Opportunity Title: Exposome Characterization to Enhance Threat Assessments
Opportunity Reference Code: ICPD-2022-14

Organization	Office of the Director of National Intelligence (ODNI)
Reference Code	ICPD-2022-14
How to Apply	**Create and release your Profile on Zintellect** – Postdoctoral applicants must create an account and complete a profile in the on-line application system. **Please note: your resume/CV may not exceed 2 pages.**

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Complete your application – Enter the rest of the information required for the IC Postdoc Program Research Opportunity. The application itself contains detailed instructions for each one of these components: availability, citizenship, transcripts, dissertation abstract, publication and presentation plan, and information about your Research Advisor co-applicant.

Additional information about the IC Postdoctoral Research Fellowship Program is available on the program website located at: https://orise.orau.gov/icpostdoc/index.html.

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

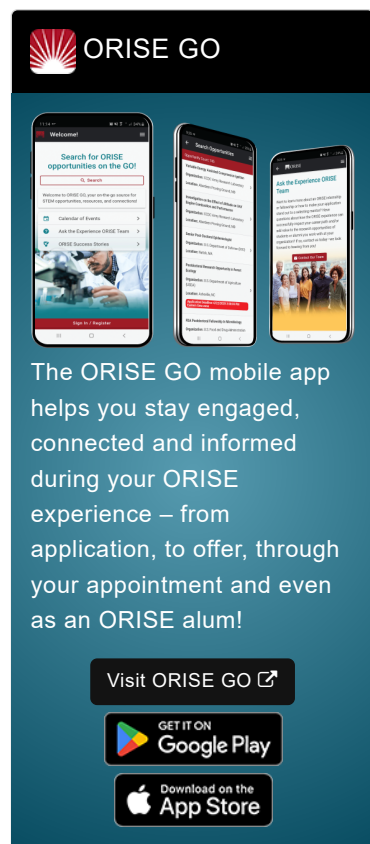|	
Application Deadline	2/28/2022 6:00:00 PM Eastern Time Zone
Description	**Research Topic Description, including Problem Statement:**

The exposome may be described as a comprehensive measure of all environmental exposures an individual experiences in a lifetime and how those exposures change the individual's biology. Exposome components can be diverse and can include profile changes to antibodies, metabolites, protein/peptide adducts, RNAs, epigenetics, small molecules, lipids, and others.Understanding how the exposome changes in response to certain insults such as pathogens, toxins, and other chemicals could provide new avenues for assessment of biological threat processes, building early exposure health warnings, and tracking sources of threat agents. In order to leverage the considerable information content carried by our exposomes, new technologies, approaches, and data analysis methods are required. The intent of this call is to identify postdoctoral researchers who are researching how to best interrogate the exposome, isolating what specific features and biomarkers associate most strongly and provide viable and longitudinal tracing for distinct threat types, or developing predictive modeling approaches using exposome signature data.

Example Approaches:

Mass spectroscopy, High-content cellular microscopy, Nucleic acid barcoding plus sequencing, Machine learning pipelines, genomics, transcriptomics, multi-omics

Relevance to the Intelligence Community:

The ability to track and identify the emergence of threat agents continues to be a significant challenge. The human exposome provides a potential signature source for improved tracking of these agents and could be leveraged to improve health monitoring of high-risk individuals and to improve global biosurveillance efforts.

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Key Words: Exposome, Biomarkers, Environmental, Exposure, Immune, Metabolomics, Panomics, Epigenetics, Signatures

Qualifications

Postdoc Eligibility

- U.S. citizens only
- Ph.D. in a relevant field must be completed before beginning the appointment and within five years of the application deadline
- Proposal must be associated with an accredited U.S. university, college, or U.S. government laboratory
- Eligible candidates may only receive one award from the IC Postdoctoral Research Fellowship Program

Research Advisor Eligibility

- Must be an employee of an accredited U.S. university, college or U.S. government laboratory
- Are not required to be U.S. citizens

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (12 👁)
  - **Communications and Graphics Design** (2 👁)
  - **Computer, Information, and Data Sciences** (16 👁)
  - **Earth and Geosciences** (21 👁)
  - **Engineering** (27 👁)
  - **Environmental and Marine Sciences** (14 👁)
  - **Life Health and Medical Sciences** (45 👁)
  - **Mathematics and Statistics** (10 👁)
  - **Other Non-Science & Engineering** (2 👁)
  - **Physics** (16 👁)
  - **Science & Engineering-related** (1 👁)
  - **Social and Behavioral Sciences** (27 👁)