FORENSIC SCIENTIST (VIROLOGIST/MICROBIOLOGIST)
CS-401-12

INTRODUCTION

This position is located in the Department of Forensic Sciences (DFS) Division of Public Health Laboratory. The mission of the DFS is to provide high-quality, timely, accurate, and reliable forensic and health science services using best practices and best available technology, focusing on unbiased science and transparency, to enhance public safety and health.

The Virology and Immunology laboratories support the monitoring and prevention efforts of the Department of Health (DOH). It is a critical part of the DOH support response to outbreak of disease in the District of Columbia. It is also critical component of the Emergency Response laboratory functions of the DFS Bio-Terrorism Unit handling Select Agents such as Eastern Equine Encephalitis.

MAJOR DUTIES

Performs and coordinates testing in a highly professional and specialized technical services and activities in the virology-immunology and microbiology laboratory programs of the Public Health Laboratory (PHL) and ensures that all needed laboratory services are provided, some of which call for basic research efforts.

Advises and consults with Public Health Laboratory Director and other key officials of the District of Columbia on matters pertaining to virology, immunology, microbiology, molecular biology, and quality assurance.

Assist in development and implementation of programs, methods and techniques to keep pace with the constantly changing and increasing demands for Virology, Immunology and Microbiology laboratory services brought about growing public health needs, increased standards and requirements for adequate public health protections and rapid advances in the laboratory field.

May be required to assists with training technical personnel in the use of new and specialized equipment.

Assists with evaluating the progress and process of the immunology virology unit to reflect changes in objectives, diagnostic laboratory technology, and public health and forensic science goals.

Maintains and assures maintenance of all necessary laboratory records in a manner to ensure timely retrieval, full coverage of examinations, etc. consistent with requirements of full documentation needed to respond to Central Medicare Services, Medicare and/or submitting physician inquiry within Health Insurance Portability and Accountability Act (HIPAA) compliance rules and ISO 17025 guidelines.

Communicates laboratory findings and other data to the PHL Director and appropriate scientific and health care communities through seminars, professional meetings, scientific publications and direct contact with health care, forensic science professionals, etc.

Provides technical support for the evaluation of hospitals and private laboratories to ensure strict conformance to technical standards and procedures and to assure accuracy and uniformity in test results; and assures that these high standards are also maintained in the Public Health Laboratory.

Assists with ensuring that heavy volumes of daily work as well as difficult special demands are

scheduled and processed effectively; and that equipment and materials are used appropriately.

Assists in training scientists in their varied specialties and assures that current references and applicable techniques, reports and publications are available and that equipment and facilities are adequate.

Assists with data management and statistical reports using the DFS Laboratory Management System (LIMS) as appropriate.

Performs other related duties as assigned

KNOWLEDGE REQUIRED BY THE POSITION

Advanced knowledge, experience with or the ability to apply theoretical and analytical principles of natural and physical sciences, including organic, inorganic, biochemistry, physical chemistry, and other applicable fields; and apply quality methods and techniques used in a forensic laboratory, including laboratory testing procedures; and theories, principles, and concepts to perform the full range of special tests and routine procedures in addition to standardized procedures in microbiology, virology, molecular, biology and related disciplines.

Advanced knowledge of and skill sufficient to establish and monitor quality control in the virology-immunology section as well as an in-depth knowledge of medical technology, microbiology principles, techniques, and instruments to determine quality control measures needed to control samples, to respond to proficiency testing programs, to establish and maintain record keeping systems and to sustain a quality system.

Advanced and demonstrated knowledge and skill in applying professional theories, principles, concepts, practices, standards, and methods of Biomedical Laboratory Sciences to include microbiological science, public health, and disease prevention; and applicable Federal statutes and legislation governing individual programs; and expert knowledge of animal pathogens, their tissues, cells, functions, interdependencies, and interactions with hosts and the environment.

