

Qualitative Identification of Emerging and Designer Chemicals

The Customs and Border Protection (CBP) Laboratories and Scientific Services Directorate (LSSD) within the Department of Homeland Security (DHS) is seeking to host one or more National Science Foundation (NSF) student scientists with backgrounds in Chemistry or a related discipline to collaborate with LSSD analysts and scientists.

- **Project Duration:** TBD
- **Start Date:** Spring, Summer or Fall 2018
- **Location:** LSSD, Long Beach, California

Project Overview

LSSD provides forensic and scientific analysis in the areas of trade enforcement, weapons of mass destruction, intellectual property, import safety, and narcotics enforcement. Fulfilling this mission can involve providing technical and scientific advice through rapid identification of newly emerging and designer chemicals. In order to identify organic chemicals, the LSSD field laboratories rely on established sources, test of commercially available certified reference materials or extensive structural elucidation by laboratory capabilities. This project seeks student scientists to work on the following tasks:

- Gather and collate central references volumes with listing reference spectrum of each chemical and creating objective IR and Mass Spectra Indices.
- Develop central reference system with hardcopy volumes, repository for the electronic spectral files to update instrument libraries, searchable indices for MS and IR.
- Identify which known emerging and designer chemicals have not been analyzed by common test technologies (NMR, IR, MS and Raman).
- Develop synthesis for and identify emerging and designer chemicals not encountered or with known references.
- Participate in lab activities not limited to seminar, webinars, and tours of other laboratories in the local area.
- Present results to LSSD laboratories and for submission to law enforcement reference sites.

Qualifications

The ideal candidate will have chemistry experience and a strong interest in organic synthesis and/or analytical analysis. The candidate shall be detail-oriented, possess excellent organizational, presentation, and written skills, and be able to perform tasks independently with little supervision

Eligibility Requirements

- Citizenship: U.S. Citizen Only
- Degree: Chemistry
- Discipline(s): Analytical Chemistry and/or Organic Chemistry

Contact

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