

TESTING AND CALIBRATION LABORATORY ACCREDITATION PROGRAM (LAP)

Scope of Accreditation

Accredited Laboratory No. 100

Legal Name of Accredited Laboratory: **University of Guelph**

Location Name or Operating as (if applicable): LABORATORY SERVICES DIVISION

Contact Name: Elizabeth (Liz) King

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SCC File Number:	15167
Accreditation Standard(s):	ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories
Fields of Testing:	Biological Chemical/Physical
Program Specialty Area:	Agriculture Inputs, Food, Animal Health and Plant Protection (AFAP) Test Method Development and Evaluation and Non-routine Testing (TMDNRT)
Initial Accreditation:	1992-10-06
Most Recent Accreditation:	2021-10-21
Accreditation Valid to:	2022-10-06

*Remarque: La présente portée d'accréditation existe également en français, sous la forme d'un document distinct.
Note: This scope of accreditation is also available in French as a separately issued document.*

OTHER SCOPE(S)

The laboratory has a separately-issued GLP Areas of Recognition scope that can be viewed at <http://www.scc.ca/en/search/palcan/> . Simply type in the facility name to access the document.

TEST METHOD DEVELOPMENT & EVALUATION AND NON-ROUTINE TESTING

Chemical Analysis:

Animal and plants (agriculture), food, water and environmental samples

Food and edible products: edible animal fat, dairy products, eggs, meat, edible meat offal and animal blood, serum, plasma, urine, thyroid and retina. For food allergens, veterinary drug residues, pesticides and pollutants which include the following classes of compounds: anthelmintics, antibiotics, analgesics, antimicrobials, beta-agonists, coccidiostats, hormones and hormone-like substances, industrial pollutants, non-steroidal anti-inflammatories, tranquilizers and pesticides.

1. Development and validation of new testing methodology for the screening and determination of food allergens, veterinary drug residues, pesticides and pollutants in animal tissue, biological fluids, food, water and environmental samples
2. Modification, improvement and validation of published or existing test methodology for the screening and determination of food allergens, veterinary drug residues, pesticides and pollutants in animal tissue, biological fluids, food, water and environmental samples.
3. Development of testing methods for the assessment and validation of commercially available test kits for the screening and determination of food allergens, veterinary drug residues, pesticides and pollutants in animal tissue, biological fluids, food, water and environmental samples.
4. Development and validation of mass spectral techniques for the confirmation of the identity of veterinary drug residues, pesticides and pollutants in animal tissue, biological fluids, food, water and environmental samples.

Microbiology Analysis

1. Development and validation of analytical methods for detection, isolation, identification and characterization of microorganisms including bacteria, viruses, parasites, yeast and molds in food, water and environmental samples.
2. Development, evaluation and validation of new test kits including commercial test kits for the detection and/or enumeration of microorganisms in food, water and environmental samples.
3. Modification, improvement and validation of published or existing methods for detection and/or enumeration of microorganisms in food, water and environmental samples.

Molecular Biology Analysis

1. Development and validation of molecular methods for pathogen detection and/or identification in food, water and environmental samples, and for genetic testing and DNA fingerprinting of microorganisms, plants and animals.
2. Development, evaluation and validation of new test kits including commercial kits for pathogen detection and/or identification in food, water and environmental samples and for genetic testing and DNA fingerprinting of microorganisms, plants and animals.

3. Modification, improvement and validation of published or existing methods for pathogen detection and/or identification in food, water and environmental samples, and for genetic testing and DNA fingerprinting of microorganisms, plants and animals.

Animal health analysis

1. Development and validation of methods for detection, isolation, identification and characterization of microorganism including bacteria, viruses, parasites, yeast and molds in animal samples.
2. Development, evaluation and validation of new tests including commercial kits or reagents for genetic material including pathogen detection and/or identification in animal samples.
3. Modification, improvement and validation of published or existing methods for genetic material including pathogen detection and/or identification in animal samples.

Veterinary

The Animal Health Laboratory identifies unknown hazards in a range of matrices, for example, animal samples, feed, soil, and plants. Hazards include infectious agents (bacteria, mycoplasmas, yeast, molds, viruses, and parasites), organic and inorganic elements and compounds. Infectious agents are detected directly or indirectly through various technologies, for example, culture, ELISA and PCR.

