

## Supplements

## Lagomorpha-dissection protocol

Dissection team: .....

Diss.-Nr.: ..... Spec.: ..... Total length: ..... cm  
Date of finding: ..... Dissection date: ..... Weight: ..... g  
Location of finding: ..... Sex: ☐ male ☐ female  
Finder: .....

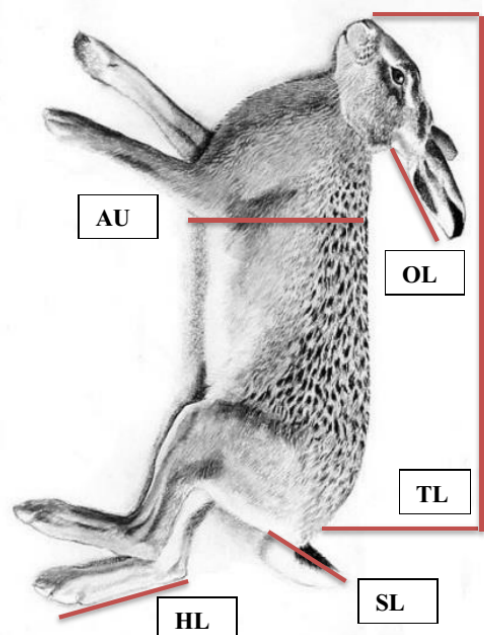
**Origin:** ☐ Hunted **Age:** ☐ positive (juvenil) **Decomp. Grade** ☐ (1-5) ☐ Photo  
(Sign of Stroh)  
☐ Deceased ☐ negative (adult) ☐ unfrozen  
☐ Road kill ☐ uncertain ☐ frozen

**Anamnesis:**

Sampling day:

☐ Serum [      ml] Plasma [     ml]☐ Eyes (ri le )☐ Urine sample☐ Additional

<b>Measurements [cm]</b>			
Axillary girth [AU]:			
Total length (TL): Dorsal recumbency, neck stretched, nose tip till anus			
Ear length (OL)			
Hindfoot length (HL) plantar, without claws			
Tail length (SL) Tail tip until anus			
<b>Organ weights [g]</b>			
Liver:			
Spleen:			
Heart (frinse first):			
Brain:			
Retro. Fat:			
Kidney:	le:	ri:	
Adrenal gland:	le:	ri:	
Thyroid:	le:	ri:	
Testis + epididymal:	le:	ri:	
Testis w/o epididymal:	le:	ri:	
Ovaries:	le:	ri:	
<b>Measurements Uterus/Ovaries/Testes [cm]</b>			
Ovary (ri):	L:	W:	H:
Ovary (le):	L:	W:	H:
Uterus (diameter; change to bifurcation):			
Placental scars:	le:		ri:
Testis + epididymal (ri):	L:	W:	H:
Testis + epididymal (le):	L:	W:	H:
Testis w/o epididymal (ri):	L:	W:	H:
Testis w/o epididymal (le):	L:	W:	H:



Diss.-Nr:

**Nutritional status:** ☐ good ☐ moderate ☐ poor  
**Musculature:** ☐ good ☐ moderate ☐ poor  
**Retro. fat:** ☐ good ☐ moderate ☐ poor

**Dental abrasion:**

**Urinary bladder:** ☐ full ☐ empty ☐ urine collected

<b>Parasites:</b>					
Lung (rinse over sieve)	None <input type="checkbox"/>				
	Location:	Bronchi	mild <input type="checkbox"/>	mod. <input type="checkbox"/>	sev. <input type="checkbox"/>
		Vessels	mild <input type="checkbox"/>	mod. <input type="checkbox"/>	sev. <input type="checkbox"/>
Heart (rinse over sieve)	None <input type="checkbox"/>				
	Location:	ri. Atrium	mild <input type="checkbox"/>	mod. <input type="checkbox"/>	sev. <input type="checkbox"/>
		ri. Ventricle	mild <input type="checkbox"/>	mod. <input type="checkbox"/>	sev. <input type="checkbox"/>
		le. Atrium	mild <input type="checkbox"/>	mod. <input type="checkbox"/>	sev. <input type="checkbox"/>
		le. Ventricle	mild <input type="checkbox"/>	mod. <input type="checkbox"/>	sev. <input type="checkbox"/>
Stomach (rinse over sieve)	None <input type="checkbox"/>				
	Location:		mild <input type="checkbox"/>	mod. <input type="checkbox"/>	sev. <input type="checkbox"/>
Intestine	None <input type="checkbox"/>				
	Location:	Duodenum	mild <input type="checkbox"/>	mod. <input type="checkbox"/>	sev. <input type="checkbox"/>
		Jejunum	mild <input type="checkbox"/>	mod. <input type="checkbox"/>	sev. <input type="checkbox"/>
		Ileum	mild <input type="checkbox"/>	mod. <input type="checkbox"/>	sev. <input type="checkbox"/>
		Caecum	mild <input type="checkbox"/>	mod. <input type="checkbox"/>	sev. <input type="checkbox"/>
		Colon	mild <input type="checkbox"/>	mod. <input type="checkbox"/>	sev. <input type="checkbox"/>
Liver (rinse over sieve)	None <input type="checkbox"/>				
	Location:		mild <input type="checkbox"/>	mod. <input type="checkbox"/>	sev. <input type="checkbox"/>
Skin/Fur	None <input type="checkbox"/>				
	Location:		mild <input type="checkbox"/>	mod. <input type="checkbox"/>	sev. <input type="checkbox"/>

