



VETERINARY RESEARCH INSTITUTE
DEPARTMENT OF VETERINARY SERVICES
MALAYSIA



VRI GUIDELINES FOR SAMPLE SUBMISSION

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INTRODUCTION

VRI Guidelines for Sample Submission is a reference for all DVS personnel, veterinarians, government employees, farmers and stakeholders for submission of samples to Veterinary Research Institute, Ipoh (VRI). The guideline consists of a list of the disease diagnosed, available diagnostic method, types of samples required, minimum requirement for sample which includes the size, appropriate or suitable sample, sample transport media, optimum condition of sample for transportation, sample validity and the test method's turnaround time (TAT).

The information provided is expected to provide guidance to our client in the collection and handling of samples prior to submission to VRI. Rapid and accurate diagnostic is crucial especially for economically important diseases, zoonotic diseases and notifiable diseases. Hence, it all starts with a correct sampling and sample submission to the veterinary diagnostic laboratory. VRI is committed to continuously develop and provide the best diagnostic services for our clients in accordance to our function which is providing excellent diagnostic services for sustainable of animal industry in Malaysia.



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		viii) Glucose	
		ix) Specific gravity	
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LIST OF SUBMISSION FORM

NO.	TYPE OF TEST/ TYPE OF SAMPLE	FORM
1.	Post Mortem for all species	MAKVET 01
2.	Isolation of agents from ✓ Animal organs ✓ Environmental samples	MAKVET 01
3.	Molecular Detection	MAKVET 01 MAKVET 05
4.	Serological test ✓ Bacterial diseases ✓ Viral diseases	MAKVET 01 (for avian) MAKVET 03 (for mammalian)
5.	Animal Feed ✓ Bacteria Culture ✓ Proximate Analysis	MAKVET 01 MAKVET 04
6.	Delivery form inter laboratory	MAKVET 05
7.	Rabies	MAKVET 05 (A)
8.	Poison	MAKVET 06
9.	Veterinary Public Health specimen ✓ Milk, water (for Total Plate Count (TPC) and Total Density Solid (TDC) and pH only)	MAKVET 10
10.	Foot and Mouth Disease	MFMDK 01



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PATHOLOGY

DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
All	Post Mortem	All carcasses	Fresh carcasses	2 - 4 °C	3 - 5 days	3 days
All diseases and fungus	Histopathology a) Haematoxylin & Eosin b) Grocott's c) Giemsa	All of organs	Tissue size: 2-3 cm in screw cap container (in formalin) Ratio: Tissue: formalin (1:10)	Room Temp.	Up to 1 year	14 days
Rabies	Fluorescent Antibody Test (FAT)	Brain	Brain stem, cerebellum, cerebrum and hippocampus	2 - 4 °C	1 - 3 days	7 days



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BACTERIOLOGY

LABORATORY TESTS FOR EQUINE DISEASES

DISEASE/ PATHOGEN	DIAGNOSTIC METHODS/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE TESTING	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Glanders	Bacteria isolation & identification	a) Lymph nodes/ organs	Small piece/ 1 infected lymph nodes	Fresh/ -20°C	24 hours	3 – 8 days
Strangles	Bacteria isolation & identification	a) Nasal swab b) Lymph nodes & organs (abscess)	✓ 1 unit of swab in transport media (amies charcoal/ without charcoal) ✓ 1 infected lymph nodes ✓ Small piece organ (1 inch thick)	✓ Swab: 2 - 8 °C ✓ Organ: Fresh/ -20°C	24 hours	3 – 8 days



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LABORATORY TESTS FOR BOVINE DISEASES

DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE TESTING	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Brucellosis	i. Bacterial isolation & identification ii. PCR (for identification)	a) Aborted foetus, b) Cotyledon, uterus & reproductive organs c) Vaginal swab d) Lymph nodes (Iliac/ Ischiatic/ Supramammary)	✓ 1 unit of swab in transport media (Amies charcoal/ without charcoal) ✓ Small piece of uterus/ organs (1 inch thick)	✓ Swab: 2 - 8°C ✓ Organ: Fresh/ 2 - 8 °C to -20°C	24 hours	2 weeks 3 – 5 days (PCR) for confirmation only
Johne's Disease	i. Bacterial isolation ii. PCR	a) Faeces b) Rectal pinch	Small amount of faeces/ rectal pinch	Fresh/ 2 - 8°C	24 hours	2 to 7 months 3 – 5 days (PCR) for confirmation only
Q Fever	PCR	a) Organ, aborted foetus b) Whole blood c) Vaginal swab	✓ Small piece organ ✓ Heparin tube ✓ 1 unit swab in transport media (Amies charcoal/ without charcoal)	✓ Organ: Fresh/ 2 - 8°C to -20°C ✓ Blood tube: 2 - 8°C ✓ Swab: 2 - 8°C	24 hours	3 – 8 days



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LABORATORY TESTS FOR OVINE/ CAPRINE DISEASES

DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE TESTING	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Ovine/ Caprine Brucellosis	i. Bacterial isolation & identification ii. PCR (for identification)	a) Aborted foetus, b) Cotyledon, uterus & reproductive organs c) Vaginal swab d) Lymph nodes (Iliac/ Ischiatic/ Supramammary)	<ul style="list-style-type: none"> ✓ 1 unit of swab in transport media (Amies charcoal/ without charcoal) ✓ Small piece of aborted foetus organs (1 inch thick) ✓ Small piece of uterus (1 inch thick) 	<ul style="list-style-type: none"> ✓ Swab: 2 - 8°C ✓ Organ: Fresh/ 2 - 8°C to -20°C 	24 hours	2 weeks 3 – 5 days (PCR) for confirmation only
Caseous Lymphadenitis	Bacterial isolation & identification	a) Lymph nodes b) Pus c) Organ	<ul style="list-style-type: none"> ✓ Small piece organ (1 inch thick) ✓ 1 infected lymph nodes 	Fresh/ 2 - 8°C to -20°C	24 hours	3 – 8 days
Q Fever	PCR	a) Organ, aborted foetus b) Whole blood c) Vaginal swab	<ul style="list-style-type: none"> ✓ Small piece organ ✓ Heparin tube ✓ 1 unit swab in transport media (Amies charcoal/ without charcoal) 	<ul style="list-style-type: none"> ✓ Organ: Fresh/ 2 - 8°C to -20°C ✓ Blood tube: 2 - 8°C ✓ Swab: 2 - 8°C 	24 hours	3 – 8 days



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LABORATORY TESTS FOR POULTRY DISEASES

DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE TESTING	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Fowl Cholera (Pasteurellosis)	i. Bacterial isolation & identification ii. PCR (for identification)	a) Organs b) Nasal/ tracheal swabs c) Culture (Nutrient agar slant/blood agar slant/plate)	✓ Small piece of organs (1 inch thick) ✓ 1 unit of swab in transport media e.g., Amies/ Cary Blair)	✓ Organ: Fresh/ 2 - 8°C to -20°C ✓ Swab: 2 - 8°C	24 hours	3 – 8 days
<i>Reimerella anatipestifer</i>	Bacterial isolation & identification	a) Organ b) Nasal/ tracheal swab	✓ Small piece organ (1 inch thick) ✓ 1 unit of swab in transport media e.g., Amies/ Cary Blair)	✓ Organ: Fresh/ 2 - 8°C to -20°C ✓ Swab: 2 - 8°C	24 hours	3 – 8 days



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LABORATORY TESTS FOR SWINE DISEASES

DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE TESTING	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Atrophic Rhinitis	i. Bacterial isolation & identification ii. PCR (for identification)	a) Nasal sinus/ swabs b) Organs c) Culture (Nutrient agar slant)	✓ 1 unit of swab in transport media (Amies charcoal/ without charcoal) ✓ Small piece organs (1 inch thick)	✓ Organ: Fresh/ 2 - 8°C to -20°C ✓ Swab: 2 - 8°C	24 hours	3 – 8 days
Porcine Brucellosis	i. Bacterial isolation & identification ii. PCR (for identification)	a) Aborted foetus/ lymph nodes (Iliac/ Ischiatic/ Supramammary) b) Reproductive organs c) Vaginal swab d) Culture	✓ 1 unit small piece of organ ✓ 1 infected lymph nodes ✓ 1 unit vaginal swab in transport media (Amies charcoal/ without charcoal)	✓ Organ: Fresh/ 2 - 8°C to -20°C ✓ Swab: 2 - 8°C	24 hours	2 weeks 3 – 5 days (PCR) for confirmation only
Swine Erysipelas	Bacterial isolation & identification	Affected organ	Small piece organ (1 inch thick)	Fresh/ 2 - 8°C to -20°C	24 hours	3 – 8 days



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LABORATORY TESTS FOR DISEASES OF MULTIPLE SPECIES

DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE TESTING	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Leptospirosis	Bacterial isolation	a) Kidney b) Urinary bladder c) Brain (do not freeze) – Please contact VRI to request for EMJH medium before sampling). d) Urine (within 2 hours collection) e) Water f) Soil	<ul style="list-style-type: none"> ✓ Small piece organs (1 inch thick) ✓ 1 - 5 ml water ✓ 10 gm soil 	<ul style="list-style-type: none"> ✓ Urine samples within 2 hours upon sampling, 2-8°C ✓ Organ samples shall inoculate into EMJH medium (refer to VRI). ✓ Soil, Water: room temperature 	24-48 hours (organ/EMJH) 1-2 hours (urine)	4 - 8 weeks
	PCR (For identification)	Culture (Fletcher's medium/EMJH)	-	<ul style="list-style-type: none"> ✓ Sealed ✓ Double layer packaging 	24 hours	3 – 8 days
Melioidosis	Bacterial isolation & identification	a) Organ b) Soil c) Swab	<ul style="list-style-type: none"> ✓ Small piece organ (1 inch thick) ✓ 10 gm soil ✓ 1 unit of swab in transport medium (Amies) 	Fresh/ 2 - 8°C to -20°C	24 hours	3 – 8 days