Advanced knowledge of and skill and ability gained through extensive work experience or training in applying theories, principles, concepts, methodology and practices of analytical chemistry, physical science, or biology or related field to the work that is sufficient to perform mathematical and statistical analyses that relate to analytical laboratory work.

Demonstrated knowledge and skill in of complex immuno-diagnostic procedures of virology, molecular diagnostics and the ability to keep abreast of best practices through on-going professional development activities; expertise in using various types of highly complex equipment (e.g., thermo cyclers, DNA sequencers, rapid viral identification systems, immunodiagnostics and Nucleic acid amplification procedures, centrifuges, microscopes, bio-safety cabinets) in a public health laboratory setting and in reading and interpreting complex documents, test results and publications; and expert knowledge of safety and security in a biomedical laboratory.

Expert ability to use initiative and resourcefulness in deviating from or extending traditional methods to troubleshoot and solve testing problems and in modifying existing protocols in conformity with established scientific methods for validating clinical laboratory tests.

Ability to perform testing on molecular and immunodiagnostic methods.

Demonstrated skill and ability to use a PC and software packages (e.g., Microsoft Word, Excel, Access and Power Point, etc.) and software applicable to various reporting systems, particularly laboratory information management systems (LIMS), inventory control, and sequence analysis software.

Excellent oral and written communications skills sufficient to prepare and present pertinent information and maintain effective relationships.

Exercises discretion and sound judgment to determine proper courses of action and assesses and evaluates a variety of situations, problems, conditions or questions.

Ability to work safely without presenting a threat to self or others is essential.

SUPERVISORY CONTROLS

The incumbent serves under the general direction of the Virology- Immunology Unit Manager who defines in coordination with the PHL Director the objectives of the program in general terms and confers with the incumbent on major policy questions as appropriate. Exercises initiative while developing solutions to common technical and procedural problems such as changes in priorities, minor need for additional equipment or other such comparable issues and utilizes independent judgment applying all technical phases of PHL's procedures. Recommendations are accepted as sound and technically valid. New or unusual assignments may be performed by utilizing personal experience, general background information, including advice on the location of reference material to use.

Work is reviewed and evaluated in the form of an assessment as to how to resolve technical and related administrative problems encountered, e.g., success in meeting deadlines, developing solutions to problems encountered, executing the work in accordance with agency policy and accepted scientific practices, and administering operations which are both technically sound and complete in terms of such criteria as project objectives, and established requirements of PHL. Also, assignments are reviewed for overall effectiveness in meeting the needs of the PHL, clinicians, submitting institutions, etc.

GUIDELINES

Guidelines consist of PHL and DFS policies, procedures, rules and regulations of the District of Columbia and Federal Government, and all other requirements and restrictions set forth in pertinent legislation. Also, included are guides from the American Public Health Association Standard Diagnostic Methods; the Manual of Clinical Laboratory Microbiology (American Society of Microbiology), Clinical Laboratory Standards Institute (CLSI) guidelines, policies and procedures of the DFS, DC Department of Health, the U.S. Public Health Services and the US Centers for Disease Control and Prevention.

The guidelines are usually applicable, however, the incumbent may be required to seek guidance/direction when applying them to specific work situations/cases that may or may not be directly related to the core problems of the assignments, have gaps in specificity or not completely applicable.

Judgment is exercised independently when interpreting or adapting available standards and guidelines, however, guidelines are utilized as the basis for making procedural deviations from established administrative and/or technical methods; the incumbent must be able to understand the intent of the guidelines and react accordingly. The incumbent is encouraged to analyze results and recommend changes.

COMPLEXITY

Assignments involve a variety of analysis, many of which are complex and require a detailed understanding of technical procedures applicable to the diagnosis of infectious diseases and the identification of specific microbial pathogens; and a wide variety of processes and methods in microbiology, and virology including rabies, molecular biology and immunology, i.e., preparing specimen, preparing and controlling reagents, calibrating instruments, performing PCR and other complex analyses, conducting quality control procedures, and implementing new procedures. Incumbent is expected to analyze and interpret the conditions and elements leading to clarification and verification of test results.

