



IOWA STATE UNIVERSITY
Veterinary Diagnostic Laboratory
1850 Christensen Drive
Ames, IA 50011-1134

Best Practice for Submitting Web IDs to the Lab

When shipping your samples that include a Web ID, please use the following guidelines:

When sending submissions to the lab, it is always important to include appropriate paperwork. This allows the lab technicians to efficiently process your cases to get you timely results.

This is especially true for Web IDs. These unique numerical identifiers allow for seamless transition of information from the Client Web Portal into our internal LIMS system. They are easy to generate and submit online via our Web Portal. However, when identifying the samples that will be traveling to the lab it can be harder to get them properly labeled. It is important to have these samples appropriately identified so that they may be properly match with the paperwork upon arrival at the lab. The more clear the information, the better, as we receive many similar samples on any given day. We recommend the following 2 options for identifying your samples:

OPTION 1

Include the printed submission form along with the samples



Samples

OPTION 2

Include the Web ID, Submitter Name, and Site Name on the container of the samples



- Web ID
- Submitter Name
- Site Name

OR



Alyona Michael Pathology

Dr. Alyona Michael is originally from Moscow, Russia, but moved to eastern Iowa in 1995. She made her way to Ames in 2007 and more or less forgot to leave. She received her Bachelors of Science degree in 2010, Doctorate of Veterinary Medicine in 2014, completed a residency in Veterinary Pathology, and then got her PhD in Veterinary Pathology in 2018.

She joined the Pathobiology section at the National Veterinary Services Laboratory (USDA) in 2017, where she worked on prion and tuberculosis surveillance. Eventually, Alyona found her way back to Iowa State University in the summer of 2019 as a veterinary pathologist at the ISU VDL. In her short time here at the VDL so far, her favorite part of working at the VDL is the variety of cases that come in, and she is particularly looking forward to small ruminant work-ups.

Alyona and her husband, James, have a small hobby farm where they raise Boer goats, a few head of Dexter cattle, a pair of horses, and a vocal assortment of cats, dogs, and chickens.

STAFF HIGHLIGHT

New Avian Molecular Diagnostics in ISU VDL

Iowa is the largest producer of table eggs, a top producer in turkey production and has a significant broiler production. While ISU VDL has long provided the poultry industry with diagnostic services, there was a need for expanding the diagnostic capabilities offered to our poultry clients. These tests will allow ISU VDL diagnosticians and all other veterinarians to arrive at more informed diagnosis of poultry diseases.

RESPIRATORY VIRUSES

▶ *Infectious Bronchitis Virus (IBV):*

IBV qPCR: targeting 5' Untranslated Region (5'UTR) to detect as little as 100 viral particles in sampled tissues. Preferred samples are respiratory swabs (choanal, tracheal, or lung swabs). Cloacal swabs are also appropriate as the virus replicates in the cecal tonsils. Swabs can be pooled in BHI media or PBS.

IBV Sequence typing: by targeting a large segment or the full length of the S1 gene, sequence information can be extracted and used to type IBV into genotypes that are associated with IBV serotypes and patho-types. This information can determine if this is a new outbreak of IBV, where else in the world this virus has been previously reported, how pathogenic it is and which of the commercially available vaccines, if any, can potentially protect against it.

▶ *Infectious Laryngotracheitis Virus (ILTIV):*

ILTIV qPCR: targeting glycoprotein C (gC) to detect as little as 100 viral particles in sampled tissues. Samples usually are upper respiratory swabs (choanal and tracheal swabs or tissues). Swabs can be pooled in BHI media or PBS.

ILTIV Sequence typing: 3 gene segments are targeted (identified in our laboratory) and sequence information can be extracted to type ILTV into genotypes (under publication). There are 9 genotypes reported in the United States, all belong to the same serotype but different in their pathotypes, some of them are more pathogenic than others. Genotyping of ILTV provides a tremendous value for determining the source of infection, differentiating between vaccine and field challenges and informing future prevention, control and eradication efforts.

AVIAN MYCOPLASMA

▶ *Mycoplasma gallisepticum (MG):*

MG qPCR: targeting *mgc2* gene to detect as little as 100 MG bacterial cells in sampled tissues. Preferred samples are respiratory swabs (choanal, tracheal, lung or airsac swabs). Swabs can be pooled in BHI media or PBS.

MG Sequence typing: by targeting the partial sequence of 2 MG genes (*mgc2* and *pvpA*), and one Intergenic Spacer Region (IGSR) a total of 3 gene segments are targeted and sequence information can be extracted to type MG. While no serotypic or pathotypic characterization can be extrapolated from MG sequence typing, the generated information is essential for outbreak investigation.

