

Detailed Guide in the Selection and Collection of Virology Specimens

BOVINE

CLINICAL PRESENTATION	ASSOCIATED VIRUSES	TESTS AVAILABLE	RECOMMENDED SPECIMEN	COLLECTION PROCEDURE	TRANSPORT DEVICE	COMMENTS
Respiratory Tract	Bovine Respiratory Syncytial Virus (BRSV)	Live: VI	Nasal swab	Refrigerate immediately after collection	Viral transport medium	VI should be done within 3-4 hours after collection
		FAT/ RT-PCR	Tracheal washings/ nasal swabs		Tracheal washings – sterile screw cap container. Swabs – viral transport medium	Needs lots of cells
		Serology	1.0 ml serum		Red top vacutainer	Single or A/C samples
		Dead: FAT/ RT-PCR	Lung	Two pieces from different areas	Plastic bag(s)	Collect areas with lesions and adjacent normal tissue
	Bovine Virus Diarrhea (BVD)	Live: VI/ RT-PCR	Nasal swabs		Viral transport medium	
		VI/RT-PCR	Whole blood-EDTA		Purple top vacutainer	
		Serology	1.0 ml serum		Red top vacutainer	Single or A/C samples
		Dead: FAT	Lung, Peyer's patch, spleen, mesenteric lymph lode		Plastic bag(s)	
		VI/ RT-PCR	Same as in FAT		Sterile container	

BOVINE

CLINICAL PRESENTATION	ASSOCIATED VIRUSES	TESTS AVAILABLE	RECOMMENDED SPECIMEN	COLLECTION PROCEDURE	TRANSPORT DEVICE	COMMENTS
Respiratory Tract	Infectious Bovine Rhinotracheitis (IBR)	Live: VI/PCR	Nasal swab		Viral transport medium	
		Serology	1.0 ml serum		Red top vacutainer	Single or A/C samples
		Dead: FAT/PCR	Trachea, lung	Two pieces from different areas	Plastic bag(s)	Collect areas with lesions and adjacent normal tissue
		VI/ RT-PCR	Same as in FAT		Sterile container	
	Parainfluenza (PI3)	Live: VI	Nasal swab		Viral swab medium	
		Serology	1.0 ml serum		Red top vacutainer	Single or A/C samples
		Dead: FAT/ RT-PCR	Lung	Two different areas	Plastic	Collect areas with lesions and adjacent normal tissue
		VI	Lung		Sterile container	
Gastrointestinal	Astrovirus	Live: EM	Feces		Screw cap container	
		Dead: EM	Intestinal content		Screw cap container	
	BVD	Live: VI/ RT-PCR	Buffy coat		Purple top vacutainer	
		Dead: FAT/RT-PCR	Lung, Peyer's patch, spleen, mesenteric lymph node		Plastic bag(s)	
		VI	Same as in FAT		Sterile container	

BOVINE

CLINICAL PRESENTATION	ASSOCIATED VIRUSES	TESTS AVAILABLE	RECOMMENDED SPECIMEN	COLLECTION PROCEDURE	TRANSPORT DEVICE	COMMENTS
Gastrointestinal	Coronavirus	Live: EM/ELISA	Feces		Screw cap container	
		Serology	1.0 ml serum		Red top vacutainer	Single or A/C samples
		Dead: EM	Intestinal content		Screw cap container	
		FAT	Ileum, colon		Plastic bag(s)	
	Canine Parvovirus	Live: EM	Feces		Screw cap container	
		Dead: EM	Intestinal content		Screw cap container	
		FAT	Jejunum, ileum, cecum, mesenteric lymph node, adrenal gland		Plastic bag(s)	
	Rotavirus	Live: EM/ELISA	Feces		Screw cap container	
		Dead: EM	Intestinal content		Screw cap container	
		FAT	Ileum, colon		Plastic bag(s)	Live or recently dead
Abortion	BVD	Live: VI/ RT-PCR	Buffy coat		Purple top vacutainer	
		Serology	1.0 ml serum		Red top vacutainer	Single or A/C samples
		Dead: FAT/RT-PCR	Fetal tissues – spleen, kidney, lung, liver, adrenal gland, brain		Plastic bag(s)	
		VI	Same as in FAT		Sterile container	
		Serology	Fetal thoracic fluid/ peritoneal fluid		Syringe or tube	