**Notes:**

**Sampling Lagomorpha**

<b>Age determination (formalin 10%; room temperature)</b>		<b>Reproduction (container with H<sub>2</sub>O; -20°)</b>	
	Eyes ri + le		Vagina, Uterus
<b>Parasites (70% Alcohol)</b>		<b>Microbiology (swab or tissue, cooled)</b>	
	Lung		Swab lung
	Stomach		Swab small intestine
	Intestine		Spleen (tissue)
	Liver		Liver (tissue)
	Heart		Kidney (tissue)
	Skin/ Fur		Brain (tissue)
	Faeces (ca. 8g, container, cooled)		Mesent. Lymphn. (tissue)
			Lung
			Small Intestine
<b>Histo (Formalin 10%)</b>		<b>Retained samples (plastic bag; -80°C)</b>	
	Lung (6x: both lobes 1x cran. med., caud., respect.)		Lung
	Heart		Heart
	Liver (le/ri)		Liver
	Spleen		Spleen
	Muscle		Muscle
	Retroperit. Fat		Retro. Fat
	Kidney (le/ri)		Brain
	Mesent. Lymphn.		Kidney
	Small Intestine (Jejunum, Duodenum)		Mesent. Lymphn.
	Large Intestine (Caecum, Colon)		Small Intestine
	Adrenal glands (le/ri)		Large Intestine
	Thyroid gland		Cranial bone (half)
	Bone marrow (broken femur)		Gonads
	Cranial bone (half)		
	Gonads (testis/ovaries)		
	Thymus		<b>Dietary analysis (plastic bag, -20°C)</b>
	Pancreas		Stomach contents
	Stomach		
	Trachea		<b>Toxicology (urine container, -80°C)</b>
	Aorta		Urine
	Spinal cord		
	Brain		
	A: Liver (ri/le), Kidney (ri/le)		
	B: Spleen, Mesent. Lymphn., Heart, Retro. Fat		
	C: Adrenal (ri/le), Mesent. Lymphn., Small Int., Large Int.		
	D: Brain		
	E: Lung (6)		
	F: Trachea, Aorta, Stomach, Pancreas		
<b>OIE Italy (EBHS/RHD2)</b>			
	Serum (-20°) 1 ml		
	Liver (Eppendorf) cooled		
<b>FLI JENA (Tularemia)</b>			
	Liver (Eppendorf) cooled		
	Spleen (Eppendorf) cooled		
	Sampling on day of hunt or finding/ when not frozen		

Figure S1: Lagomorpha dissection and sampling protocol.

Table S1: Incidence of pathomorphological findings of European brown hares and the yearly distribution. Total percentages are given only for routinely collected histopathological samples or macroscopic detectable alterations.