MG Multilocus Sequence typing (MLST): this assay provides similar results to sequence typing using the 3 gene segments above. However, by targeting 7 housekeeping genes, it offers a higher quality and more epidemiologically consistent typing of MG.

▶ *Mycoplasma synoviae (MS):*

MS qPCR: targeting the 16s rRNA gene to detect as little as 100 MS bacterial cells in sampled tissues. Preferred samples are respiratory swabs (choanal, tracheal, lung, airsac or joint swabs). Swabs can be pooled in BHI media or PBS.

MS Sequence typing: by targeting the first 340 bp of *vhA*, sequence information can be extracted to type MS. While no serotypic or pathotypic characterization can be extrapolated from MS sequence typing, the generated information is essential for outbreak investigation.

MG Multilocus Sequence typing (MLST): this assay provides similar results to sequence typing using the partial *vhA* gene above. However, by targeting 7 housekeeping genes, it offers a higher quality and more epidemiologically consistent typing of MS.

▶ *Mycoplasma iowae (MI):*

MI qPCR: targeting the 16s rRNA gene to detect as little as 100 MI bacterial cells in sampled tissues. Preferred samples are yolk sac swabs from dead in shell turkey embryos and/or joint swabs from newly hatched affected turkey poults. Swabs can be pooled in BHI media or PBS.

MI Multilocus Sequence typing (MLST): this is the only sequence typing assay available for MI. By targeting 7 housekeeping genes, it offers a high quality, and epidemiologically consistent typing of MI. This can be done on clinical swabs directly without the need for isolation.

▶ *Mycoplasma meleagridis (MM):*

MM qPCR: targeting the 16s rRNA gene to detect as little as 100 MM bacterial cells in sampled tissues. Preferred samples are yolk sac swabs from dead in shell turkey embryos and/or joint swabs from newly hatched affected turkey poults. Swabs can be pooled in BHI media or PBS.

RESPIRATORY BACTERIA

▶ *Ornithobacterium rhinotracheale (ORT):*

ORT qPCR: targeting 16s rRNA gene to detect as little as 100 ORT bacterial cells in sampled tissues. Preferred samples are respiratory swabs (tracheal, lung or airsac swabs). Swabs can be pooled in BHI media or PBS.

ORT Multilocus Sequence typing (MLST): this is the only sequence typing assay available for ORT. By targeting 7 housekeeping genes, it offers a high quality and epidemiologically consistent typing of ORT. This can be done on clinical swabs directly without the need for isolation.

▶ *Bordetella avium (Bav):*

Bav qPCR: targeting two genes, this newly developed rt-PCR in our laboratory (under publication) can detect as little as 100 Bav bacterial cells in sampled tissues. Preferred samples are respiratory swabs (tracheal, lung or airsac swabs). Swabs can be pooled in BHI media or PBS.

OTHER VIRAL DISEASES

▶ *Reo Virus:*

Reo qPCR: targeting the conserved Reo virus gene to detect as little as 100 of both Chicken and Turkey Reo viral particles in sampled tissues. Preferred samples are gastrocnemius and digital flexor tendons of affected legs of chickens or turkeys.

Arriving at a confirmed diagnosis is no easy task for veterinary cases in any veterinary species and that includes poultry cases. The purpose of establishing so many new diagnostic tests is to help clinicians, poultry production veterinarians, and poultry diagnosticians in the VDL and elsewhere to arrive at more informed conclusions for their

ANNOUNCEMENTS:

Upcoming University Holidays:

Thanksgiving — Thursday, November 28th
Friday, November 29th

Christmas — Tuesday, December 24th
Wednesday, December 25th

HATS will be closed on Thanksgiving Day, but receiving drop-offs until 3pm on Friday, November 29th for PRRS and PED/PDCoV/TGE testing.

HATS will be closed on Christmas Day, but will be receiving drop-offs until 3pm on Tuesday, December 24th for PRRS and PED/PDCoV/TGE testing.

New Avian Molecular Diagnostics in ISU VDL (cont.)

cases. The above-mentioned tests are designed to run individually; however, they can be run in conjunction with each other to address long lists of differential diagnosis.

We are currently working on additional molecular diagnostic testing (*Pasturella multocida* (Fowl Cholera), *Avibacterium paragallinarum* (Infectious Coryza) *Erysipelothrix rhusiopathiae* and Infectious Bursal Disease Virus (IBDV)). These will allow for more comprehensive testing for future cases and disease investigations.



Questions?

Please contact ISU VDL Client Services
515-294-1950 — isuvdl@iastate.edu