Decisions regarding what needs to be done include major areas of uncertainty in approach, methodology, or interpretation and evaluation processes that result from such elements as continuing changes in program, technological developments, unknown phenomena, or conflicting requirements.

SCOPE AND EFFECT

The work consists of performing microbiological and virological examinations of clinical specimens that have been obtained from hospitals laboratories, clinics and private physicians in the District of Columbia Health Care System. Assists Specialists when required to perform analysis including collecting appropriate exhibits to prepare for examination/testing; and preparing documentation regarding findings and analysis that are instrumental in preparing results of the tests; and identifying problems that may alter the materials; and ensures that all documentation is in the appropriate order for court cases and/or final discovery.

These results directly affect the diagnosis and treatment of a wide variety of infectious diseases. Specimens may also be submitted from environmental sources including food and water. Tests are also conducted to identify pathogenic microorganisms and viruses in the specimen submitted on a District-wide basis and will include diagnosis of rabies.

PERSONAL CONTACTS

Contacts are with co-workers, nurses, physicians, messengers, students and trainees in the Laboratory and Clinic staff members throughout the District of Columbia and the Department of Health programs. Also, interacts with DFS Director and Program Managers.

PURPOSE OF CONTACTS

Purpose of contacts is to acquire and provide accurate laboratory test information and to explain the meaning of test results to anyone who is unfamiliar with test results. Contacts with fellow workers are to exchange information and resolve problems regarding equipment, procedures, and to clarify or present pertinent laboratory reports.

PHYSICAL DEMANDS

The is performed in an office to prepare reports and other documentation and in the laboratory which requires prolonged standing, walking, lifting of items of 20 pounds or less, and movement of containers of chemicals and reagents.

WORK ENVIRONMENT

Certain laboratory areas require vaccination to prevent contracting diseases. Regular and recurring exposure to irritant chemicals and bio-hazardous agents which requires safety precautions such as biological safety cabinets, laminar flow foods, fume hoods, protective clothing and gear (coats, gloves, and safety goggles). Also, specific areas of the laboratory are at the Biosafety Level III.

OTHER SIGNIFICANT FACTS

As a LRN participating Laboratory, the DC PHL requires US citizenship and a security risk assessment.

The nature of the DFS mission necessarily involves the potential risks associated with biological or chemical hazards, including morgue functions. Although contact with these functions is intended to be minimal, the risks are nevertheless possible; training to recognize, address, and mitigate these risks is required as is dealing with potentially personally difficult topics, such as crime, death, and disease. Immunization against certain infectious agents may be required

Basic requirements: **A.** Bachelor's Degree in microbiology, virology, or biology, chemistry, or basic medical science that included at least 20 semester hours in microbiology and other subjects related to the study of microorganisms, and 20 semester hours in the physical and mathematical sciences combining course work in organic chemistry or biochemistry, physics, and college algebra, or their equivalent, -or- **B.** Combination of education and experience-courses equivalent to a major in microbiology, biology, chemistry, or basic medical science that included courses as shown in A above, plus appropriate experience or additional education. In addition to the basic requirement, applicants must have one year of specialized experience equivalent to at least the next lower grade level (11). A graduate degree in microbiology with emphasis in virology and immunology is desirable.

Training in a Clinical Laboratory Standards Institute (CLSI) is required.

SPECIAL REQUIREMENTS

This position's duty station will be housed within the Consolidated Forensic Laboratory (CFL) which is a protection-sensitive facility. As such, incumbents of this position shall be subject to criminal background checks, background investigations, and mandatory drug and alcohol testing, as applicable. Due to the handling of primary evidence, the applicant will be required to submit a buccal swab for the purposes of the DNA Quality Control database for the DFS.

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