BOVINE

CLINICAL PRESENTATION	ASSOCIATED VIRUSES	TESTS AVAILABLE	RECOMMENDED SPECIMEN	COLLECTION PROCEDURE	TRANSPORT DEVICE	COMMENTS
Abortion	IBR	Live: VI/ RT-PCR	Buffy coat		Purple top vacutainer	
		Serology	1.0 ml serum		Red top vacutainer	Single or A/C samples
		Dead: FAT/RT-PCR	Fetal tissues – spleen, kidney, lung, liver, adrenal gland		Plastic bag(s)	
		VI Serology	Same as in FAT Fetal thoracic fluid/ peritoneal fluid		Sterile container Syringe or tube	
Congenital Defect/ Mucosal Disease/ Unthrifty/ Poor Doer	BVD	Live: VI/ RT-PCR	Buffy coat		Purple top vacutainer	
		Dead: FAT/RT-PCR	Erosive lesion of lips, gums, nasal passages, dental pads, Peyer's patch, spleen, mesenteric lymph node, thymus, kidney, tonsil		Plastic bag(s)	
		VI	Same as in FAT		Sterile container	
Others	Adenovirus	Live: Serology	1.0 ml serum		Red top vacutainer	Single or A/C samples
		Dead: FAT	Lung, intestine		Plastic bag(s)	
		VI	Same as in FAT		Sterile container	
Tumour/ Lymphocytosis	Bovine Leukosis	Live: Serology (ELISA)	1.0 ml serum		Red top vacutainer	Both routine and CFIA Accredited tests are available

BOVINE

CLINICAL PRESENTATION	ASSOCIATED VIRUSES	TESTS AVAILABLE	RECOMMENDED SPECIMEN	COLLECTION PROCEDURE	TRANSPORT DEVICE	COMMENTS
Vesicles/ Papillomatous Lesions	Bovine Herpes Mammillitis	EM	Affected skin; vesicular fluid	Aspirate vesicular fluid. Collect vesicular fluid, epithelium, overlying vesicles, scrapings of lesions and biopsies from margin of lesions	Syringe and screw cap container with 0.1-0.2 ml of distilled water	
		VI	Affected skin; vesicular fluid	Same as above	Viral transport medium	
	Cowpox	EM	Affected skin; vesicular fluid	Aspirate vesicular fluid. Collect vesicular fluid, epithelium, overlying vesicles, scrapings of lesions and biopsies from margin of lesions	Syringe, 26 gauge needle and screw cap container with 0.1-0.2 ml of distilled water	
	Papillomavirus	EM	Affected skin; papillomatous lesions	Excise papillomatous lesions	Plastic bag(s)	Zoonotic. Do not contaminate external surface of bag. Use double bag.
	Parapox (Orf)	EM	Affected skin		Syringe with 26 gauge needle and screw cap container	Zoonotic. Do not contaminate external surface of bag. Use double bag.

PORCINE

CLINICAL PRESENTATION	ASSOCIATED VIRUSES	TESTS AVAILABLE	RECOMMENDED SPECIMEN	COLLECTION PROCEDURE	TRANSPORT DEVICE	COMMENTS
Respiratory	PRRS	Live: VI/ RT-PCR	Nasal swab		Viral transport medium	
		Serology (ELISA)	1.0 ml serum		Red top vacutainer	Single or A/C samples
		Dead: FAT/RT-PCR	Lung		Plastic bag(s)	
		VI	Lung		Sterile container	
		Live: VI/ RT-PCR	Nasal swab		Viral transport medium	
	Swine Influenza	Serology	1.0 ml serum		Red top vacutainer	Single or A/C samples
		Dead: FAT/RT-PCR	Lung		Plastic bag(s)	
		VI	Lung		Sterile container	
		Live: VI/ RT-PCR	Nasal swab		Viral transport medium	
		Serology	1.0 ml serum		Red top vacutainer	Single or A/C samples
Gastrointestinal	Rotavirus	Live: EM	Feces		Screw cap container	
		Dead: FAT	Duodenum, jejunum, ileum		Plastic bag(s)	
		EM	Intestinal content		Screw cap container	
		Live: EM / RT-PCR	Feces		Screw cap container	
		Serology	1.0 ml serum		Red top vacutainer	Single or A/C samples
	Transmissible Gastroenteritis Virus (TGE)	Dead: FAT	Ileum, colon		Plastic bag(s)	
		VI / RT-PCR	Ileum, colon, lung		Sterile container	
		EM/PCR	Intestinal content		Screw cap container	
		Live: EM / RT-PCR	Feces		Screw cap container	
		Serology	1.0 ml serum		Red top vacutainer	Single or A/C samples