Procedures used for Test Method Development & Evaluation and Non-routine Testing:

95S-031 Management of test method development projects
 95S-021 Method verification/ validation
 95S-032 Management of infrequently conducted and non-routine tests
 AHL-050 AHL test method development (TMD), validation/verification and non-routine testing (NRT)

Techniques for which the lab is accredited:

1. Chemistry: sample preparation/extraction techniques including; homogenization, solid phase extraction (SPE), liquid-liquid extraction (LLE), acid digestion, QuEChERS, and soxhlet. Methods of analysis/detection including; Charm® tests, wide array of chromatographic based analysis (LC & GC coupled with various detectors including MS and MS/MS), inductively coupled plasma spectroscopy (ICP) and ELISA.
2. Microbiology- sample preparation, culture, detection, enumeration, isolation, identification, biochemical confirmation, immunomagnetic separation, MPN, PCR, and ELISA.
3. Molecular biology: DNA/RNA extraction, Polymerase chain reaction (PCR), DNA sequencing, DNA fingerprinting, detection, identification, genotyping, and ELISA.
4. Veterinary: Culture detection of microorganisms, Inorganic analysis by inductively coupled plasma spectroscopy (ICP), Enzyme linked immunosorbent assay (ELISA), Agglutination, PCR, Whole genome sequencing.

ANIMAL AND PLANTS (AGRICULTURE)

Foods and Edible Products (Human and Animal Consumption):

Tests performed in the Agriculture and Food lab (AFL) at 95 Stone Road W., Guelph unless otherwise noted.

(General)

CHEM-004	Quantitative detection of soy protein by an enzyme linked immunosorbent assay (ELISA)
CHEM-015	Quantitative detection of hazelnut protein by an enzyme linked immunosorbent assay (ELISA)
*CHEM-057	Determination of iodine in tissues, feeds, raw and processed fruits and vegetables, and raw and processed milk by inductively coupled plasma-mass spectrometry Except for: tissues, feeds
CHEM-109	Antibiotic residues in honey by LC-MS/MS
CHEM-241	Quantitative detection of sesame protein by an enzyme linked immunosorbent assay (ELISA)
CHEM-255	Quantitative detection of mustard protein by an enzyme linked immunosorbent assay (ELISA)
CHEM-306	Enzyme immunoassay for the detection of <i>Staphylococcus</i> enterotoxins A, B, C, D and E in food and bacterial cultures
IMC-411	Quantitative Detection of Vomitoxin in Cereal Samples by an Enzyme Linked Immunosorbent Assay (ELISA)
IMC-412	Quantitative Detection of Egg Protein by an Enzyme Linked Immunosorbent Assay (ELISA)
IMC-413	Quantitative Detection of Milk Protein by an Enzyme Linked Immunosorbent Assay (ELISA)
IMC-414	Quantitative Detection of Peanut protein by an Enzyme Linked Immunosorbent Assay (ELISA)
IMC-416	Quantitative Detection of Gliadin Protein by an Enzyme Linked Immunosorbent Assay (ELISA)
IMC-428	Quantitative Detection of Almond protein by an Enzyme Linked Immunosorbent Assay (ELISA)
MFHPB-03	Determination of the pH of foods including foods in hermetically sealed containers (MID-233)
MFHPB-18	Determination of the Aerobic Colony Counts in Foods (MID-101)
MFHPB-20	Isolation and Identification of Salmonella from Food and Environmental Samples (MID-112)
MFHPB-21	Enumeration of <i>Staphylococcus aureus</i> in Foods (MID-115)
MFHPB-22	Enumeration of yeasts and moulds in foods (MID-129)
MFHPB-27	Enumeration of Escherichia coli in Foods by a Direct Plating (DP) Method (MID-258)