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VRI GUIDELINES FOR SAMPLE SUBMISSION

DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE TESTING	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Pasteurellosis	i. Bacterial isolation & identification ii. PCR (for identification)	a) Organ b) Culture c) Nasal/ tracheal swab	<ul style="list-style-type: none"> ✓ Small piece organ (1 inch thick) ✓ Nutrient agar slant/ blood agar slant/ plate ✓ 1 unit of swab in transport medium (Amies) 	Fresh/ 2 - 8°C to -20°C	24 hours	3 – 8 days
Salmonellosis	Bacterial identification	a) Organs, b) Faeces c) Feed d) Cloacal swab e) Water f) Environmental swab g) Eggs	<ul style="list-style-type: none"> ✓ Small piece organ (1 inch thick) ✓ Small amount of faeces ✓ 5 - 10 gm of feed ✓ 1 unit swab in 10 mL transport media BPW (1 to 10 ratio. E.g., 5 swabs in 50 mL BPW) 	<ul style="list-style-type: none"> ✓ Organ: Fresh/ 2 - 8°C to -20°C ✓ Swab: Pooled swab 5 swab/ bottle, 2 - 8°C ✓ Feed, water, egg, nutrient slant: Room temperature 	24 hours	3 – 8 days
	Salmonella serotyping	Nutrient agar slants/ plates	<ul style="list-style-type: none"> ✓ 1 - 5 ml water ✓ 10-unit eggs 			8 – 14 days
Colibacillosis	Bacterial identification	a) Organs b) Cloacal swab c) Water d) Feed e) Environmental swab f) Eggs	<ul style="list-style-type: none"> ✓ 1 unit of swab in transport media BPW ✓ 1 - 5 ml water ✓ 5 - 10 gm of feed ✓ Small piece organ (1 inch thick) ✓ 1-unit eggs 	<ul style="list-style-type: none"> ✓ Organ: Fresh/ 2 - 8°C to -20°C ✓ Swab: 2 - 8°C ✓ Feed, water, eggs: Room temperature 	24 hours	3 – 8 days



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DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE TESTING	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Mycosis	Fungus Identification	a) Organ b) Skin scrapping c) Feed d) Water e) Soil	<ul style="list-style-type: none"> ✓ Small piece organ (1 inch thick) ✓ 1 - 5 ml water ✓ 5 - 10 gm of feed 	<ul style="list-style-type: none"> ✓ Organ: Fresh/ 2 - 8°C to -20°C ✓ Swab: 2 - 8°C ✓ Feed, water: Room temperature 	24 hours	14 days
			<ul style="list-style-type: none"> ✓ Skin scrapping ✓ Soil 	Room temperature		
Anthrax	Bacterial isolation and identification	a) Organ b) Soil c) Blood	<ul style="list-style-type: none"> ✓ Small piece organ (1 inch thick) ✓ 10 gm soil ✓ 1-2 mL of blood 	<ul style="list-style-type: none"> ✓ Organ: Fresh/ 2 - 8°C to -20°C ✓ Blood: / 2 - 8°C ✓ Soil: Room temperature 	24 hours	3 – 8 days
Tuberculosis except Poultry	<ul style="list-style-type: none"> i. Bacterial isolation ii. PCR (for identification) iii. qPCR (real time) 	<ul style="list-style-type: none"> a) Organs, b) Abscess from animal present with lesion d) Head thorax lymph nodes for animal without lesion 	<ul style="list-style-type: none"> ✓ 1 infected lymph nodes ✓ Small piece organ (1 inch thick) 	<ul style="list-style-type: none"> ✓ Fresh/ 2 - 8°C to -20°C ✓ Sterile container (highly recommended) ✓ Sample shall be protected from direct sunlight 	24 hours	<ul style="list-style-type: none"> 6 – 8 weeks 3 – 5 days (PCR) for confirmation only



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LABORATORY TESTS FOR VETERINARY PUBLIC HEALTH

DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE TESTING	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Total Plate Count (TPC) Pour on Method	Water	✓ 1 – 5 ml water	Room temperature	24 hours	3 days
Total Plate Count (TPC) Petrifilm	Raw milk	✓ 1 – 5 ml of raw milk	Fresh/ 2 - 8°C	1 – 2 hours	3 – 8 days
Coliform (MPN Method)	Water	✓ 1 – 5 ml water	Room temperature	24 hours	3 days
Coliform (Petrifilm)	Raw milk	✓ 1 – 5 ml of raw milk	Fresh/ 2 - 8°C	1 – 2 hours	3 – 8 days
E.Coli Count (Petrifilm)	Raw milk	✓ 1 – 5 ml of raw milk	Fresh/ 2 - 8°C	1 – 2 hours	3 – 8 days



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VRI GUIDELINES FOR SAMPLE SUBMISSION

SPECIAL MICROORGANISM

Species: **POULTRY**

DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT FOR SAMPLES	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Mycoplasma	Isolation and identification PCR (for identification of <i>Mycoplasma sp</i> , <i>M. gallisepticum</i> , <i>M. synoviae</i>)	a) Lung b) Trachea c) Head d) Hock joint e) Air sac swab f) Nasal swab g) Eggs h) Vaccines i) Culture	<ul style="list-style-type: none"> ✓ Lung: 3-5 gm ✓ Trachea: 3-5 cm ✓ Hock joint: Do not cut open. ✓ Swab sample: each sample/ per bottle in transport media/PPLO broth ✓ Egg: packed individually ✓ Vaccine: 1.5ml ✓ Agar or broth: sealed plate and bottle 	<ul style="list-style-type: none"> ✓ Organs: Fresh/ 2 - 8°C ✓ Sample in transport media/ PPLO broth: <ul style="list-style-type: none"> • If transportation less than 24 hours: room temperature • If transportation more than 24 hours: 2 - 8°C ✓ Eggs and vaccine samples: 2 - 8°C ✓ Culture: room temperature 	24 – 48 hours	15 – 25 days PCR (3-5 days)
<i>Mycoplasma gallisepticum</i>	Antibody detection	Serum	Serum: >2ml	<ul style="list-style-type: none"> ✓ Serum samples in 2 - 8°C 	24 hours	3 – 7 days



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DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT FOR SAMPLES	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
<i>Infectious coryza</i> (<i>Haemophilus</i> <i>paragallinarum</i>)	Isolation and identification	a) Head b) Trachea c) Air sac swab d) Nasal swab e) Culture	<ul style="list-style-type: none"> ✓ Head: pack individually ✓ Trachea: 3-5 cm ✓ Swab sample: each sample/ per bottle ✓ Agar: sealed plate 	<ul style="list-style-type: none"> ✓ Organs: Fresh/ 2 - 8°C ✓ Sample in transport media: <ul style="list-style-type: none"> • If transportation less than 24 hours: room temperature • If transportation more than 24 hours: 2 - 8°C ✓ Serum samples: 2 - 8°C ✓ Culture: room temperature 	24 – 48 hours	5 – 15 days
	Serotyping for Type A or C	Serum	Serum: >2ml	<ul style="list-style-type: none"> ✓ Serum samples in 2 - 8°C 	24 hours	5 – 15 days
<i>Ornithobacterium</i> <i>rhinotracheale</i> (ORT)	Isolation and identification	a) Lung b) Trachea c) Air sac swab d) Nasal swab e) Culture	<ul style="list-style-type: none"> ✓ Trachea: 3-5 cm ✓ Lung: 3-5 gram ✓ Swab sample: each sample/ per bottle in transport media (Amies charcoal/ without charcoal) ✓ Agar: sealed plate 	<ul style="list-style-type: none"> ✓ Organs: Fresh/ 2 - 8 °C ✓ Sample in transport media: <ul style="list-style-type: none"> • If transportation less than 24 hours: room temperature • If transportation more than 24 hours: 2 - 8°C ✓ Culture: room temperature 	24 – 48 hours	5 – 15 days
<i>Salmonella</i>	Antibody detection	Serum	Serum: >2ml	<ul style="list-style-type: none"> ✓ Serum samples in 2 - 8°C 	24 hours	3 – 7 days



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Species: BOVINE AND CAPRINE

DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT FOR SAMPLES	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Mycoplasma	Isolation and identification PCR (for identification of <i>Mycoplasma sp</i>)	a) Lung b) Nasal swab c) Eye swab d) Trachea swab e) Vaginal swab f) Milk g) Culture	<ul style="list-style-type: none"> ✓ Lung: 10-15 gram with lesion. ✓ Swab sample: each sample/ per bottle in transport media/ PPLO broth ✓ Milk: 20ml ✓ Agar or broth: sealed plate and bottle 	<ul style="list-style-type: none"> ✓ Organs and milk: Fresh/ 2 - 8°C ✓ Sample in transport media: <ul style="list-style-type: none"> • If transportation less than 24 hours: room temperature • If transportation more than 24 hours: 2 - 8°C ✓ Culture: room temperature 	Organ, swab samples, agar/ broth: 24 – 48 hours Milk samples in room temperature: 1 – 2 hours Milk samples in ice: 24 hours	15 – 25 days PCR (3-5 days)

Species: OTHER ANIMALS & TISSUE CULTURE CELLS

DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT FOR SAMPLES	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Mycoplasma	Isolation and identification PCR (for identification of <i>Mycoplasma sp</i>)	a) Lung b) Nasal swab c) Eye swab d) Trachea swab e) Vaginal swab f) Culture g) Tissue culture cells	<ul style="list-style-type: none"> ✓ Lung: 10-15 gram with lesion. ✓ Swab sample: each sample/ per bottle in transport media/PPLO broth ✓ Milk: 20ml ✓ Agar or broth: sealed plate and bottle ✓ Tissue culture: 1 small flask 	<ul style="list-style-type: none"> ✓ Organs and milk: Fresh/ 2 - 8°C ✓ Sample in transport media/PPLO broth: <ul style="list-style-type: none"> • If transportation less than 24 hours: room temperature • If transportation more than 24 hours: 2 - 8°C ✓ Culture: room temperature ✓ Tissue culture: room temperature 	Organ, swab samples, agar/broth/tissue culture: 24 – 48 hours Milk samples in room temperature: 1 – 2 hours Milk samples in ice: 24 hours	15 – 25 days PCR (3-5 days)



