

Update

Ministry

Agriculture and Irrigation

Describe: Basic Job Details

Position

Position ID

Position Name

Tech, Molecular Microbiology

Current Class

Technologies 4

Job Focus

Operations/Program

Supervisory Level

00 - No Supervision

Agency (ministry) code

Cost Centre

Program Code: (enter if required)

Employee

Employee Name (or Vacant)

Organizational Structure

Division, Branch/Unit

TIFS, Food Safety, Agri-Food Assurance

Supervisor's Position ID

Supervisor's Position Name (30 characters)

Biology Unit Head

Supervisor's Current Class

Senior Manager (Zone 1)

Design: Identify Job Duties and Value

Changes Since Last Reviewed

Date yyyy-mm-dd

2024-02-22

Responsibilities Added:

None.

Responsibilities Removed:

None.

Job Purpose and Organizational Context

Why the job exists:

This position performs and interprets findings to generate results from a variety of routine and specialized laboratory tests involving numerous steps and techniques associated with processing specimens for the isolation, identification of significant bacteria of animal origin. The position is expected to perform various complex microbial and molecular based techniques. Technical knowledge, experience, and independent judgment are used to assess the findings as normal or abnormal, to recognize discrepancies and to take

action to correct problems and/or perform additional testing as required. Results must be reliable and valid in order to determine the significance of the results. Work is performed within an International Standards Organization quality assurance program (ISO 17025) that supports international recognition of results. This person works independently in a team environment, reporting to the supervisor. This person also assists Scientists in the technical planning, development and establishment of new/modified laboratory protocols. The results are provided to support the Food Safety Branch's key results, ultimately leading to safer products from the food producers and processors in the province of Alberta and contributing to expanded markets.

Responsibilities

1. Performs a variety of routine and specialized laboratory procedures for the detection, isolation, enumeration and identification of pathogenic and non-pathogenic microorganisms.
 - Receives, records, labels and properly stores samples.
 - Detection, isolation, enumeration and identification of microorganisms using a wide variety of molecular, morphological, biochemical tests, serological procedures and other specialized techniques.
 - Interprets laboratory tests to identify bacteria and bacterial isolates.
 - Trouble-shoots tests used by the laboratory.
 - Ensure proper processing, handling and storage of client samples.
 - Exercising judgment in the analysis of test results for the identification of rare and atypical bacteria.
 - Uses various computer software (laboratory reporting systems (AIMS), Excel, Word) to create worksheets, design quality control forms/charts, spreadsheets, enter data and generate reports.
2. Responsible for the quality of the test results under an internationally recognized standards organization (ISO 17025)
 - Assists with the development and maintenance of the "Standard Operating Procedures" SOPs for both laboratory methods and operations.
 - Reads and reviews SOPs, the QMS manual and other quality systems documents.
 - Follows SOPs in carrying out testing.
 - Documents various activities during testing to ensure accuracy and traceability.
 - Performs and documents quality assurance testing as required on procedures and tests, and documents equipment operation and function to ensure accuracy of results.
 - Identifies, troubleshoots, and communicates significant problems to the Scientist/work unit supervisor regarding testing, equipment and reagent problems.
 - Formats charts, tables, and forms, etc. for recording quality controls and equipment calibrations according to the quality manual.
 - Performs identification and testing on internal and external proficiency testing programs.
 - Participates in quality audits (internal and external) and applies steps for improvement.
 - Keeps labware, equipment and work space clean and free from possible contaminants.
 - Assists in the logistical planning of projects, development and establishment of new/modified protocols or projects.

- Recommends most efficient way of carrying out testing.
 - Recommend, adapts and refines new analytical and experimental procedures, techniques and testing of newly introduced media.
 - Performs validation testing on procedures /protocols.
 - Reads literature that is relevant to each project.
 - Collects and compiles test results and experimental findings.
 - Creates worksheets, tables and charts summarizing project results for analysis by project leaders.
3. Maintains and operates equipment for the analysis and measurement of microbiological parameters
- Performs routine maintenance, calibration, quality assurance, minor repairs, and troubleshoots and operates automated equipment (e.g. Roche Lightcycler 480, BioSprint, etc.).
 - Writes and maintains protocols and SOPs for the operation of this equipment for internal use, training purposes and quality control.
 - Stays abreast of updates and implements changes.
4. Provides relief support to the Molecular Biology Work Unit during outbreaks
- Maintains certification to perform Foreign Animal Disease molecular testing (FAD) as defined by CFIA.
 - Maintains in-house certification to perform lab testing within a biocontainment level 3 (CL3 facility).