<b>Morphological findings</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>Total</b>	<b>Total %</b>
<b>Alimentary system</b>						
Dental displacement				1	1	0.8
Stomatitis	1				1	
Gastric amyloidosis	1			3	4	9.8
Gastritis				1	1	2.4
Gastric haemorrhages	1	1	1		3	7.3
Intestinal amyloidosis			1	4	5	4.5
Intestinal haemorrhages	1			1	2	1.8
Enteritis	23	3	5	17	48	40.7
Intestinal fibrosis			1		1	0.9
Parasites in intestine	36	2	10	19	67	60.4
Hepatic amyloidosis	3			4	7	6.0
Hepatic haemorrhages	1				1	0.9
Hepatic fibrosis	4	1	1	1	7	6.0
Kupffer cell haemosiderosis				1	1	0.9
Hepatitis	13	3	7	15	38	32.8
Hepatolipidosis	1			4	5	4.3
Liver necrosis	2	1	9	3	15	12.9
Hepatic tumour metastasis	1	1			2	1.7
Bile duct proliferation			1	1	2	1.7
Cholangitis				1	1	0.9
Pancreatic amyloidosis	1			1	2	11.1
Pancreatic fibrosis			1		1	5.6
Pancreas neoplasia	1				1	5.6
<b>Cardiovascular system</b>						
Vasculitis				3	3	
Thrombosis	1			2	3	
Epicarditis	2			2	4	3.5
Endocardial haemorrhages				1	1	0.9
Endocardial oedema				1	1	0.9
Myocarditis	1			1	2	1.8
Cardial parasitosis	1				1	0.9
Endocardiosis				1	1	0.9
<b>Abdominal and thoracic cavity</b>						
Haemoabdomen	2	1		3	6	5.1
Haemothorax		1		3	4	3.4
Steatitis	2	3	2	2	9	20.9
Pericardial steatitis				1	1	0.9
Pleura fibrosis	1	1			2	1.7
Peritonitis	1			1	2	1.7
Pleuritis	2			1	3	2.5

<b>Morphological findings</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>Total</b>	<b>Total %</b>
Trauma/perforation				6	6	5.1
<b>Haematopoietic and endocrine system</b>						
Osteomyelitis				1	1	
Lymph node/ Peyer`s patches hyperplasia	2		1	6	9	8.1
Lymphadenitis	2	2		4	8	7.5
Lymph node necrosis			1		1	0.9
Lymphonodal tumour metastasis		1	1		2	1.9
Lymphonodal sinus histiocytosis				1	1	0.9
Splenic amyloidosis	2			6	8	7.4
Splenic hyperplasia	3			4	7	6.5
Splenic haemosiderosis	10	1	2	3	16	14.8
Splenitis	1	2	1	2	7	5.6
Splenic necrosis				1	1	0.9
Adrenitis	3	2		1	6	5.5
Adrenal amyloidosis	5			5	10	9.1
Adrenal adenoma		1			1	0.9
Adrenal atrophy	1			1	2	1.8
Adrenal haemorrhages				1	1	0.9
<b>Musculoskeletal system</b>						
Mesenchymal tumour	1				1	0.9
Bone fracture	4	2		4	10	8.5
Disarticulation				1	1	0.9
Limb stump			1		1	0.9
Muscular haemorrhages		1		2	3	2.5
Myositis	1	1	1	3	6	5.2
Muscular parasitosis			1		1	0.9
<b>Respiratory system</b>						
Pulmonary atelectasis				5	5	4.3
Pulmonary haemorrhages	5	1	3	3	10	8.5
Bronchiectasis	2			3	5	4.3
Bronchitis				3	3	2.6
Pneumonia	10	2	3	11	26	22.2
Lung fibrosis	1				1	0.9
Tumour metastasis	1				1	0.9
Tracheal haemorrhages				5	5	4.2
Tracheitis				7	7	21.9
Diaphragmatic rupture	1			2	3	2.5
<b>Skin and subcutis</b>						
Dermatitis	1		1	6	8	
Skin lesion	8			1	9	7.6
Epidermal hyperkeratosis				3	3	
Skin tumour	1				1	0.8
Mastitis				2	2	
Fat tissue necrosis				1	1	
Panniculitis	1				1	

<b>Morphological findings</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>Total</b>	<b>Total %</b>
Subcutaneous haematoma	10	2	3	5	20	16.9
<b>Urinary and genital system</b>						
Pyometra	3				3	
Uterine metastasis	1				1	
Orchitis	1				1	
Renal amyloidosis	4		1	4	9	7.8
Renal fibrosis		1	3	1	5	4.3
Nephritis	8	2	5	7	22	19.1
Nephrohydrosis			2	1	3	2.6
Nephrolithiasis		1	1		2	1.7
Intratubular protein casts	1	1	4	4	10	8.7
Renal metastasis		1			1	0.9
Renal sclerosis			2	1	3	2.6
Tubulonephrosis			1		1	0.9
Tubulonecrosis			3	1	4	3.5
Renal tumour	1				1	0.9
Ovarian tumour	1				1	
Balantitis				1	1	

Table S2: Detected bacterial and fungal microorganisms with regard to their organ localization in deceased hares.