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VRI GUIDELINES FOR SAMPLE SUBMISSION

Species: SWINE

DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT FOR SAMPLES	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Mycoplasma	Isolation and identification PCR (For identification of <i>Mycoplasma sp</i>)	a) Lung b) Nasal swab c) Joint swab/puss d) Trachea swab e) Vaginal swab f) Culture	<ul style="list-style-type: none"> ✓ Lung: 10-15 gram with lesion ✓ Swab sample: each sample/ per bottle in transport media/PPLO broth ✓ Agar or broth: sealed plate and bottle 	<ul style="list-style-type: none"> ✓ Organs: Fresh/ 2 - 8°C ✓ Sample in transport media/PPLO broth: <ul style="list-style-type: none"> • If transportation less than 24 hours: room temperature • If transportation more than 24 hours: 2 - 8°C ✓ Culture: room temperature 	24 – 48 hours	15 – 25 days PCR (3-5 days)
<i>Actinobacillus pleuropneumonia</i>	Isolation and identification	a) Lung b) Nasal swab c) Trachea swab	<ul style="list-style-type: none"> ✓ Lung: 10-15 gram with lesion. ✓ Swab sample: each sample/ per bottle in transport media (Amies charcoal/ without charcoal) 	<ul style="list-style-type: none"> ✓ Organs: Fresh/ 2 - 8°C ✓ Sample in transport media: <ul style="list-style-type: none"> • If transportation less than 24 hours: room temperature • If transportation more than 24 hours: 2 - 8°C 	24 – 48 hours	5 – 15 days
<i>Haemophilus parasuis</i>	Isolation and identification	a) Lung b) Nasal swab c) Trachea swab	<ul style="list-style-type: none"> ✓ Lung: 10-15 gram with lesion. ✓ Swab sample: each sample/ per bottle in transport media (Amies charcoal/ without charcoal) 	<ul style="list-style-type: none"> ✓ Organs: Fresh/ 2 - 8°C ✓ Sample in transport media: <ul style="list-style-type: none"> • If transportation less than 24 hours: room temperature • If transportation more than 24 hours: 2 - 8°C 	24-48 hours	5 – 15 days



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VRI GUIDELINES FOR SAMPLE SUBMISSION

SEROLOGY

A. LABORATORY SEROLOGICAL BACTERIAL DISEASES TEST FOR MULTIPLE SPECIES

DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE FOR TEST	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Brucellosis	Rose Bengal Plate Test (RBPT)	Serum	30µl	4 - 8°C	4 days	2 - 3 days (For all types of work)
		Blood in plain tube	> 1 ml			
	Complement Fixation Test (CFT)	Serum	150µl	4 - 8°C	4 days	3 - 5 days (For import, export, diagnostic, animal movement & monitoring)
		Blood in plain tube	> 3 ml			10 - 12 days (For surveillance, research & others)
Salmonellosis	Serum Agglutination Test (SAT)	Serum	200µl	4 - 8°C	4 days	7 – 10 days (For all types of work)
		Blood in plain tube	> 1 ml			
Leptospirosis	Microscopic Agglutination Test (MAT)	Serum	100µl	4 - 8°C	4 days	7 days (For import, export, diagnostic, animal movement & monitoring)
		Blood in plain tube	> 1 ml			10 days (For surveillance, research & others)



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DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE FOR TEST	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Johne's	Complement Fixation Test (CFT)	Serum	150µl	4 - 8°C	4 days	3 - 5 days (For import, export, diagnostic, animal movement & monitoring)
		Blood in plain tube	> 3 ml			10 - 12 days (For surveillance, research & others)
Melioidosis	Complement Fixation Test (CFT)	Serum	150µl	4 - 8°C	4 days	3 - 5 days (For import, export, diagnostic, animal movement & monitoring)
		Blood in plain tube	> 3 ml			10 - 12 days (For surveillance, research & others)
Caseous lymphadenitis	Agar Gel Immunodiffusion Test (AGID)	Serum	100µl	4 - 8°C	4 days	7 days (For import, export, diagnostic, animal movement & monitoring)
		Blood in plain tube	> 1 ml			10 - 12 days (For surveillance, research & others)



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B. SPECIES: BOVINE & WILDLIFE

DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE FOR TEST	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Brucellosis	Rose Bengal Plate Test (RBPT)	Serum	30µl	4 - 8°C	4 days	2 - 3 days (For all types of work)
		Blood in plain tube	> 1 ml			
	Complement Fixation Test (CFT)	Serum	150µl	4 - 8°C	4 days	3 - 5 days (For import, export, diagnostic, animal movement & monitoring)
		Blood in plain tube	> 1 ml			10 - 12 days (For surveillance, research & others)
Johne's	Complement Fixation Test (CFT)	Serum	150µl	4 - 8°C	4 days	3 - 5 days (For import, export, diagnostic, animal movement & monitoring)
		Blood in plain tube	> 1 ml			10 - 12 days (For surveillance, research & others)
Melioidosis	Complement Fixation Test (CFT)	Serum	150µl	4 - 8°C	4 days	3 - 5 days (For import, export, diagnostic, animal movement & monitoring)
		Blood in plain tube	> 1 ml			10 - 12 days (For surveillance, research & others)



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DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE FOR TEST	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Salmonellosis	Serum Agglutination Test (SAT)	Serum	200µl	4 - 8°C	4 days	7 – 10 days (For all types of work)
		Blood in plain tube	> 1 ml			
Leptospirosis	Microscopic Agglutination Test (MAT)	Serum	100µl	4 - 8°C	4 days	7 days (For import, export, diagnostic, animal movement & monitoring)
		Blood in plain tube	> 1 ml			10 days (For surveillance, research & others)

C. SPECIES: CAPRINE, OVINE & CERVIDS

DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE FOR TEST	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Brucellosis	Complement Fixation Test (CFT)	Serum	150µl	4 - 8°C	4 days	3 - 5 days (For import, export, diagnostic, animal movement & monitoring)
		Blood in plain tube	> 1 ml			10 - 12 days (For surveillance, research & others)
Caseous lymphadenitis	Agar Gel Immunodiffusion Test (AGID)	Serum	100µl	4 - 8°C	4 days	7 days (For import, export, diagnostic, animal movement & monitoring)
		Blood in plain tube	> 1 ml			10 - 12 days (For surveillance, research & others)



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DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE FOR TEST	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Johne's	Complement Fixation Test (CFT)	Serum	150µl	4 - 8°C	4 days	3 - 5 days (For import, export, diagnostic, animal movement & monitoring)
		Blood in plain tube	> 1 ml			10 - 12 days (For surveillance, research & others)
Melioidosis	Complement Fixation Test (CFT)	Serum	150µl	4 - 8°C	4 days	3 - 5 days (For import, export, diagnostic, animal movement & monitoring)
		Blood in plain tube	> 1 ml			10 - 12 days (For surveillance, research & others)
Salmonellosis	Serum Agglutination Test (SAT)	Serum	200µl	4 - 8°C	4 days	7 – 10 days (For all types of work)
		Blood in plain tube	> 1 ml			
Leptospirosis	Microscopic Agglutination Test (MAT)	Serum	100µl	4 - 8°C	4 days	7 days (For import, export, diagnostic, animal movement & monitoring)
		Blood in plain tube	> 1 ml			10 days (For surveillance, research & others)



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D. OTHER SPECIES

SPECIES	DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE FOR TEST	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Swine	Brucellosis	Complement Fixation Test (CFT)	Serum	150µl	4 - 8°C	4 days	3 - 5 days (For import, export, diagnostic, animal movement & monitoring)
			Blood in plain tube	> 1 ml			10 - 12 days (For surveillance, research & others)
	Johne's	Complement Fixation Test (CFT)	Serum	150µl	4 - 8°C	4 days	3 - 5 days (For import, export, diagnostic, animal movement & monitoring)
			Blood in plain tube	> 1 ml			10 - 12 days (For surveillance, research & others)
	Meliodosis	Complement Fixation Test (CFT)	Serum	150µl	4 - 8°C	4 days	3 - 5 days (For import, export, diagnostic, animal movement & monitoring)
			Blood in plain tube	> 1 ml			10 - 12 days (For surveillance, research & others)
	Leptospirosis	Microscopic Agglutination Test (MAT)	Serum	100µl	4 - 8°C	4 days	7 days (For import, export, diagnostic, animal movement & monitoring)
			Blood in plain tube	> 1 ml			10 days (For surveillance, research & others)



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SPECIES	DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE FOR TEST	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Feline	Leptospirosis	Microscopic Agglutination Test (MAT)	Serum	100µl	4 - 8°C	4 days	7 days (For import, export, diagnostic, animal movement & monitoring)
			Blood in plain tube	> 1 ml			10 days (For surveillance, research & others)
Canine	Leptospirosis	Microscopic Agglutination Test (MAT)	Serum	100µl	4 - 8°C	4 days	7 days (For import, export, diagnostic, animal movement & monitoring)
			Blood in plain tube	> 1 ml			10 days (For surveillance, research & others)
Rodent	Leptospirosis	Microscopic Agglutination Test (MAT)	Serum	100µl	4 - 8°C	4 days	7 days (For diagnostic)
			Blood in plain tube	> 1 ml			10 days (For surveillance, research & others)
	Meloidosis	Complement Fixation Test (CFT)	Serum	150µl	4 - 8°C	4 days	3 - 5 days (For diagnostic)
			Blood in plain tube	> 1 ml			10 - 12 days (For surveillance, research & others)
Rabbit	Meloidosis	Complement Fixation Test (CFT)	Serum	150µl	4 - 8°C	4 days	3 - 5 days (For diagnostic)
			Blood in plain tube	> 1 ml			10 - 12 days (For surveillance, research & others)



