

Opportunity Title: USDA-ARS Postdoctoral Fellowship in Newly Emerging Avian

Influenza Viruses

Opportunity Reference Code: USDA-ARS-2022-0221

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-ARS-2022-0221

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A complete application consists of:

- An application
- Transcript(s) – For this opportunity, an unofficial transcript or copy of the student academic records printed by the applicant or by academic advisors from internal institution systems may be submitted. All transcripts must be in English or include an official English translation. 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 recommendations

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

Application Deadline 7/15/2022 3:00:00 PM Eastern Time Zone

Description ***Applications may be reviewed on a rolling-basis and this posting will remain open until filled.**

ARS Office/Lab and Location: A postdoctoral research opportunity is available with the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS), US National Poultry Research Center located in Athens, Georgia.

The Agricultural Research Service (ARS) is the U.S. Department of Agriculture's chief scientific in-house research agency with a mission to find solutions to agricultural problems that affect Americans every day from field to table. ARS will deliver cutting-edge, scientific tools and innovative solutions for American farmers, producers, industry, and communities to support the nourishment and well-being of all people; sustain our nation's agroecosystems and natural resources; and ensure the economic competitiveness and excellence of our agriculture. The vision of the agency is to provide global leadership in agricultural discoveries through scientific excellence.

Research Project: This research project describes a series of experiments designed to assess the effects of innate and adaptive immunity on evolution of AIV, in vitro, and in vivo. The unifying approach is to examine how virus strains from the H5NX (especially clade 2.3.4.4), H7N9 and H9N2 lineages, which pose the greatest current risk to both animals and humans, change at the quasi species level under various selective pressures: host switches, host immunity and virus competition. We will use in vitro and in vivo systems as complementary approaches that allow virus evolution to be interrogated at relatively high throughput at tissue level and at lower throughput but whole organism level.



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Three specific aims (SA) of this research that the participant will be involved in include: 1) Influence of innate immunity and host species on evolution of AIV (UK, US). Here, the roles of host-related factors and innate immunity on virus evolution will be determined in vitro and in vivo. 2) Influence of adaptive immunity on AIV evolution (US). In this section, the dynamics of virus subtype and host species will be determined in vivo through two approaches; firstly, by testing suboptimal immunity in vaccinated chickens (H5/H7 vaccines) and mallard ducks (live LPAI pre-exposure) followed by HPAI challenge; secondly, by passage of LPAIV H7 and H9 in naïve quail that contain SA receptors for both avian and mammalian AIV. 3) Testing of models with current outbreak strains (US, China). This section will test the fitness landscape and key amino acid polymorphism modelling of AIV strains by supplying the models with genomic data from recent (<1 year, and therefore not included in the initial model parameterization) outbreak isolates and testing them in the wet labs.

Learning Objectives: Throughout the appointment, the selected participant will learn:

- Proficiency in growth and characterization of influenza viruses
- Application of next-gen sequencing to identify virus genome evolution
- In silico testing of evolution models from outbreak strains

Mentor(s): The mentor for this opportunity is Darrell Kapczynski (Darrell.kapczynski@usda.gov). If you have questions about the nature of the research please contact the mentor(s).

Anticipated Appointment Start Date: As soon as a qualified candidate is identified. Start date is flexible and will depend on a variety of factors.

Appointment Length: The appointment will initially be for one year, but may be renewed upon recommendation of ARS and is contingent on the availability of funds.

Level of Participation: The appointment is full-time.

Participant Stipend: The participant will receive a monthly stipend commensurate with educational level and experience.

Citizenship Requirements: This opportunity is available to U.S. citizens, Lawful Permanent Residents (LPR), and foreign nationals. Non-U.S. citizen applicants should refer to the [Guidelines for Non-U.S. Citizens Details](#) page of the program website for information about the valid immigration statuses that are acceptable for program participation.

ORISE Information: This program, administered by ORAU through its contract with the U.S. Department of Energy (DOE) to manage the Oak Ridge Institute for Science and Education (ORISE), was established through an interagency agreement between DOE and ARS. Participants do not become employees of USDA, ARS, DOE or the program administrator, and there are no employment-related benefits. Proof of health insurance is required for participation in this program. Health insurance can be obtained through ORISE.

Questions: Please visit our [Program Website](#). After reading, if you have additional questions about the application process please email USDA-ARS@ornl.gov and include the reference code for this opportunity.

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Qualifications The qualified candidate should have received a doctoral degree in one of the relevant fields, or be currently pursuing the degree with completion by June 1, 2022.

- Eligibility**
- **Degree:** Doctoral Degree.
- Requirements**
- **Discipline(s):**
 - **Life Health and Medical Sciences** ([8](#) 👁)