PORCINE

CLINICAL PRESENTATION	ASSOCIATED VIRUSES	TESTS AVAILABLE	RECOMMENDED SPECIMEN	COLLECTION PROCEDURE	TRANSPORT DEVICE	COMMENTS
Infertility/ Abortion	PRRS	Live: Serology	1.0 ml serum		Red top vacutainer	Single or A/C samples Sow
		Dead: FAT/RT-PCR	Lung, thymus, brain, tonsil		Plastic bag(s)	Fetus or piglet
	Porcine Parvovirus	VI	Lung, thymus		Sterile container	Fetus or piglet
		Live: Serology (Adult)	1.0 ml serum		Red top vacutainer	Single or A/C samples
		Dead: Serology (Fetus)	Fetal fluid (1.0 ml)		Sterile screw cap, tube or syringe	> 16 cm or > 70 days gestation
		FAT/ PCR	Fetal lung and liver	Send whole fetus if organs are not developed	Plastic bag(s)	> 16 cm or > 70 days gestation
	PCV-2	Live: Serology	1.0 ml serum		Red top vacutainer	Single or A/C samples
		Dead: FAT/PCR	Lung, brain, peyers patch, mesenteric lymph node		Plastic bag(s)	Fetus or piglet
		VI	Lung, brain, peyers patch, mesenteric lymph node		Sterile container	Fetus or piglet
Neurological	PRRS	Live: Serology	1.0 ml serum		Red top vacutainer	Single or A/C samples
		Dead: FAT/RT-PCR	Brain, lung		Plastic bag(s)	
		VI	Brain, lung		Sterile container	

CAPRINE/OVINE

CLINICAL PRESENTATION	ASSOCIATED VIRUSES	TESTS AVAILABLE	RECOMMENDED SPECIMEN	COLLECTION PROCEDURE	TRANSPORT DEVICE	COMMENTS
Respiratory Tract	Respiratory Syncytial Virus (BRSV)	Live: VI/ PCR	Nasal swab/ tracheal washings		Nasal swabs – viral transport medium Tracheal washings – sterile cap container	
		Serology	1.0 ml serum		Red top vacutainer	Single or A/C samples
	Maedi Parainfluenza (PI3)	Dead: FAT/RT-PCR	Lung		Plastic bag(s)	
		Live: VI/RT-PCR	Nasal swab/ tracheal washings		Nasal swabs – viral transport medium Tracheal washings – sterile cap container	
Gastrointestinal	Coronavirus	Serology	1.0 ml serum		Red top vacutainer	Single or A/C samples
		Live: EM	Feces		Screw cap container	
		Dead: EM	Intestinal content		Screw cap container	
		Live: EM	Feces		Screw cap container	
	Rotavirus	Dead: EM	Intestinal content		Screw cap container	
		FAT	Jejunum, ileum		Plastic bag(s)	
Reproductive	Border Disease Virus	Live: VI/ RT-PCR	Buffly coat		Purple top vacutainer	Newborn lamb or fetus
		Serology (Ewes)	1.0 ml serum		Red top vacutainer	Single or A/C samples
		Dead: FAT/ RT-PCR	Brain, lymph nodes		Plastic bag(s)	Fetus or young lamb
		Serology	Pleural or peritoneal fluid		Screw cap container	
	Visna Virus	RT-PCR	Brain		Plastic bag(s)	

Neurological

Border Disease Virus	FAT/RT-PCR/VI	Brain	Plastic bag(s)
	VI/ RT-PCR	Brain, whole blood	Sterile container,
		EDTA	purple-top vacutainer



EQUINE

CLINICAL PRESENTATION	ASSOCIATED VIRUSES	TESTS AVAILABLE	RECOMMENDED SPECIMEN	COLLECTION PROCEDURE	TRANSPORT DEVICE	COMMENTS
Gastrointestinal	Coronavirus	Live: EM	Feces		Screw cap container	
		Dead: EM	Intestinal content		Screw cap container	
	Rotavirus	Live: EM/ELISA	Feces		Screw cap container	
		Dead: EM/ELISA	Intestinal content		Screw cap container	
Respiratory	Equine Influenza	FAT	Jejunum, ileum		Plastic bag(s)	
		Live: EM/FAT/VI/RT-PCR	Bronchoalveolar washings/ nasal swab		Sterile screw cap container/ viral transport medium	
		Dead: FAT/RT-PCR	Lung		Plastic bag(s)	
		VI	Lung		Sterile container	
	Equine Viral Rhinopneumonitis (EHV-1)	Live: VI / PCR	Bronchoalveolar washings/ nasal swab		Sterile screw cap container/ viral transport medium	
			Buffy coat		Purple top vacutainer	
		Dead: FAT/PCR	Lung		Plastic bag(s)	
		VI	Lung		Sterile container	
	EHV-4	Live: VI/PCR	Bronchoalveolar washings/nasal swab		Sterile screw cap container/viral transport medium	
			Buffy coat		Purple top vacutainer	
		Dead: VI/PCR	Lung		Sterile container	