<b>Bacteria/ Fungi</b>	<b>Brain</b>	<b>Heart</b>	<b>Intestine</b>	<b>Kidney</b>	<b>Liver</b>	<b>Lung</b>	<b>Mesenteric lymph node</b>	<b>Reproductive system</b>	<b>Skeletal muscle</b>	<b>Skin</b>	<b>Spleen</b>	<b>Trachea</b>	<b>Total</b>
<i>Acinetobacter</i> spp.	1		2	3	5	7	1		1		4		24
<i>Aeromonas bestiarum</i>						1							1
<i>Aeromonas hydrophila</i>						1		1					2
<i>Aeromonas</i> spp.		1	4	5	3	5	1		1		1	1	22
<i>Arthrobacter</i> spp.			1										1
<i>Bacillus</i> spp.	3		4	3	3	8	5	1	3		2		32
<i>Bacteroides ovatus</i>			1										1
<i>Buttiauxella gaviniae</i>	1	1	1	2	2	5	1		1		1		15
<i>Buttiauxella</i> spp.	1		2		1	1	1						6
<i>Candida albicans</i>			4	2	2		1			1			10
<i>Candida</i> spp.			1										1
<i>Carnobacterium maltaromaticum</i>				1	2	7		1	2	1	1		15
<i>Cedecea</i> spp.						1							1

<b>Bacteria/ Fungi</b>	<b>Brain</b>	<b>Heart</b>	<b>Intestine</b>	<b>Kidney</b>	<b>Liver</b>	<b>Lung</b>	<b>Mesenteric lymph node</b>	<b>Reproductive system</b>	<b>Skeletal muscle</b>	<b>Skin</b>	<b>Spleen</b>	<b>Trachea</b>	<b>Total</b>
<i>Citrobacter braakii</i>	1		1	1	1	2	1			1	1		9
<i>Citrobacter freundii</i>					1								1
<i>Citrobacter gillenii</i>						1					1		2
<i>Clostridium septicum</i>			2		1	1	1						5
<i>Clostridium baratii</i>			1			1							2
<i>Clostridium perfringens</i> (non-typed)	3		12	1	3	4	2				2		27
<i>Clostridium sordellii</i>			1										1
Coliform bacteria						3							3
Coryneform bacteria (not determinable)				1				1					2
<i>Cronobacter</i> spp.	1				1						1		3
<i>Dermaococcus</i> spp.			1										1
<i>Elisabethkingia miricola</i>								1					1
<i>Enterobacter asburiae</i>						1							1
<i>Enterobacter bugandensis</i>	1		1	1	1	1	1				1		7
<i>Enterobacter cloacae</i>				1	1	2					2		6
<i>Enterobacter</i> spp.			4	1	2	9	1			1	2	1	21
<i>Enterococcus faecalis</i>						3							3
<i>Enterococcus faecium</i>						1							1
<i>Enterococcus</i> spp.				1	1	12		1			1		16
<i>Erwinia</i> spp.			1	1	1	3							6
<i>Escherichia coli</i>	7	1	72	14	23	67	12	3	4		18		221
<i>Escherichia coli</i> var. <i>haemolytica</i>			8		1	1	1		3				14
<i>Escherichia vulneris</i>									1				1
<i>Ewingella americana</i>			2		2	4	1						9
<i>Flavobacterium</i> spp.			1										1
Fungi (not determinable)			5			1		1					7
<i>Fusobacterium</i> spp.						1						1	2
Gram-negative rod-shaped bacteria				1	1								2
Gram-positive rod-shaped bacteria				1							1		2
<i>Hafnia alvei</i>	2		5	3	3	4	2	1			3		23
<i>Klebsiella pneumoniae</i>						1							1
<i>Klebsiella</i> spp.						3					1		4
<i>Kluyvera intermedia</i>	2		1	1	1	2	1				1		9