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VRI GUIDELINES FOR SAMPLE SUBMISSION

IMMUNOASSAY

DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE FOR TEST	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)	SPECIES
Nipah	In-house ELISA	Serum (the blood clot is removed)	>100 µl	3 – 8 °C	4 days	<ul style="list-style-type: none"> ✓ 5 days (for import, export, diagnostic, animal movement and monitoring) ✓ 14 days (for research, surveillance) 	<ul style="list-style-type: none"> ✓ Cat ✓ Dog ✓ Pig ✓ Horse ✓ Rabbit
		Blood in plain tube (without any additive like gel etc.)	>1 ml				
Haemorrhagic Septicaemia (HS)	In-house ELISA	Serum (the blood clot is removed)	>100 µl	3 – 8 °C	4 days	<ul style="list-style-type: none"> ✓ 5 days (for import, export, diagnostic, animal movement and monitoring) ✓ 14 days (for research, surveillance and pre/post vaccine) 	<ul style="list-style-type: none"> ✓ Cattle ✓ Buffalo ✓ Rabbit
		Blood in plain tube (without any additive like gel etc.)	>1 ml				



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DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE FOR TEST	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)	SPECIES
Bovine Tuberculosis (TB) (Samples from Perak only)	BOVIGAM® ELISA test kit	Whole blood in heparin	>5 ml	Room temperature 22- 25 °C (Avoid keep in ice, extreme temperature and exposed to direct sunlight)	< 7 hours of collection (sample culture processing step)	✓ 5 days (For import, export, diagnostic, animal movement and monitoring) ✓ 14 days (For research, surveillance)	Cattle According to kit manual
Any Commercial ELISA Kits	ELISA/ latex agglutination/ lateral flow etc	According to the kit manual	According to the kit manual	According to the kit manual	According to the kit manual	✓ 5 days (For import, export, diagnostic, animal movement and monitoring) ✓ 14 days (For research, surveillance)	According to kit manual



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VRI GUIDELINES FOR SAMPLE SUBMISSION

MAMMALIAN VIROLOGY

LABORATORY TESTS FOR EQUINE DISEASES

DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE FOR TEST	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Equine Influenza Virus Type A (EIV Type A)	Viral isolation	a) Nasopharyngeal swab b) Nasal washes c) Tracheal washes	5 swabs in 5 ml VTM PBS with glycerol.	2 – 8 °C	48 hrs	21 – 28 days
		Pooled organ (Liver, lung, spleen, kidney)	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	21 – 28 days
	RT-PCR	a) Nasopharyngeal swab b) Nasal washes c) Tracheal washes	5 swabs in 5 ml VTM PBS with glycerol.	2 – 8 °C	48 hrs	5 – 7 days
		Pooled organ (Liver, lung, spleen, kidney)	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	5 – 7 days



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DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE FOR TEST	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Equine Herpes Virus Type 1 & Type 4 (EHV-1 & EHV-4)	Viral isolation	Nasal / Nasopharyngeal swab	5 swabs in 5 ml VTM MEM@PBS.	2 – 8 °C	48 hrs	21 – 28 days
		Pooled organ (Liver, spleen, lung, thymus, adrenal gland and placental tissues)	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	21 – 28 days
		Blood in EDTA tube	4 – 5 ml	2 – 8 °C	48 hrs	21 – 28 days
	RT-PCR	Nasal / Nasopharyngeal swab	5 swabs in 5 ml VTM MEM@PBS.	2 – 8 °C	48 hrs	5 – 7 days
		Pooled organ (Liver, spleen, lung, thymus, adrenal gland and placental tissues))	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	5 – 7 days
		Blood in EDTA tube	4 – 5 ml	2 – 8 °C	48 hrs	5 – 7 days
	SNT	Serum	2 ml	2 – 8 °C -20 °C	48 hrs >24 hrs	7 – 10 days



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DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE FOR TEST	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
		Blood in plain tube	4 – 5 ml	2 – 8 °C	48 hrs	7 – 10 days
African Horse Sickness (AHS)	RT-PCR	Pooled organ (spleen, lung and lymph node)	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	5 – 7 days
		Blood in EDTA tube	4 – 5 ml	2 – 8 °C	48 hrs	5 – 7 days
	Real-Time RT-PCR (qRT-PCR)	Pooled organ (spleen, lung and lymph node)	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	3 – 5 days
		Blood in EDTA tube	4 – 5 ml	2 – 8 °C	48 hrs	3 – 5 days
Western Equine Encephalitis (WEE)	SNT	Serum	2 ml	2 – 8 °C -20 °C	48 hrs >24 hrs	7 – 10 days
		Blood in plain tube	4 – 5 ml	2 – 8 °C	48 hrs	7 – 10 days
	RT-PCR	Blood in EDTA tube	4 – 5 ml	2 – 8 °C	48 hrs	3 – 5 days



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DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE FOR TEST	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
		Brain & Cerebrospinal Fluid (CSF)	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	5 – 7 days
Equine Infectious Anemia (EIA)	AGID	Serum	2 ml	2 – 8 °C -20 °C	48 hrs >24 hrs	2 – 3 days
		Blood in plain tube	4 – 5 ml	2 – 8 °C	48 hrs	2 – 3 days
Hendra virus	qRT-PCR	Pooled organ (brain, lung, kidney and spleen)	200 gm	2 – 8 °C -20 °C	48 hrs	5 – 7 days
		Blood in EDTA tube	4 – 5 ml	2 – 8 °C	48 hrs	5 – 7 days



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VRI GUIDELINES FOR SAMPLE SUBMISSION

a) LABORATORY TESTS FOR BOVINE DISEASES

DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE FOR TEST	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Infectious Bovine Rhinotracheitis Virus (IBR)	Viral isolation	a) Pooled organs (tonsil, lung, bronchial lymph nodes)	200 gm	2 – 8 °C	48 hrs	21 – 28 days
		b) Semen	2 – 5 ml	-20 °C	>24 hrs	
		Nasal swab/ genital swab	5 swabs in 5 ml VTM MEM@PBS.	2 – 8 °C	48 hrs	21 – 28 days
		Blood in EDTA tube	4 – 5 ml	2 – 8 °C	48 hrs	21 – 28 days
	PCR	a) Pooled organs((tonsil, lung, bronchial lymph nodes)	200 gm	2 – 8 °C	48 hrs	5 – 7 days
		b) Semen	2 – 5 ml	-20 °C	>24 hrs	
		Nasal swab/ genital swab	5 swabs in 5 ml VTM MEM@PBS.	2 – 8 °C	48 hrs	5 – 7 days
		Blood in EDTA tube	4 – 5 ml	2 – 8 °C	48 hrs	5 – 7 days
	SNT	Serum	2 ml	2 – 8 °C -20 °C	48 hrs >24 hrs	7 – 10 days
		Blood in plain tube	4 – 5 ml	2 – 8 °C	48 hrs	7 – 10 days



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DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE FOR TEST	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Bovine Viral Diarrhea (BVD)	Viral isolation	a) Semen b) Fetus c) Pooled organs	a) 2 – 5 ml b&c) 200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	21 – 28 days
		Blood in EDTA tube	4 – 5 ml	2 – 8 °C	48 hrs	21 – 28 days
	RT-PCR	a) Semen b) Fetus c) Pooled organs	a) 2 – 5 ml b&c) 200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	5 – 7 days
		SNT	Serum	2 ml	2 – 8 °C -20 °C	48 hrs >24 hrs
	Blood in plain tube		4 – 5 ml	2 – 8 °C	48 hrs	7 – 10 days
Malignant Catarrhal Fever (MCF)	PCR	Brain & other organs	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	5 – 7 days
		Blood in EDTA tube	4 – 5 ml	2 – 8 °C	48 hrs	21 – 28 days
		Nasal secretions	2 ml	2 – 8 °C	48 hrs	5 – 7 days
	Viral isolation	Scab	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	21 – 28 days



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DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE FOR TEST	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Lumpy Skin Diseases (LSD)		Nasal swab/ saliva swab	5 swabs in 5 ml VTM PBS with glycerol.	2 – 8 °C	48 hrs	21 – 28 days
		Pooled organs (Spleen, lung and lymph node etc.)	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	21 – 28 days
		Blood in EDTA tube	4 – 5 ml	2 – 8 °C	48 hrs	21 – 28 days
	PCR	Scab	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	5 – 7 days
		Nasal swab/ saliva swab	5 swabs in 5 ml VTM PBS with glycerol.	2 – 8 °C	48 hrs	5 – 7 days
		Pooled organs (Spleen, lung and lymph node etc.)	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	5 – 7 days
		Blood in EDTA tube	4 – 5 ml	2 – 8 °C	48 hrs	5 – 7 days
	Real-Time PCR (qPCR)	Scab	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	3 – 5 days
		Nasal swab/ saliva swab	5 swabs in 5 ml VTM PBS with glycerol.	2 – 8 °C	48 hrs	3 – 5 days



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DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE FOR TEST	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
		Pooled organs (Spleen, lung and lymph node etc.)	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	3 – 5 days
Capripoxvirus	qPCR Capripoxvirus	Scab	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	3 – 5 days
		Nasal swab/ saliva swab	5 swabs in 5 ml VTM PBS with glycerol.	2 – 8 °C	48 hrs	3 – 5 days
		Pooled organs (Spleen, lung and lymph node etc.)	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	3 – 5 days



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VRI GUIDELINES FOR SAMPLE SUBMISSION