MFHPB-30	Isolation of <i>Listeria monocytogenes</i> and other <i>Listeria spp.</i> from foods and environmental samples (MID-113)
MFHPB-31	Determination of coliforms in foods using Violet red bile agar (MID-285)
MFHPB-33	Enumeration of Total Aerobic Bacteria in Food Products and Food Ingredients using 3M™ Petrifilm™ Aerobic Count Plates (MID-103)
MFHPB-34	Enumeration of <i>Escherichia coli</i> and Coliforms in food products and food ingredients using 3M Petrifilm™ <i>E. coli</i> count plates (MID-107)
MFLP-15	Detection of <i>Listeria</i> species from environmental surfaces using the BAX® System Genus <i>Listeria</i> Assay (MID-226)
MFLP-16	Detection of <i>Escherichia coli</i> O157:H7 in foods - Assurance GDS for <i>E. coli</i> O157:H7 Tq Gene Detection System (MID-216)
MFLP-28	Detection of <i>Listeria monocytogenes</i> in a Variety of Foods and Environmental Surfaces Using the BAX® System <i>L. monocytogenes</i> Assay (MID-221)
MFLP-29	Detection of <i>Salmonella</i> in foods and environmental surface samples Using the BAX® System <i>Salmonella</i> Assay (MID-217)
MFLP-30	Detection of <i>Escherichia coli</i> O157:H7 in select foods using BAX® System <i>E. coli</i> O157:H7 MP (MID-220)
MFLP-42	Isolation and Enumeration of the <i>Bacillus cereus</i> group in foods (MID-119)
MFLP-66	Determination of water activity using the Aqualab instrument (MID-055)
MFLP-74	Enumeration of <i>Listeria monocytogenes</i> in Foods (MID-123)
MFLP-79	Detection of <i>Listeria spp.</i> in Environmental Surface Samples Using the BAX® System Real-Time PCR Assay for <i>Listeria</i> Genus (MID-291)
MFLP-86	Identification of <i>vt1</i> and <i>vt2</i> genes from Verotoxigenic <i>Escherichia coli</i> by Polymerase Chain Reaction (MOL-253)
MFHPB-10	Isolation of <i>Escherichia coli</i> O157:H7/NM from foods and environmental surface samples (MID-125)
MID-149	Enumeration of <i>Salmonella</i> in Food and Environmental Samples by MPN (Modified MFHPB-20)
MID-150	Enumeration of <i>Campylobacter</i> in Foods and Environmental samples by MPN (Modified USDA FSIS ch6)
MID-157	Enumeration of <i>Listeria monocytogenes</i> in Foods using a Most Probable Number (MPN) Technique
MID-163	Isolation and Identification of <i>Salmonella</i> Species by Immunomagnetic separation (IMS) Modified MFLP-84
MID-269	Detection of Top 7 O-serogroups Shiga toxin producing <i>E. coli</i> in beef by BioControl Assurance GDS® MPX Top 7 STEC method
MLG 41.02	Isolation, Identification and Enumeration of <i>Campylobacter jejuni/coli/lari</i> from poultry rinse, sponge and raw product samples (MID-243)
TOPS-142	Multi-residue pesticide determination by liquid chromatography/electrospray ionization-tandem mass spectrometry (LC/ESI-MS/MS) and gas chromatography-tandem mass spectrometry (GC-MS/MS) Modified CFIA method PMR-006-V1.0

*TOXI-024	Elements in food, feeds, forage and other matrices by ICP-OES for: calcium, copper, iron, potassium, magnesium, manganese, sulfur, sodium, phosphorus, and zinc. Selenium (Se) only in mineral premixes and supplements for animal consumption
*TOXI-064	ICP-MS Analysis of Metals in Foods for: aluminum, antimony, arsenic, boron, beryllium, cadmium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, molybdenum, nickel, selenium, tin, titanium, and zinc

Beverages, Spirits and Vinegar

DRUGS-217	Determination of Patulin in Apple Juice and apple cider by HPLC Modified AOAC 995.10
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Dairy Products

DA-205	MilkoScan FT-120 (Fat, protein, lactose and total solids in milk and cream samples) Modified IDF 141C:2000 ISO 9266:1999
MID-045	Alkaline phosphatase testing in dairy products by fluorometric method

(Milk-Unpasteurized)