Equine Infectious Anemia	EIA virus	Coggins test	1.0 ml serum	Red top vacutainer	CFIA Accredited Test
Abortion	Equine Viral Rhinopneumonitis	Live: Serology	1.0 ml serum	Red top vacutainer	Single or A/C samples
		VI/ PCR	Buffy coat, nasopharyngeal swab	Purple top vacutainer, viral transport medium	
		Dead: FAT/ VI/ PCR	Liver, kidney, lung, spleen, adrenal gland, spinal cord	Plastic bag(s)	

CANINE

CLINICAL PRESENTATION	ASSOCIATED VIRUSES	TESTS AVAILABLE	RECOMMENDED SPECIMEN	COLLECTION PROCEDURE	TRANSPORT DEVICE	COMMENTS
Respiratory	Canine Herpes Virus	Live: VI/PCR	Nasal and conjunctival swabs, transtracheal washings		Viral transport medium	
		Serology	1.0 ml serum		Red top vacutainer	Single or A/C samples
		Dead: FAT/PCR	Lung, liver, spleen		Plastic bag(s)	
Gastrointestinal	Coronavirus	Live: EM	Feces		Screw cap container	
		Dead: EM	Intestinal content		Screw cap container	
		FAT	Jejunum, ileum, mesenteric lymph node		Plastic bag(s)	
	Canine Parvovirus	Live: ELISA	Feces		Screw cap container	
		Dead: ELISA	Intestinal content		Screw cap container	
		FAT/PCR	Intestine, mesenteric lymph node		Plastic bag(s)	
	Rotavirus	Live: EM	Feces		Screw cap container	
		Dead: EM	Intestinal content		Screw cap container	
		FAT	Jejunum, ileum		Plastic bag(s)	

CANINE

CLINICAL PRESENTATION	ASSOCIATED VIRUSES	TESTS AVAILABLE	RECOMMENDED SPECIMEN	COLLECTION PROCEDURE	TRANSPORT DEVICE	COMMENTS
Systemic Infection	Infectious Canine Hepatitis (CAV-1)	Live: Serology	1.0 ml serum		Red top vacutainer	Single or A/C samples
		VI	Blood/ nasal/ conjunctival/ fecal		Purple top vacutainer/ viral transport medium/ plastic bag(s)	
		Dead: FAT	Liver, lung		Plastic bag(s)	
		VI	Liver, lung		Sterile container	
	Canine Herpes	Live: Serology (bitch)	1.0 ml serum		Red top vacutainer	Single or A/C samples
		VI	Vaginal swabs from bitch Nasal, conjunctival swabs from puppy		Viral transport medium	
		Dead: FAT	Liver, kidney, spleen		Plastic bag(s)	
		VI	Liver, kidney, spleen		Sterile container	
	Canine Distemper Virus	Live: Serology	1.0 ml serum		Red top vacutainer	Single or A/C samples
		FAT	Conjunctival smears		Use swabs	Need lots of cells Fix in acetone
		VI	Cerebrospinal fluid Buffy coat		Sterile tube Purple top vacutainer	

CANINE

CLINICAL PRESENTATION	ASSOCIATED VIRUSES	TESTS AVAILABLE	RECOMMENDED SPECIMEN	COLLECTION PROCEDURE	TRANSPORT DEVICE	COMMENTS
Systemic Infection	Canine Distemper Virus	Dead: FAT	Brain, lung, tonsils, bronchial lymph node, urinary bladder		Plastic bag(s)	
		VI	Brain, lung, tonsils, bronchial lymph node, urinary bladder		Sterile container	
	Reproductive Canine Herpes	Live: Serology	1.0 ml serum		Red top vacutainer	Single or A/C samples
		FAT	Fetal liver, kidney, spleen		Plastic bag(s)	
		VI	Fetal liver, kidney, spleen		Sterile container	