LABORATORY TESTS FOR SWINE DISEASES

DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE FOR TEST	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Aujeszky's Disease Virus (PRV)	Viral isolation	a) Brain b) Tonsil c) Pooled organ (Liver, lung, spleen, kidney)	200 gm	2 – 8 °C	48 hrs	21 – 28 days
				-20 °C	>24 hrs	
	PCR	a) Brain b) Tonsil c) Pooled organ (Liver, lung, spleen, kidney)	200 gm	2 – 8 °C	48 hrs	5 – 7 days
				-20 °C	>24 hrs	
SNT	Serum	2 ml	2 – 8 °C	48 hrs	7 – 10 days	
	Blood in plain tube	4 – 5 ml	2 – 8 °C	48 hrs	7 – 10 days	
Classical Swine Fever Virus (CSF)	Viral isolation	Tonsil and lymph nodes	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	21 – 28 days
	RT-PCR	a) Tonsil, b) Pooled organ (Spleen, kidney, ileum or lymph nodes)	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	5 – 7 days
	Real-Time RT-PCR (qRT-PCR)	a) Tonsil, b) Pooled organ (Spleen, kidney, ileum or lymph nodes)	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	3 – 5 days



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DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE FOR TEST	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Porcine Reproductive and Respiratory Syndrome (PRRS)	Viral isolation	Lung and lymph nodes	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	21 – 28 days
		Pooled organ (Liver, lung, spleen, kidney)	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	5 – 7 days
	Blood in EDTA tube					
	Real-Time RT-PCR (qRT-PCR)	Pooled organ (Liver, lung, spleen, kidney)	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	3 – 5 days
	Swine Influenza Virus A (SIV A)	Viral isolation	Pooled organ (Lung, spleen, kidney)	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs
Nasal swab			5 swabs in 5 ml VTM MEM/PBS.	2 – 8 °C	48 hrs	21 – 28 days
RT-PCR		Pooled organ (Lung, spleen, kidney)	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	5 – 7 days
Real-Time RT-PCR (qRT-PCR)		Pooled organ (Lung, spleen, kidney)	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	3 – 5 days



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DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE FOR TEST	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Postweaning Multisystemic Wasting Syndrome (PCV II)	PCR	Pooled organ (Liver, lung, spleen, kidney)	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	5 – 7 days
African Swine Fever (ASF)	PCR	a) Bone marrow b) Pooled organ (Spleen, lymph nodes, lung, tonsil and kidney)	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	5 – 7 days
		Blood in EDTA tube	4 – 5 ml	2 – 8 °C	48 hrs	5 – 7 days
	Real-Time PCR (qPCR)	a) Bone marrow b) Pooled organ (Spleen, lymph nodes, lung, tonsil and kidney)	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	3 – 5 days
		Blood in EDTA tube	4 – 5 ml	2 – 8 °C	48 hrs	3 – 5 days
Nipah Virus	Nested RT-PCR	Pooled organ (brain, lung, kidney and spleen)	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	5 – 7 days
		Blood in EDTA tube	4 – 5 ml	2 – 8 °C	48 hrs	5 – 7 days



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LABORATORY TESTS FOR OVINE/ CAPRINE DISEASES

DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE FOR TEST	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Caprine Arthritis Encephalitis (CAE)	AGID	Serum	2 ml	2 – 8 °C -20 °C	48 hrs >24 hrs	2 – 3 days
		Blood in plain tube	4 – 5 ml	2 – 8 °C	48 hrs	2 – 3 days
Bluetongue Virus (BTV)	Viral isolation	Pooled organ (Liver, lung, spleen, kidney)	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	5 – 7 days
	RT-PCR	Pooled organ (Liver, lung, spleen, kidney)	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	5 – 7 days
		Blood in EDTA	4 – 5 ml	2 – 8 °C	48 hrs	5 – 7 days
	AGID	Serum	2 ml	2 – 8 °C -20 °C	48 hrs >24 hrs	2 – 3 days
		Blood in plain tube	4 – 5 ml	2 – 8 °C	48 hrs	2 – 3 days



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DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE FOR TEST	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Peste Des Petits Ruminants (PPR)	RT-PCR	Pooled organ (Liver, lung, spleen, kidney)	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	5 – 7 days
		Blood in EDTA	4 – 5 ml	2 – 8 °C	48 hrs	5 – 7 days
		Swabs / secretions (conjunctival discharges, nasal secretions swabs, buccal and rectal mucosae swabs)	5 swabs in 5 ml VTM MEM/PBS.	2 – 8 °C	48 hrs	5 – 7 days
Rift Valley Fever	RT-PCR	Pooled organ (Liver, lung, spleen, kidney)	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	5 – 7 days
		Blood in EDTA	4 – 5 ml	2 – 8 °C	48 hrs	5 – 7 days



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LABORATORY TESTS FOR CANINE DISEASES

DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE FOR TEST	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Canine Parvovirus (CPV)	PCR	Pooled organ (Gastrointestinal tissue, lymph node, heart, brain, liver, lung, kidney)	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	5 – 7 days
		Rectal swab	5 swabs in 5 ml VTM MEM/PBS.	2 – 8 °C	48 hrs	5 – 7 days
		Feces	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	5 – 7 days
		Blood in EDTA	4 – 5 ml	2 – 8 °C	48 hrs	5 – 7 days
Canine Parainfluenza (CPIV)	RT-PCR	Pooled organ (Liver, lung, spleen, kidney)	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	5 – 7 days
		Nasal swab, nasopharyngeal swab	5 swabs in 5 ml VTM MEM/PBS.	2 – 8 °C	48 hrs	5 – 7 days
		Blood in EDTA	4 – 5 ml	2 – 8 °C	48 hrs	5 – 7 days
Canine Adenovirus Type 2 (CAV-2)	PCR	Pooled organ (Liver, lung, spleen, kidney)	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	5 – 7 days
		a) Nasal swab b) Nasopharyngeal swab	5 swabs in 5 ml VTM MEM/PBS.	2 – 8 °C	48 hrs	5 – 7 days
		Blood in EDTA	4 – 5 ml	2 – 8 °C	48 hrs	5 – 7 days



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LABORATORY TESTS FOR FELINE DISEASES

DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE FOR TEST	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Feline Coronavirus (FeCoV)	Viral isolation	Pooled organ (Liver, lung, spleen, kidney)	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	21 – 28 days
	Nested RT-PCR	Pooled organ (Liver, lung, spleen, kidney)	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	5 – 7 days
Feline Parvovirus/ Panleukopenia (FPV/ FPLV)	PCR	Pooled organ (gastrointestinal tissue, lymph node, heart, brain, liver, lung, kidney)	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	5 – 7 days
		Rectal swab	5 swabs in 5 ml VTM MEM/PBS.	2 – 8 °C	48 hrs	5 – 7 days
		Feces	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	5 – 7 days
		Blood in EDTA	4 – 5 ml	2 – 8 °C	48 hrs	5 – 7 days
Feline Calicivirus (FCV)	Isolation	Pooled organ (gastrointestinal tissue, lymph nodes, heart, brain, liver, lung, kidney)	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	5 – 7 days
	RT-PCR	Pooled organ (gastrointestinal tissue, lymph nodes, heart, brain, liver, lung, kidney)	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	5 – 7 days



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VRI GUIDELINES FOR SAMPLE SUBMISSION

LABORATORY TESTS FOR DISEASES OF MULTIPLE SPECIES

DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE FOR TEST	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
SARS-CoV-2 (COVID-19)	Real-Time RT-PCR (qRT-PCR)	Nasal swab	5 swabs in 5 ml VTM MEM/PBS.	2 – 8 °C	48 hrs	5 – 7 days
		Frozen meat product (monitoring/surveillance from food source)	200 gm	2 – 8 °C	48 hrs	5 – 7 days
Japanese Encephalitis (JEV)	Viral isolation	Brain, Cerebrospinal fluid (CSF)	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	21 – 28 days
	RT-PCR	Brain, Cerebrospinal fluid (CSF)	200 gm	2 – 8 °C	48 hrs	5 – 7 days
		Blood in EDTA	4 – 5 ml	2 – 8 °C	48 hrs	5 – 7 days
Rabies	Nested RT-PCR	a) Brain b) Salivary gland	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	5 – 7 days
		Cerebrospinal fluid (CSF)	2 ml	2 – 8 °C	48 hrs	3 – 5 days
	Real-Time RT-PCR (qRT-PCR)	a) Brain b) Salivary gland	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	5 – 7 days
		Cerebrospinal fluid (CSF)	2 ml	2 – 8 °C	48 hrs	3 – 5 days
Contagious Ecthyma (CE)	PCR	Scab	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	5 – 7 days



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DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE FOR TEST	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Canine Distemper Virus (CDV)	Viral isolation	Nasal swab, conjunctival swab	Swabs in 5 ml VTM MEM/PBS	2 – 8 °C	48 hrs	3 – 5 days
	RT-PCR	Nasal swab, conjunctival swab	Swabs in 5 ml VTM MEM/PBS	2 – 8 °C	48 hrs	3 – 5 days
		Blood in EDTA tube	4 – 5 ml	2 – 8 °C	48 hrs	5 – 7 days
		Feces	200 g	2 – 8 °C	48 hrs	5 – 7 days
West Nile Virus (WNV)	Real-Time RT-PCR (qRT-PCR)	Nasal swab	Swabs in 5 ml VTM MEM/PBS	2 – 8 °C	48 hrs	3 – 5 days
Monkeypox virus (MPXV)	Real Time RT-PCR (qRT-PCR)	Blood in EDTA	4 – 5 ml	2 – 8 °C	48 hrs	5 – 7 days
		Pooled organ (gastrointestinal tissue, lymph node, heart, brain, liver, lung, kidney)	200 gm	2 – 8 °C -20 °C	48 hrs >24 hrs	5 – 7 days



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VRI GUIDELINES FOR SAMPLE SUBMISSION