CHEM-061	Charm® II Amphenicols test for milk For chloramphenicol
CHEM-115	Charm® QUAD1 Test for Beta-lactams, Quinolones, Sulfonamides, and Tetracyclines in Raw Commingled Cow Milk ⁴
CHEM-119	CHARM® Trio Test for beta-lactams, sulfa drugs, and tetracyclines in raw commingled cow milk ⁴
CHEM-120	Charm® QUAD2 Test for Macrolides in Raw Commingled Cow Milk ⁴
CHEM-121	Charm® QUAD3 test for aminoglycosides in raw commingled cow milk ⁴
CHEM-266	CHARM 3SL3 Beta-lactam test for amoxicillin, ampicillin, ceftiofur, cephalosporin, cloxacillin and penicillin G validated for raw, commingled bovine milk ⁴
CHEM-308	CHARM® Sulfa test for raw commingled goat milk at MRL ⁴
CHEM-309	CHARM® MRL Beta-lactam and tetracycline test for raw commingled goat milk (MRLBLTET2) ⁴
DA-102	Fat, protein, lactose, other solids (LOS), freezing point and somatic cell in milk by Infrared and Fluoro-Opto-electronic milk analyzers (Modified IDF 148-2 - ISO 13366-2 and IDF 141C:2000 - ISO 9622:1999)
DA-109	Milk urea nitrogen (MUN) in milk by infrared milk analyzers (Infrared method)
DA-301	Enumeration of total bacteria in raw milk- BactoScan FC Operation (Bactoscan FC method)
DA-500	Determination of freezing point by Cryoscope (Modified IDF 108 - ISO 5764)
DRUGS-101	Standard Disk Assay for the Detection of Antimicrobial Inhibitors in Milk
DRUGS-105	SNAP™ Beta-lactam test kit ⁴
DRUGS-118	Charm Rosa® Tetracycline test for detecting tetracycline drugs in milk ⁴

DRUGS-123	Charm II® Macrolide Test for Milk ⁴
DRUGS-237	CHARM® Sulfa test for raw commingled cow milk ⁴
DA-608	Goat milk testing on the inhibitor blocks

Feeds

DRUGS-226	Tiamulin hydrogen fumarate in mixed swine feed by HPLC-UV
DRUGS-233	Monensin Potency in Type B and Type C Medicated Feeds by HPLC using Post-Column Derivatization
DRUGS-234	Narasin potency in Type B and Type C medicated feeds by HPLC using post-column derivatization
DRUGS-235	Determination of Tilmicosin in Swine Feeds (100 mg/kg to 600 mg/kg) by HPLC
DRUGS-236	Determination of Ractopamine Hydrochloride in Swine feed, cattle feed, cattle liquid feed and turkey feed by HPLC
*TOXI-013	Liquid chromatographic determination of monensin, narasin and salinomycin in feeds using post-column derivatization
CHEM-071	Extractable sodium and zinc from animal feed By ICP-OES only for: relative measurements of homogeneity of mixed feeds

(Fruits and Vegetables)

CHEM-069	Acidic herbicides (Phenoxy) in environmental and food matrices by LC-ESI/MS/MS
CHEM-334	Polar Pesticide determination by liquid chromatography/electrospray ionization-tandem mass spectrometry
CHEM-714	Daminozide in fresh and processed fruits and vegetables by LC-MS/MS
TOPS-119	EBDC and dithiocarbamates using UV spectrophotometer Modified CFIA method P-RE-053-95-EBDC
TOPS-120	Glyphosate and AMPA using LC-MS/MS
TOPS-121	Ethylenethiourea (ETU) by LC-UV Modified CFIA P-RE-060-97 (1)- ETU
TOPS-122	Amitraz determination in fresh and processed fruits, and vegetables and honey using GC-MSD (Modified CFIA method CSP-006-V1.0)
TOPS-124	EBDC in Fruits and Vegetables by HPLC-fluorescence (EDA) Modified CFIA method SPR-002-V2.4
TOPS-142	See Food and Edible Products, above

