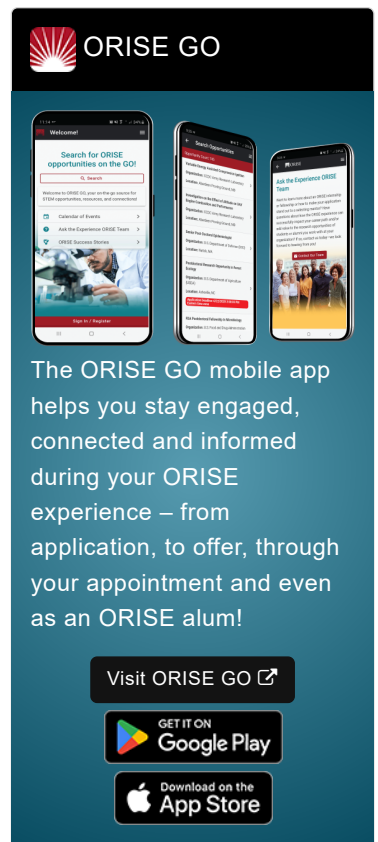
doi: <https://doi.org/10.1101/2020.03.30.016832>

Alexaki A., Kames J., Holcomb D.D., Athey J., Santana-Quintero L.V., Lam P.V.N., Hamasaki-Katagiri N.,

Osipova E., Simonyan V., Bar H., Komar A.A., and Kimchi-Sarfaty C.: Codon and Codon-Pair





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Usage Tables (CoCoPUTs): Facilitating Genetic Variation Analyses and Recombinant Gene Design. Journal of Molecular Biology. <https://doi.org/10.1016/j.jmb.2019.04.021>. 2019.

Alexaki A., Hettiarachchi G.K., Athey J., Katneni U.K., Simhadri V., Hamasaki-Katagiri N., Nanavaty P., Lin B., Takeda K., Freedberg D., Monroe D., McGill J.R., Peters R., Kames J., Holcomb D.D., Hunt R.C., Gelinas A., Janjic N., DiCuccio M., Bar H., Komar A.A., and Kimchi-Sarfaty C.: Effects of codon optimization on protein translation and structure: Implications for protein therapeutics. 2019. Scientific Reports, in press.

**Anticipated Appointment Start Date: July 1, 2020**

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 bachelor's or master's degree in one of the relevant fields, or be currently pursuing the degree and will reach completion by the appointment start date. Degree must have been received within five years of the appointment start date.

Preferred skills:


- Experience in computational work
- Strong programming background in Python / R / C++ (at least one)
- Experience working with large biological datasets, including RNA-seq
- Willingness to learn new technologies and operate outside her/his comfort zone

**Eligibility Requirements**

- **Citizenship:** LPR or U.S. Citizen
- **Degree:** Bachelor's Degree or Master's Degree received within the last 60 months or anticipated to be received by 7/1/2020 11:59:00 PM.
- **Discipline(s):**
  - **Computer, Information, and Data Sciences** ([16](#))

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- **Environmental and Marine Sciences** ([1](#) )
- **Life Health and Medical Sciences** ([45](#) )