LABORATORY TESTS FOR MULTITEST DISEASES BY REALTIME RT-PCR/ PCR (qRT-PCR/ PCR)/ CONVENTIONAL RT-PCR/ PCR

DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE FOR TEST	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Multi Diseases (Equine/ Bovine/ Swine)	Real-Time RT- PCR/ PCR (qRT- PCR/PCR)/ conventional RT-PCR/ PCR alone/ combination of test method	Refer as above	Refer as above	Refer as above	Refer as above	(2 diseases) 5 – 8 days (3 diseases) 5 – 9 days (>4 diseases) 5 – 10 days

NOTES:

Types of viral transport media (VTM) that are available in the VRI laboratory:

- VTM MEM
- VTM PBS
- VTM PBS with glycerol

If no VTM please use TPB (Tryptose Phosphate Broth) or distilled water. For Virus isolation (VI) please use Rayon, Dacron or cotton swabs only



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VRI GUIDELINES FOR SAMPLE SUBMISSION

AVIAN VIROLOGY

Species: CHICKEN/BIRD

DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM SAMPLE REQUIRED	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Egg Drop Syndrome (EDS)	PCR	Pooled organ	>100 gm	2 – 8 °C – 20 °C	48 hrs >24 hrs	3 days
	HI	Serum	>100 µl	2 – 8 °C – 20 °C	48 hrs >24 hrs	3 days
Fowl Adenovirus (FADV)	Egg inoculation (i/y)	a) Pooled organ b) Intestine c) Gizzard d) Liver	>100 gm	2 – 8 °C – 20 °C	48 hrs >24 hrs	21 days
	PCR	a) Pooled organ b) Intestine c) Gizzard d) Liver	>100 gm	2 – 8 °C – 20 °C	48 hrs >24 hrs	3 days
	AGID	Serum	>100 µl	2 – 8 °C – 20 °C	48 hrs >24 hrs	5 days



VRI GUIDELINES FOR SAMPLE SUBMISSION

DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM SAMPLE REQUIRED	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Avian Encephalomyelitis (AE)	Egg inoculation (i/y)	Brain	>100 gm	2 – 8 °C – 20 °C	48 hrs >24 hrs	21 days
	PCR	Brain	>100 gm	2 – 8 °C – 20 °C	48 hrs >24 hrs	3 days
	AGID	Serum	>100 µl	2 – 8 °C – 20 °C	48 hrs >24 hrs	5 days
Avian Influenza (AI)	HI	Serum	>100 µl	2 – 8 °C – 20 °C	48 hrs >24 hrs	3 days
	Egg inoculation (i/a)	a) Pooled organs b) Tracheal and cloacal swab c) Allantoic fluid d) Environmental swab e) Bird nest f) Egg g) Faeces h) Meat product	✓ >100 gm ✓ 5 – 10 swabs in 5 – 10 ml VTM ✓ >1 ml ✓ 5 – 10 swabs in 5 – 10 ml VTM ✓ >100 gm ✓ Min 1 whole egg ✓ >100 gm ✓ >100 gm	2 – 8 °C – 20 °C	48 hrs >24 hrs	21 days
	RT-PCR			2 – 8 °C – 20 °C	48 hrs >24 hrs	3 days
	Real time RT-PCR			2 – 8 °C – 20 °C	48 hrs >24 hrs	1 days



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DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM SAMPLE REQUIRED	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Chicken Anaemia Virus (CAV)	PCR	Bone marrow	>100 gm	2 – 8 °C – 20 °C	48 hrs >24 hrs	3 days
Fowl Pox (FP)	Egg inoculation (CAM)	Scabs	>100 gm	2 – 8 °C – 20 °C	48 hrs >24 hrs	21 days
	PCR	Scabs	>100 gm	2 – 8 °C – 20 °C	48 hrs >24 hrs	3 days
	AGID	Serum	>100 µl	2 – 8 °C – 20 °C	48 hrs >24 hrs	5 days
Infectious Bursa Disease (IBD)	Egg inoculation (CAM)	a) Bursa b) Pooled organs	>100 gm	2 – 8 °C – 20 °C	48 hrs >24 hrs	21 days
	AGID	Serum	>100 µl	2 – 8 °C – 20 °C	48 hrs >24 hrs	5 days
	RT-PCR	a) Bursa b) Pooled organs	>100 gm	2 – 8 °C – 20 °C	48 hrs >24 hrs	3 days



VRI GUIDELINES FOR SAMPLE SUBMISSION

DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM SAMPLE REQUIRED	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Infectious Bronchitis (IB)	AGID	Serum	>100 µl	2 – 8 °C – 20 °C	48 hrs >24 hrs	5 days
	Egg inoculation (i/a)	a) Trachea b) Lung c) Kidney d) Oviduct e) Pooled organ f) Tracheal swab g) Allantoic fluid	✓ >100 gm ✓ >100 gm ✓ 5 – 10 swabs in 5 – 10 ml VTM ✓ >1 ml	2 – 8 °C – 20 °C	48 hrs >24 hrs	21 days
	RT-PCR	a) Trachea, lung, kidney, oviduct b) Pooled organ c) Tracheal swab d) Allantoic fluid	✓ >100 gm ✓ >100 gm ✓ 5 – 10 swabs in 5 – 10 ml VTM ✓ >1 ml	2 – 8 °C – 20 °C	48 hrs >24 hrs	3 days
Infectious Laryngotracheitis (ILT)	AGID	Serum	>100 µl	2 – 8 °C – 20 °C	48 hrs >24 hrs	5 days
	Egg inoculation (CAM)	a) Trachea b) Lung c) Tracheal swab d) Pooled organ	✓ >100 gm ✓ >100 gm ✓ 5 – 10 swabs in 5 – 10 ml VTM ✓ >100 gm	2 – 8 °C – 20 °C	48 hrs >24 hrs	21 days
	PCR	a) Trachea b) Lung c) Tracheal swab d) Pooled organ	✓ >100 gm ✓ >100 gm ✓ 5 – 10 swabs in 5 – 10 ml VTM ✓ >100 gm	2 – 8 °C – 20 °C	48 hrs >24 hrs	3 days



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DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM SAMPLE REQUIRED	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Marek's disease	PCR	a) Sciatic nerve b) Pooled organ c) Feather pulp	>100 gm	2 – 8 °C – 20 °C	48 hrs >24 hrs	3 days
Reo virus	AGID	Serum	>100 µl	2 – 8 °C – 20 °C	48 hrs >24 hrs	5 days
	Egg inoculation (i/y)	a) Tendon b) Pooled organ	>100 gm	2 – 8 °C – 20 °C	48 hrs >24 hrs	21 days
	RT-PCR	a) Tendon b) Pooled organ	>100 gm	2 – 8 °C – 20 °C	48 hrs >24 hrs	3 days
Swollen Head Syndrome (SHS)/ Turkey Rhinotracheitis	RT-PCR	a) Head b) Turbinate	>100 gm	2 – 8 °C – 20 °C	48 hrs >24 hrs	3 days
Chicken Astrovirus	PCR	a) Trachea swab b) Pooled organ	✓ 5 – 10 swabs in 5 – 10 ml VTM ✓ >100 gm	2 – 8 °C – 20 °C	48 hrs >24 hrs	3 days



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DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM SAMPLE REQUIRED	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Avian Leukosis Virus (ALV)	PCR	a) Liver b) Pooled Organ c) Allantoic Fluid	✓ >100 gm ✓ >100 gm ✓ >1 ml	2 – 8 °C – 20 °C	48 hrs >24 hrs	3 days
Newcastle Disease (ND)	HI	Serum	>100 µl	2 – 8 °C – 20 °C	48 hrs >24 hrs	3 days
	Egg inoculation (i/a)	a) Pooled organs b) Tracheal and cloacal swab c) Allantoic fluid d) Environmental swab e) Bird nest f) Egg g) Faeces h) Meat product	✓ >100 gm ✓ 5 – 10 swabs in 5 – 10 ml VTM ✓ >1 ml ✓ 5 – 10 swabs in 5 – 10 ml VTM ✓ >100 gm ✓ Min 1 whole egg ✓ >100 gm ✓ >100 gm	2 – 8 °C – 20 °C	48 hrs >24 hrs	21 days
	RT-PCR			2 – 8 °C – 20 °C	48 hrs >24 hrs	3 days
	Real time RT-PCR			2 – 8 °C – 20 °C	48 hrs >24 hrs	1 days
Orthobunya Virus	RT-PCR			a) Kidney b) Pooled organ	>100 gm	– 20 °C 2 – 8 °C



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VRI GUIDELINES FOR SAMPLE SUBMISSION

Species: DUCK

DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM SAMPLE REQUIRED	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Avian Influenza (AI)	HI	Serum	>100 µl	2 – 8 °C – 20 °C	48 hrs >24 hrs	3 days
	Egg inoculation (i/a)	a) Pooled organs b) Tracheal and cloacal swab c) Allantoic fluid d) Environmental swab e) Bird nest f) Egg g) Faeces h) Meat product	✓ >100 gm ✓ 5 – 10 swabs in 5 – 10 ml VTM ✓ >1 ml ✓ 5 – 10 swabs in 5 – 10 ml VTM ✓ >100 gm ✓ Min 1 whole egg ✓ >100 gm ✓ >100 gm	2 – 8 °C – 20 °C	48 hrs >24 hrs	21 days
	RT-PCR			2 – 8 °C – 20 °C	48 hrs >24 hrs	3 days
	Real time RT-PCR			2 – 8 °C – 20 °C	48 hrs >24 hrs	1 days