Meat and Edible Meat Offal

EML-101	The double separatory funnel procedure for the detection of <i>Trichinella</i> larvae in pork. Modified CFIA method for The Double Separatory Funnel Digestion Procedure for the Detection of <i>Trichinella</i> Larvae in Pork
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CHEM-003	Quantitative determination of aminoglycosides in tissue using LC-MS/MS for: Streptomycin, gentamicin and neomycin
CHEM-337	Veterinary drug residues in foods of animal origin by LC-MS/MS
DRUGS-009	Beta-agonists in tissue and retina by LC-MS/MS for: clenbuterol, salbutamol, ractopamine, cimaterol, brombuterol, clenpenterol, hydroxymethylclenbuterol, isoxsuprine, mabuterol, ritodrine, terbutaline, tulobuterol and zilpaterol

(Molecular Biology)

MOL-020	Microbial species ID determination based on 16S/18S rRNA gene or ITS sequencing
MOL-171	Detection of Residual Bovine, Ruminant, Porcine, Animal and Rice DNA in Feed and Food Samples using polymerase chain reaction
MOL-198	Plant, animal, and fish species ID determination by DNA barcoding
MOL-239	Speciation of presumptive <i>Campylobacter jejuni</i> and <i>C. coli</i> colonies by multiplex Polymerase Chain Reaction (mPCR) (CFIA method)
MOL-250	Quantification of residual bovine DNA in feed samples using the droplet digital polymerase chain reaction (ddPCR) technology

(Plant Tissue)

PDC-015	Detection of <i>Clavibacter michiganensis</i> subsp. <i>michiganensis</i> using PCR
PDC-103	Detection of Viruses, Bacteria and Fungi in Plant Tissues using ELISA
PDC-104	Baermann Pan Method for Nematode Extraction
PDC-106	Nematode Cysts and Eggs Extracted from Soil

MEDICAL

Veterinary tests performed in the Animal Health Lab (AHL), 419 Gordon St., Guelph unless otherwise noted. Tests marked with an asterisk, *, are performed in the Toxicology lab of the Animal Health lab (AHL) at 95 Stone Road West location.

Veterinary:

BAC-018	PCR of fecal and tissue samples for <i>Mycobacterium paratuberculosis</i> (MAP) for: detection in bovine fecal samples
BAC-028	Culture detection of <i>Salmonella spp.</i> and enumeration of bacterial and fungal colonies in hatchery samples and in poultry environmental samples
BAC-029	Culture detection of <i>Salmonella Pullorum</i> , <i>Salmonella Gallinarum</i> and other <i>Salmonella spp.</i>
BAC-037	Culture detection of <i>Paenibacillus larvae</i> , causative agent of American foulbrood (AFB)
BAC-040	Culture detection of <i>Salmonella Pullorum</i> , <i>Salmonella Gallinarum</i> , and other <i>Salmonella spp.</i> from suspicious reactor birds

BAC-041	Whole Genome Sequencing (WGS) of bacterial isolates
*CHEM-055	ICP-MS analysis of metals in tissues for: antimony, arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, molybdenum, nickel, selenium, tin, thallium, vanadium, and zinc
*CHEM-057	See Food and Edible Products, above
MOL-180	Scrapie and CWD resistance PrP genotyping
MOL-249	PCR detection of fish viruses for: <ul style="list-style-type: none"> viral hemorrhagic septicemia virus (VHSV) Koi herpesvirus (KHV) infectious hematopoietic necrosis virus (IHNV)
V-002	Enzyme linked immunosorbent assays (ELISA) for the detection of: <ul style="list-style-type: none"> <i>Anaplasma</i> antibodies Bluetongue virus (BTV) antibodies³ (based on CFIA method Bluetongue: Enzyme Linked Immunosorbent Assay (IDEXX) for the Detection of Antibodies to Bluetongue virus) Equine infectious anemia virus (EIAV) antibodies³ (based on CFIA method AHD-11) Foot and mouth disease virus (FMDV) antibodies³ (based on CFIA method 3ABC Competitive Enzyme-Linked Immunosorbent Assay for the Detection of Antibodies to Foot and Mouth Disease Virus) Influenza A virus antibodies³ (based on CFIA method Avian Influenza: Enzyme Linked Immunosorbent Assay (IDEXX) for the Detection of Antibodies to Avian Influenza Virus) Infectious bovine rhinotracheitis virus (IBRV, BOHV-1) antibodies <i>Pasteurella multocida</i> toxin (PMT) antigen Porcine reproductive and respiratory syndrome virus (PRRSV) antibodies
V-003	Hemagglutination inhibition (nested method - appendix 19.2, 19.3, 19.4, 19.8 and 19.10) A19.8 Swine influenza virus A/H3N2/swine/Texas/4199-2/98 HI (si3t) A19.10 Swine influenza virus - A/H1N1/swine/Ontario/81 HI (sif) or A/H3N2/human/Colorado/77 HI (si3)