FELINE

CLINICAL PRESENTATION	ASSOCIATED VIRUSES	TESTS AVAILABLE	RECOMMENDED SPECIMEN	COLLECTION PROCEDURE	TRANSPORT DEVICE	COMMENTS
Respiratory Tract	Feline Calicivirus	Live: VI/RT-PCR	Oropharyngeal, nasal, conjunctival swabs		Viral transport medium	
		Serology	1.0 ml serum		Red top vacutainer	Single or A/C samples
		Dead: VI/ RT-PCR	Lung		Sterile container	
		Live: VI/ PCR	Oropharyngeal, nasal, conjunctival swabs		Viral transport medium	
	Feline Viral Rhinotracheitis	FAT	Oropharyngeal, nasal, conjunctival swabs	Use swabs	Slide	Should be collected early. Fix in acetone.
		Serology	1.0 ml serum		Red top vacutainer	Single or A/C samples
		Dead: FAT	Liver, spleen, soft palate, tonsils, nasal, turbinates		Plastic bag(s)	
		VI	Same as in FAT		Sterile container	
Gastrointestinal	Coronavirus	Live: EM	Feces		Screw cap container	
		Dead: EM	Intestinal content		Screw cap container	
	Rotavirus	Live: EM	Feces		Screw cap container	
		Dead: EM	Intestinal content		Screw cap container	
		FAT	Jejunum, ileum		Plastic bag(s)	

CANINE

CLINICAL PRESENTATION	ASSOCIATED VIRUSES	TESTS AVAILABLE	RECOMMENDED SPECIMEN	COLLECTION PROCEDURE	TRANSPORT DEVICE	COMMENTS
Feline Panleukopenia	Feline Parvovirus	Live: ELISA	Feces		Screw cap container	
		Dead: ELISA FAT	Intestinal content Intestine, mesenteric lymph node		Screw cap container Plastic bag(s)	
Feline Infectious Peritonitis	FIP virus	Live: Serology (IFAT)	1.0 ml serum		Red top vacutainer	Cross react with Feline Coronavirus (FCOV)
		Dead: FAT	Liver, kidney, lymph node, pleura, pericardium, meninges of brain and spinal cord		Plastic bag(s)	

AVIAN

CLINICAL PRESENTATION	ASSOCIATED VIRUSES	TESTS AVAILABLE	RECOMMENDED SPECIMEN	COLLECTION PROCEDURE	TRANSPORT DEVICE	COMMENTS
Respiratory	Infectious Bronchitis Virus	RT-PCR	Lung, trachea, kidney		Sterile container	
	Infectious Laryngotracheitis	Live: PCR	Nasal and conjunctival swabs		Viral transport medium	
		Dead: PCR	Larynx, trachea		Sterile container	
Nervous	Newcastle Disease (NDV)	RT-PCR	Lung, brain, spleen, kidney		Sterile container	
	NDV	Live: VI / RT-PCR	Cloacal swab		Viral transport medium	
		RT-PCR	Brain, lung, spleen, kidney		Sterile container	
Gastrointestinal	Coronavirus	Live: EM	Intestinal content		Screw cap container	
		Dead: EM	Entire length or some portion of the intestine		Plastic bag(s)	

AVIAN

CLINICAL PRESENTATION	ASSOCIATED VIRUSES	TESTS AVAILABLE	RECOMMENDED SPECIMEN	COLLECTION PROCEDURE	TRANSPORT DEVICE	COMMENTS
Gastrointestinal	Rotavirus	Live: EM	Intestinal content		Screw cap container	
		Dead: EM	Entire length or some portion of the intestine		Plastic bag(s)	
Immunosuppression	Infectious Bursal Disease	RT-PCR	Bursae, spleen		Sterile container	

Table 2: Information on Chlamydophila Specimen Submission

Chlamydophila species	TESTS AVAILABLE	RECOMMENDED SPECIMEN	COLLECTION PROCEDURE	TRANSPORT DEVICE	COMMENTS
Chlamydophila, bovine and caprine	PCR	Liver, kidney, lung, spleen, cotyledon		Plastic bag(s)	
Chlamydophila, avian (psittacine)	PCR	Liver, lung, spleen, kidney		Plastic bag(s)	Zoonotic
Chlamydophila, avian (domestic-turkeys, pigeons, duck, chicken)	PCR	Lung, liver, spleen, kidney		Plastic bag(s)	Zoonotic
Chlamydophila, feline	PCR	Conjunctival and nasal mucosal scrapings	Use swabs	Viral transport medium	