VRI GUIDELINES FOR SAMPLE SUBMISSION

DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM SAMPLE REQUIRED	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Newcastle Disease (ND)	HI	Serum	>100 µl	2 – 8 °C – 20 °C	48 hrs >24 hrs	3 days
	Egg inoculation (i/a)	a) Pooled organs b) Tracheal and cloacal swab c) Allantoic fluid d) Environmental swab e) Bird nest f) Egg g) Faeces h) Meat product	✓ >100 gm ✓ 5 – 10 swabs in 5 – 10 ml VTM ✓ >1 ml ✓ 5 – 10 swabs in 5 – 10 ml VTM ✓ >100 gm ✓ Min 1 whole egg ✓ >100 gm ✓ >100 gm	2 – 8 °C – 20 °C	48 hrs >24 hrs	21 days
	RT-PCR			2 – 8 °C – 20 °C	48 hrs >24 hrs	3 days
	Real time RT-PCR			2 – 8 °C – 20 °C	48 hrs >24 hrs	1 days
Duck Virus Enteritis (DVE)	IFAT			Serum	>100 µl	2 – 8 °C – 20 °C
	PCR	a) Intestines b) Pooled organ	✓ 3 cm ✓ >100 gm	2 – 8 °C – 20 °C	48 hrs >24 hrs	3 days



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VRI GUIDELINES FOR SAMPLE SUBMISSION

DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM SAMPLE REQUIRED	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Duck Virus Hepatitis (DVH)	Egg inoculation (i/a)	a) Liver b) Pooled organ	>100 gm	2 – 8 °C – 20 °C	48 hrs >24 hrs	21 days
	IFAT	Serum	>100 µl	2 – 8 °C – 20 °C	48 hrs >24 hrs	3 days
	PCR	a) Liver b) Pooled organ	>100 gm	2 – 8 °C – 20 °C	48 hrs >24 hrs	3 days
Derzy's or Duck Parvovirus (DP)	PCR	a) Liver b) Intestine c) Pooled organ	>100 gm	2 – 8 °C – 20 °C	48 hrs >24 hrs	3 days
Egg Drop Syndrome (EDS)	PCR	Pooled organ	>100 gm	2 – 8 °C – 20 °C	48 hrs >24 hrs	3 days
	HI	Serum	>100 µl	2 – 8 °C – 20 °C	48 hrs >24 hrs	3 days
Duck Flavivirus (DFV)	PCR	a) Pooled organ b) Brain c) Ovary	100gm	2 – 8 °C – 20 °C	48 hrs >24 hrs	3 days

Note:

i/a: intra allantoic

i/y: intra yolk

CAM: chorioallantoic membrane

VTM: viral transport media



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VRI GUIDELINES FOR SAMPLE SUBMISSION

ZOONOTIC

LABORATORY TESTS FOR DISEASES OF MULTIPLE SPECIES

DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	MINIMUM REQUIREMENT OF SAMPLE FOR TEST	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Rabies	Rabies Tissue Culture Infection Test (RTCIT)	a) Brain, b) Saliva c) Salivary gland	✓ Part of brain min 100 gm in VTM ✓ Saliva swabs in VTM	2 – 8 °C to -70 °C	48 hrs longer	21 – 28 days
	Fluorescent Antibody Neutralization Test (FAVN)	Serum	2 ml	2 – 8 °C to -20 °C	48 hrs longer	3 – 4 weeks
		Blood in plain tube	>5 ml	2 – 8 °C to -20 °C	48 hrs longer	3 – 4 weeks
Nipah	Serum Neutralization Test (SNT)	Serum	2 ml	2 – 8 °C to -20 °C	48 hrs longer	10 – 15 days
		Blood in plain tube	>5 ml			

Note:

VTM: viral transport media



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VRI GUIDELINES FOR SAMPLE SUBMISSION

PARASITOLOGY

DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
<ul style="list-style-type: none"> Roundworm Tapeworm 	McMaster technique	Faeces: >3 gm	4 – 8°C	2 days	5 days
	Floatation				
	Worm identification	Fresh worm specimen Gastrointestinal <ul style="list-style-type: none"> Intestine: >5 cm Non-ruminant: stomach Ruminant: rumen, reticulum, abomasum 	4 – 8°C (Preferable in Normal Saline)	24 hour	2 – 4 weeks
<ul style="list-style-type: none"> Fluke 	Sedimentation	Faeces: 5 gm	4 – 8°C	2 days	5 days
	Worm identification	Organ: >10 cm ³	4 – 8°C	24 hours	5 days
<ul style="list-style-type: none"> Microfilaria 	Buffy coat	Blood in EDTA/ Heparin: >1 ml	4 – 8°C	24 hours	5 days
	Thin blood smear				
<ul style="list-style-type: none"> Blood Protozoa 	Buffy coat	Blood in EDTA/ Heparin: >1 ml	4 – 8°C	24 hours	5 days
	Thin blood smear	Blood in EDTA/ Heparin: >1 ml	4 – 8°C	24 hours	5 days
		Fixed/non-fixed thin blood smear	Room temperature	< 3 days	
Impression/ squash smear	Organ: >2 cm ³	4 – 8°C	24 hours	5 days	
<ul style="list-style-type: none"> Coccidiosis 	McMaster technique	Faeces: >3 gm	4 – 8°C	2 days	5 days
	Floatation				
	Intestinal scrapping	Intestine: >5 cm	4 – 8°C	24 hours	5 days



VRI GUIDELINES FOR SAMPLE SUBMISSION

DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
<ul style="list-style-type: none"> • Ectoparasites: <ul style="list-style-type: none"> ▪ Ticks ▪ Mites ▪ Lice ▪ Fleas 	Ectoparasite identification	Fresh ectoparasites specimen	In plastic container at room temperature	< 3 days	2 – 4 weeks
<ul style="list-style-type: none"> • Insects/ Vectors 	Morphological identification	Fresh insects/vectors specimen	In plastic container at room temperature	< 3 days	2 – 4 weeks

HAEMATOLOGY

DISEASE/ PATHOGEN	DIAGNOSTIC METHOD/ TEST	TYPE OF SAMPLE REQUIRED	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
<ul style="list-style-type: none"> • Anemia; <ul style="list-style-type: none"> ▪ Parasitaemia ▪ Helminthiasis ▪ Ectoparasite infestation 	Packed cell volume (PCV)	Blood in EDTA/ Heparin: > 1ml	4 – 8°C	24 hours	2 days
<ul style="list-style-type: none"> • Infection of pathogenic agents; <ul style="list-style-type: none"> ▪ Virus ▪ Bacteria ▪ Parasite ▪ Toxin 	Complete blood count (CBC)	Blood in Heparin/EDTA: > 5 ml	4 – 8°C	24 hours	3 days

** TAT may vary if number of samples received is more than 20 for a particular test



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VRI GUIDELINES FOR SAMPLE SUBMISSION

BIOCHEMISTRY

CLINICAL CHEMISTRY ANALYSIS

Species : **ALL TYPES OF ANIMAL**

PARAMETER	TYPE OF SAMPLE REQUIRED / MINIMUM REQUIREMENT OF SAMPLE	PACKAGING	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Alanine aminotransferase (ALT/ GPT)	a) Whole blood in blood plain tube/ heparin tube: 5 ml b) Serum: 1.5 ml	<ul style="list-style-type: none"> ✓ Whole blood in blood plain tube/ heparin tube ✓ Serum in microtube 	<ul style="list-style-type: none"> ✓ Whole blood 4 - 8°C ✓ Serum 0 - 8°C 	< 3 days	6 days
Albumin (ALB)#				< 6 days	
Alkaline phosphatase (ALKP)				< 7 days	
Ammonia (NH ₃)*				< 2 hours	
Amylase (AMYL)#				-	
Aspartate aminotransferase (AST/ GOT)*				< 3 hours	
Calcium (Ca ²⁺)				< 10 hours	
Cholesterol (CHOL)				< 6 hours	
Creatine Kinase (CK)				< 7 days	
Creatinine (CREA)#				-	
Gamma-glutamyltransferase (GGT)	< 7 days				



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PARAMETER	TYPE OF SAMPLE REQUIRED / MINIMUM REQUIREMENT OF SAMPLE	PACKAGING	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
Glucose (GLU)*	a) Whole blood in blood plain tube/ heparin tube: 5 ml b) Serum: 1.5 ml	✓ Whole blood in blood plain tube/ heparin tube ✓ Serum in microtube	Whole blood 4-8°C Serum 0-8°C	< 4 hours	6 days
Inorganic Phosphate (PHOS)*				< 7 days	
Lactate dehydrogenase (LDH)*				< 3 days	
Total Bilirubin (TBIL)*				only fresh serum	
Total protein (TP)				< 6 days	
Triglycerides (TRIG)#				-	
Urea/ BUN				< 3 days	

***REFER TO TABLE A**

#NO INFORMATION



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VRI GUIDELINES FOR SAMPLE SUBMISSION

TABLE A: Sample Handling Before Centrifugation for Use with VETTEST 8008

PARAMETER	REQUIRED IF CENTRIFUGATION IMMEDIATELY	DESCRIPTION
ALB	ALLOWED	None
ALKP	ALLOWED	None
ALT/ GPT	ALLOWED	None
AMYL	ALLOWED	None
AST/ GOT	YES	Slight haemolysis can cause marked increases in plasma AST activity
Ca ²⁺	ALLOWED	Avoid exposure of sample to the air.
CHOL	ALLOWED	None
CK	ALLOWED	Blood samples must be centrifuged immediately after collection. Slight haemolysis can cause marked increases in plasma CK activity
CREA	ALLOWED	None
GGT	ALLOWED	None
GLU	YES	In heparin tube glycolysis occurs in the presence of red cells; the glucose concentration can diminish at the rate of up to 10% in hour at 20°C
LDH	YES	Slight haemolysis can cause marked increases in plasma LDH activity.
LIPA	ALLOWED	None
NH ₃	YES	Avoid exposure of the sample to the air. All sample containers should be capped unless sample is being withdrawn, to ensure that loss of ammonia or contamination does not occur.
PHOS	YES	Phosphates are released quickly from the red cells. Haemolysed samples can give erroneous high phosphate concentrations.
TBIL	YES	If immediate analysis is impossible, the plasma must be removed and stored in the dark between 4°C and 8°C as bilirubin degrades rapidly in light.
TP	YES	Haemolysed samples can result in raised plasma protein concentrations.
TRIG	ALLOWED	None
Urea/ BUN	ALLOWED	None