V-005	<p>Polymerase chain reaction for the detection of nucleic acid of:</p> <ul style="list-style-type: none"> • African swine fever virus³ (based on CFIA method Detection of African Swine Fever Viruses by Real-time PCR Assay) • Avian paramyxovirus 1 (APMV-1)³ (based on CFIA method Detection of APMV-1 by Matrix and Fusion Real-Time RT-PCR Assays) • Classical swine fever virus³ (based on CFIA method Detection of Classical Swine Fever Viruses by Real-Time RT-PCR Assay) • Foot and mouth disease virus³ (based on CFIA method Real-time Reverse Transcription Polymerase Chain Reaction (RRT-PCR) for the Detection of Foot-and-mouth Disease Virus (FMDV)) • Type A influenza viruses and avian H5 and H7 hemagglutinin subtypes by PCR³ (based on CFIA method Detection of Type A Influenza Viruses and Avian H5 and H7 Hemagglutinin Subtypes by Real-Time RT-PCR Assay) • Pasteurella multocida toxin (PMT) gene • Porcine coronavirus: porcine epidemic diarrhea virus (PEDV), transmissible gastroenteritis virus (TGEV), porcine deltacoronavirus (PDCoV) • Porcine reproductive and respiratory syndrome virus (PRRSV)
V-006	<p>TeSeE® Enzyme linked immunosorbent assay (ELISA) ELISA detection of: Bovine spongiform encephalopathy (BSE) Chronic wasting disease (CWD) Scrapie</p>
V-014	<p>Indirect fluorescent antibody assay (IFA) for the detection of IgG & IgM, IgM or IgG antibodies against porcine reproductive and respiratory syndrome virus (PRRSV)</p>

Number of Scope Listings: 108

Notes:

1. Veterinary testing is done at the Animal Health Lab at 419 Gordon St (building 89), Guelph, ON N1G 2W1 and the Toxicology Lab at 95 Stone Road West, Guelph, ON N1H 8J7.

* Tests marked with asterisk are performed at the Animal Health Lab's (AHL) Toxicology lab located at 95 Stone Road West location

2. The test method acronyms: BAC-, CHEM-, DA-, DRUGS-, EML-, IMC-, MID-, MOL-, PDC-, SNL-, TOPS-, TOXI- and V- denote laboratory in-house test methods except for V- methods flagged with³ and kit methods flagged with⁴.

3. V- methods flagged with ³ are equivalent to the CFIA methods they are based on.

4. Methods that follow kit instructions are flagged with⁴.

AMPA: aminomethylphosphonic acid

EBDC: ethylene bis-dithiocarbamate

ISO/IEC 17025:2017: General Requirements for the Competence of Testing and Calibration Laboratories

RG_TMDNRT: SCC Requirements and Guidance for Accreditation of Laboratories Engaged in Test Method Development and Non-Routine Testing

AOAC: Official Methods of Analysis of the Association of Analytical Community (USA), current edition

MFHPB: Health Protection Branch Compendium Method (Health Canada)

MFLP: Microbiology Food Laboratory Procedure (Health Canada)

MLG: Microbiology Laboratory Guidebook (FSIS)

IDF: International Dairy Federation

This document forms part of the Certificate of Accreditation issued by the Standards Council of Canada (SCC). The original version is available in the Directory of Accredited Laboratories on the SCC website at www.scc.ca.

Elias Rafoul
Vice-President, Accreditation Services
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