<b>Bacteria/ Fungi</b>	<b>Brain</b>	<b>Heart</b>	<b>Intestine</b>	<b>Kidney</b>	<b>Liver</b>	<b>Lung</b>	<b>Mesenteric lymph node</b>	<b>Reproductive system</b>	<b>Skeletal muscle</b>	<b>Skin</b>	<b>Spleen</b>	<b>Trachea</b>	<b>Total</b>
<i>Lactobacillus raffinolactis</i>						1							1
<i>Lactococcus garvieae</i>						3							3
<i>Leclercia adecarboxylata</i>	1		3	3	3	2	1						13
<i>Lelliottia amnigena</i>			2		2	6	1		1		2		14
<i>Listeria monocytogenes</i>					1	1							2
<i>Mannheimia granulomatis</i>				1	1	2					1		5
<i>Mannheimia</i> spp.						1							1
<i>Moellerella wisconsensis</i>					1	1							2
<i>Morganella morganii</i>			2			4	1				1		8
<i>Mucor</i> spp.			2										2
<i>Myroides odoratimimus</i>						1							1
<i>Myroides</i> spp.						2							2
Non-fermenting, gram-negative bacteria (not determinable)					1	5							6
<i>Pantoea agglomerans</i>						2				1			3
<i>Pantoea</i> spp.	2	1	3	3	3	22	1		4	1	5		45
<i>Pasteurella multocida</i>	1		1		1	7	1				2	1	14
<i>Penicillium</i> spp.						1							1
<i>Proteus</i> spp.	1			3	5	8	1	2	3		2		25
<i>Providencia alcalifaciens</i>						1							1
<i>Providencia rettgeri</i>				1		1							2
<i>Providencia</i> spp.						1							1
<i>Pseudomonas aeruginosa</i>						2			1				3
<i>Pseudomonas antarctica</i>						2							2
<i>Pseudomonas extremorientalis</i>						1							1
<i>Pseudomonas fluorescens</i>						1							1
<i>Pseudomonas fragi</i>						2							2
<i>Pseudomonas koreensis</i>						6							6
<i>Pseudomonas libanensis</i>						1							1
<i>Pseudomonas lundensis</i>						2							2
<i>Pseudomonas nitroreducens</i>								1	2		2		5
<i>Pseudomonas rhodesiae</i>						2							2
<i>Pseudomonas</i> spp.	2		14	5	9	49	6	2		2	5	1	95
<i>Pseudomonas synxantha</i>										1			1
<i>Pseudomonas viridiflava</i>						1							1
<i>Rahnella aquatilis</i>	3		12	3	5	12	5	1		2	2	1	46

<b>Bacteria/ Fungi</b>	<b>Brain</b>	<b>Heart</b>	<b>Intestine</b>	<b>Kidney</b>	<b>Liver</b>	<b>Lung</b>	<b>Mesenteric lymph node</b>	<b>Reproductive system</b>	<b>Skeletal muscle</b>	<b>Skin</b>	<b>Spleen</b>	<b>Trachea</b>	<b>Total</b>
<i>Raoultella ornithinolytica</i>								1			1		2
<i>Raoultella</i> spp.						2							2
<i>Serratia fonticola</i>			6	3	2	9			2		3		25
<i>Serratia liquefaciens</i>	2		5	4	4	11	4	1			4		35
<i>Serratia marcescens</i>								1	1				2
<i>Serratia plymuthica</i>			1	1		4							6
<i>Serratia proteamaculans</i>						1							1
<i>Serratia</i> spp.	1		3	3	5	7	1				1	1	22
<i>Sphingobacterium</i> spp.						2							2
<i>Staphylococcus</i> spp., coagulase-negative					2	5			3				10
<i>Staphylococcus aureus</i>	1	1		4	2	8			4	6	2		28
<i>Staphylococcus lutetiensis</i>						1							1
<i>Staphylococcus sciuri</i>	1		1	1	1		1						5
<i>Staphylococcus</i> spp.	1		1	1		1					1		5
<i>Staphylococcus xylosus</i>				1		1	1				1		4
<i>Stenotrophomonas maltophilia</i>			1				1						2
<i>Stenotrophomonas</i> spp.	1					4					1		6
<i>Streptococcus</i> spp., $\alpha$ -haem.	1		9	6	7	20	3	1			4		51
<i>Streptococcus</i> spp., $\beta$ -haem.				1		1							2
<i>Streptococcus canis</i>	1			1	1	1	1				1		6
<i>Streptococcus gallolyticus</i>				1							1		2
<i>Streptococcus</i> spp., $\gamma$ -haem.	4		7	6	8	16	4	2	1		5		53
<i>Yarrowia lipolytica</i>	1		7	2		4	2						16
Yeast (not further determined)	1		16	4	5	13	6				4	1	50
<i>Yersinia enterocolitica</i>						3							3
<i>Yersinia pseudotuberculosis</i>			8	4	6	8	2	1		1	3		33
<b>Total</b>	<b>48</b>	<b>5</b>	<b>242</b>	<b>106</b>	<b>137</b>	<b>439</b>	<b>76</b>	<b>24</b>	<b>38</b>	<b>18</b>	<b>98</b>	<b>8</b>	<b>1239</b>