REFERENCES

VETTEST 8008: Blood Chemistry Analyzer Manual. 1992. Idexx Laboratories, Inc



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VRI GUIDELINES FOR SAMPLE SUBMISSION

ANIMAL FEED ANALYSIS

Species : ALL TYPES OF ANIMAL

PARAMETER	TYPE OF SAMPLE REQUIRED / MINIMUM REQUIREMENT OF SAMPLE	PACKAGING	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
a) Dry matter/ moisture (%)					
b) Crude protein (%)	a) Fresh leaves (1 kg)				
c) Crude fat/ Ether extract (%)	b) Roughages (1 kg)				
d) Crude fiber (%)	c) Legumes (1 kg)				
e) Total ash (%)	d) Pellet (500 g)				
f) Phosphorus (%)	e) Palm Kernel Cake (500 g)				
g) Calcium (%)	f) Plant byproduct (500 g)				
h) Broken Corn and foreign materials (BCFM)	g) Fruit peel (500 g)	Plastic bag (packaging with proper condition).	Room Temperature	No time limit	14 days
i) Damage Kernels Total	h) Palm Oil Mill Effluent (500 g)				
	i) Concentrated feed/ Formulated feed (500 g)				
	k) Pet food (3 cans)				
	l) Grain corn (>2.0kg)				



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WATER QUALITY ANALYSIS

Species : ALL TYPES OF ANIMAL

PARAMETER	TYPE OF SAMPLE REQUIRED /MINIMUM REQUIREMENT OF SAMPLE	PACKAGING	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
a) Ammonia (ppm) b) Chloride (ppm) c) Chlorine (ppm) d) Copper (ppm) e) Iron (ppm) f) Nitrate (ppm) g) Sulfate (ppm) h) Zinc (ppm) i) pH	a) Animal drinking water (>200 ml) b) Waste water (>200 mL) c) Treated water (>200 mL)	✓ Plastic bottle free from specific parameter tested ✓ Clean glass bottle	4 - 8°C	Less than 2 days	4 days



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VRI GUIDELINES FOR SAMPLE SUBMISSION

MILK QUALITY ANALYSIS

Species : CATTLE, GOAT, BUFFALO

PARAMETER	TYPE OF SAMPLE REQUIRED / MINIMUM REQUIREMENT OF SAMPLE	PACKAGING	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
a) Total Solid (%) b) pH* c) <i>Fat (%)</i> * d) <i>Solid non-fat(%)</i> * e) <i>Lactose(%)</i> * f) <i>Protein(%)</i> * g) <i>Freezing point(°C)</i> * h) <i>Adulterant (Urea, Sucrose, Potassium Nitrate, Sodium Bicarbonate, Formaldehyde)(%)</i> *	Fresh milk (100 mL)	a) <i>Nasco WHIRL-PAK®</i> b) Plastic bottle	4 – 8°C	Less than 48 hours	4 days

* Result release by requested to VRI director.



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VRI GUIDELINES FOR SAMPLE SUBMISSION

TOXICOLOGY

Species : ALL TYPES OF ANIMAL

PARAMETER	TYPE OF SAMPLE REQUIRED / MINIMUM REQUIREMENT OF SAMPLE	PACKAGING	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
a) Aflatoxin	a) Feed contaminated with fungus (<500 g) b) Internal organ (>100 g) c) Muscle (>100 g)	✓ Plastic bag (packaging with proper condition). ✓ Avoid exposed to direct sunlight.	✓ Room temperature (feed sample) ✓ 4 – 8°C (sampel organ)	✓ No time limit for feed sample ✓ Less than 24 hours for internal organ	6 days

URINE ANALYSIS

Species : ALL TYPES OF ANIMAL

PARAMETER	TYPE OF SAMPLE REQUIRED / MINIMUM REQUIREMENT OF SAMPLE	PACKAGING	OPTIMUM CONDITION FOR SAMPLE TRANSPORTATION	PERIOD OF SAMPLE VALIDITY	TURN AROUND TIME (TAT) (Working Days)
a) Urobilinogen b) Bilirubin c) Ketone d) Blood e) Protein f) Nitrite g) Leukocytes h) Glucose i) Specific Gravity j) pH	a) Fresh urine/ Sample volume more than 15 ml b) Don't centrifuge sample.	✓ Urine sample can be store into a plastic or glass bottle ✓ The bottle must be clean and free from specific parameter tested	4 - 8°C	c) 2 hours is the optimal storage period d) 24 hours for maximum storage period	4 days



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VRI GUIDELINES FOR SAMPLE SUBMISSION

GENERAL CRITERIA FOR ACCEPTANCE OR REJECTION OF SPECIMEN

NO	TYPE OF SPECIMEN	CRITERIA FOR ACCEPTANCE		CRITERIA FOR REJECTION
1.	Serum	As described in Minimum Requirement for Samples	As described in Optimum condition for Transportation	✓ Haemolysed, solidified, cloudy, inadequate volume, lipemic, semi-solid serum, icteric
2.	Whole blood			✓ Haemolysed, inadequate volume
3.	Pooled organ, other organ, carcass			✓ Autolysed
4.	Faeces			✓ Frozen
5.	Feed			✓ Spoilt feed
6.	Urine			✓ Not fresh (more than 24 hours)
7.	Skin scrapping			✓ Bad packaging
8.	Milk			✓ Contaminated, bad packaging, not fresh
9.	Meat			✓ Autolysed, contaminated
10.	Water			✓ Bad packaging
11.	Swab			✓ Wrong transport media, wrong ratio between transport media and swab
12.	Histology samples			✓ Wrong ratio between formalin and sample, bad packaging, frozen, autolysed
13.	Egg			✓ Rotten egg
14.	Bird Nest			✓ Bad packaging

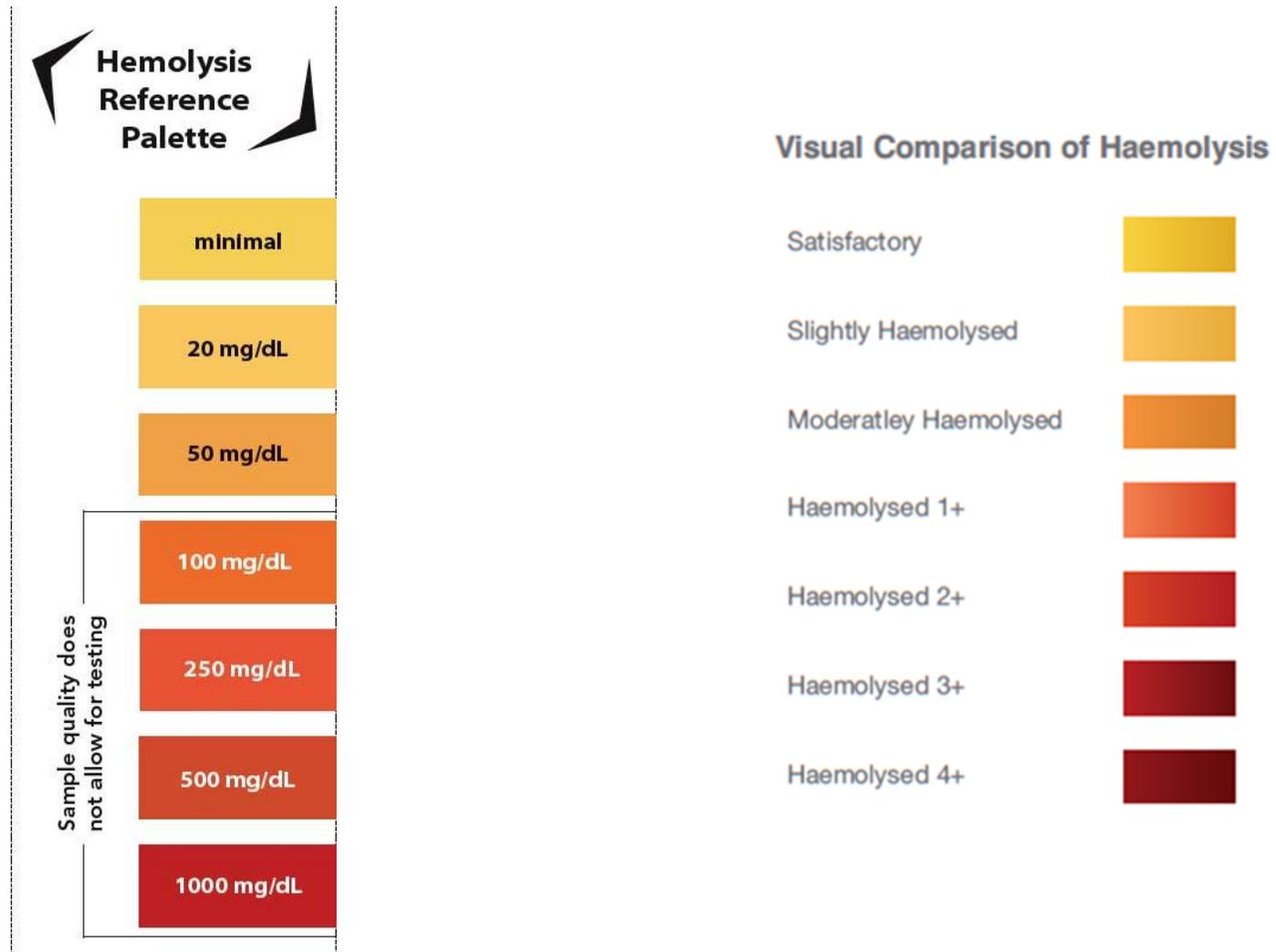


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VRI GUIDELINES FOR SAMPLE SUBMISSION

HAEMOLYSIS CHART (FOR SERUM SAMPLE)





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VRI GUIDELINES FOR SAMPLE SUBMISSION

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