Problem Solving

Typical problems solved:

This position provides technical support for rapid detection of pathogens to scientists within the Food Safety Branch and the Animal Health and Assurance Branch within AGI. Under the guidance of the lab scientist, adapts, modifies and validates microbial and molecular technologies to optimize the efficiency and effectiveness of testing. Operates, maintains and troubleshoots sophisticated equipment such as a real-time PCR thermocyclers, thermocyclers and Next Generation Sequencers as well as routine equipment such as spectrophotometers, cell disruptor, centrifuges, micropipettes, autoclaves, plate washers, biocontainment hoods, fume hoods, etc.

Types of guidance available for problem solving:

Can reach out to co-workers, senior technologist and lab scientist for troubleshooting of equipment and results. They can also refer to Standard Operating Procedures (SOPs) and operating manuals for additional guidance.

Direct or indirect impacts of decisions:

Lab results generated by this position have significant economic impact within the Agricultural industry. Decision to euthanize large numbers of animals will be based in part on the outcomes of test results produced by this position. Borders between provinces could be closed to trade of livestock and their products based on lab results generated by this position. Incorrect results could cause a foodborne illness if the testing is not done correctly.

Key Relationships

Major stakeholders and purpose of interactions:

1. Animal Health and Assurance section in AGI rely on lab results to treat various animal diseases.
2. Meat and Dairy Inspection Section in AGI utilize lab results to support operators to maintain safe food practices and to ensure food is safe for human consumption.
3. National agencies like Canadian Food Inspection Agency (CFIA). Results are provided to this national agency to support animal disease outbreaks and food borne illnesses.
4. Interact with various industries groups (e.g. Egg Farmers of Alberta) to communicate test results,

answer questions regarding sample collection and submission of samples for testing.

Required Education, Experience and Technical Competencies

Education Level	Focus/Major	2nd Major/Minor if applicable	Designation
Diploma (2 year)	Science		

If other, specify:

Job-specific experience, technical competencies, certification and/or training:
 Microbial isolation and characterization techniques, working knowledge of PCR, next-generation sequencing, bioinformatics analysis. Experience working in a minimum biocontainment level 2 laboratory. Experience in containment level 3 ideal.

Behavioral Competencies

Competency	Level					Level Definition	Examples of how this level best represents the job
	A	B	C	D	E		
Creative Problem Solving	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Engages the community and resources at hand to address issues: <ul style="list-style-type: none"> Engages perspective to seek root causes Finds ways to improve complex systems Employs resources from other areas to solve problems Engages others and encourages debate and idea generation to solve problems while addressing risks 	Troubleshooting lab results. Position is expected to reach out to other co-workers within team and larger community within department.
Agility	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Works in a changing environment and takes initiative to change: <ul style="list-style-type: none"> Takes opportunities to improve work processes Anticipates and adjusts behaviour to change Remains optimistic, calm and composed in stressful situations Seeks advice and support to change appropriately Works creatively within guidelines 	The position has constantly changing testing priorities. The incumbent is expected to adjust quickly and anticipate upcoming changes within a reasonable time frame.
Develop Self and Others	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Plans according to career goals and regular development: <ul style="list-style-type: none"> Aligns personal goals with career goals Leverages strengths; attempts stretch goals Provides feedback and 	Keeping current with the latest scientific evidence and testing methodologies is an important aspect of this role.

		<p>openly discusses team performance</p> <ul style="list-style-type: none"> • Values team diversity, and supports personal development 	
Build Collaborative Environments	<input checked="" type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	<p>Works in an open honest manner with colleagues:</p> <ul style="list-style-type: none"> • Creates sharing opportunities • Actively shares, accepts and listens to others • Recognizes conflict, respects and discusses opinions openly • Supports group even to learn from mistakes • Recognizes differing interpretations 	<p>Position is expected to work as a team to address lab testing workload. Be willing to take on additional duties to support other team members who are experiencing heavier than normal workloads due to an outbreak.</p>