Within-farm prevalence and environmental distribution of livestock-associated methicillin-resistant Staphylococcus aureus in farmed mink (Neovison vison)

The aim of the present study was to identify the animal prevalence and environmental reservoir of livestock-associated methicillin-resistant Staphylococcus aureus (LA-MRSA) in mink farms. LA-MRSA on mink constitutes a human health hazard to farmers and farm workers, who handle the animals and are at risk of bites and scratches from colonized sites. The primary route of LA-MRSA colonization of mink is suspected to be by ingestion of contaminated pig by-products.

We performed a cross-sectional study with repeated measurements during May-July 2017. A total of 644 mink carcasses (542 mink kits and 102 breeding animals) from five Danish farms were sampled. From each carcass, pharynx was swabbed and the right forepaw dissected. In addition, environmental samples covering feed, air, glove, cages (top and between) and nest boxes were collected on the farms. MRSA was selectively cultured from each sample and suspect colonies were assessed using matrix-assisted laser desorption ionisation (MALDI-TOF) for species confirmation. Further, from each farm, three isolates from mink and one isolate per positive environmental site were sent for whole genome sequencing.

We isolated LA-MRSA from mink in four out of the five farms, but LA-MRSA bacterium was detected on all farms. On farms with LA-MRSA positive animals, the overall apparent animal prevalence ranged from 20% [13;29] CI95% to 29% [22;38] CI95%. LA-MRSA was isolated from kits before weaning, most likely due to a contaminated environment or transfer from the dam. Further, the apparent prevalence of LA-MRSA in kits tended to increase during the first months of age. On farms where LA-MRSA was isolated from mink, LA-MRSA was also isolated from the environment. LA-MRSA was isolated from all environmental sites tested (i.e. glove, on top of and between the cages and in the nest boxes), apart from air. The negative air samples contrast with the high concentrations of LA-MRSA in air found in the pig production. Hence, the risk of human exposure to LA-MRSA on mink-farms tends to be associated mainly with direct contact with contaminated environmental sites and the handling of colonized mink. All sequenced isolates were confirmed as LA-MRSA CC398 and genetically similar to clones previously isolated from the Danish pig production, supporting the hypothesis of LA-MRSA being transmitted by contaminated pig by-products.

A new report of the carnivore-transmitted Taenia ovis cysts infesting the heart muscles of sheep in Denmark

The aim of the present study was to identify the animal prevalence and environmental reservoir of livestock-associated methicillin-resistant Staphylococcus aureus (LA-MRSA) in mink farms. LA-MRSA on mink constitutes a human health hazard to farmers and farm workers, who handle the animals and are at risk of bites and scratches from colonized sites. The primary route of LA-MRSA colonization of mink is suspected to be by ingestion of contaminated pig by-products.
Bovine Abortions and Stillbirths in Denmark 2015 to 2017

Infections are the most common cause of bovine abortion. Here we report recent diagnostic findings in bovine abortion material from Denmark, a country with a large dairy sector and high animal health standards. This study was conducted in order to gain in-depth knowledge on infectious causes of abortions i.e. to identify and localize infectious agents in placental and foetal tissues. The cultivation-independent methods Fluorescence in situ hybridization (FISH) and second generation sequencing were applied additionally to routine histopathology and bacterial cultivation.

General information
Publication status: Published
Organisations: Pathology, National Veterinary Institute, Bacteriology & Parasitology
Number of pages: 1
Publication date: 2018
Peer-reviewed: Yes
Event: Poster session presented at Annual Meeting of the European Society of Veterinary Pathology and the European College of Veterinary Pathology, Cluj-Napoca, Romania.
Electronic versions:
Research output: Contribution to report conference » Poster – Annual report year: 2018 » Research » peer-review

Bovine abortions in Denmark 2015–2017

General information
Publication status: Published
Organisations: National Veterinary Institute, Pathology, Bacteriology & Parasitology
Contributors: Wolf-Jäckel, G., Hansen, M. S., Larsen, G., Holm, E., Jensen, T.
Number of pages: 1
Pages: 106-106
Publication date: 2018
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Journal: Journal of Comparative Pathology
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Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
Original language: English
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10.1016/j.jcpa.2018.10.023
Source: FindIt
Source-ID: 2443434216
Research output: Contribution to journal » Conference abstract in journal – Annual report year: 2019 » Research » peer-review

Diagnostiske undersøgelser af luftvejsinfektioner og antibiotikabehandling af kalve

General information
Publication status: Published
Organisations: National Veterinary Institute, Epidemiology, Bacteriology & Parasitology, Diagnostic & Development, Videncenter for landbrug (SEGES)
Contributors: Jensen, V. F., Svensmark, B., Larsen, G., Pedersen, K., Toft, N., Jorsal, S. E. L.
Pages: 28-35
First report of Taenia ovis infection in Danish sheep (Ovis aries)

We report Taenia ovis infection in Danish sheep for the first time. In spring 2016, the metocestode stage of T. ovis was at slaughter observed in heart muscles, diaphragm and skeletal muscles from approx. a third of all sheep from one specific farm localised in South Jutland. The diagnosis was confirmed by molecular typing of the mitochondrial cytochrome c oxidase I (cox1) gene. Three newly imported dogs were suspected but the definitive host was unidentifiable. The finding is not regulated in the meat control procedures. However, infected meat is usually condemned due to aesthetic reasons causing economic losses. Thus, finding of T. ovis is of concern to sheep meat producers in the area, as the infection could have spread further on to other farms.

General information
Publication status: Published
Organisations: National Veterinary Institute, Bacteriology & Parasitology, Pathology, Diagnostic & Development, Al-Zaytoonah University of Jordan
Pages: 3-6
Publication date: 2018
Peer-reviewed: Yes

Forekomst af MRSA i mink og miljø på danske minkårde

General information
Publication status: Published
Organisations: National Veterinary Institute, Epidemiology, Bacteriology & Parasitology, Statens Veterinærmedicinska Anstalt
Contributors: Fertner, M. E., Jensen, V. F., Larsen, G., Lindegaard, M., Hansen, J. E., Chriél, M., Pedersen, K.
Pages: 139-143
Publication date: 2018

Host publication information
Title of host publication: Kopenhagen Fur Forskning. Faglig Årsberetning 2018
Place of publication: Aarhus N
Publisher: Kopenhagen Fur Forskning
(Faglig Årsberetning).
Outbreaks of influenza of swine and human origin in mink (Neovison vison)

Influenza A virus infections in farmed mink, that are associated with respiratory disease, have occasionally been reported from mink producing countries. The viruses isolated have mainly been of avian or swine origin. Infections in mink with seasonal human influenza viruses have been inferred mainly from antibody detections. In 2009, the first outbreak with Influenza A virus was recognized in Danish farmed mink. The virus was a novel reassortant H3N2 virus. The HA and NA genes were most closely related to the 2005/06 human seasonal influenza virus and the internal genes were of contemporary swine influenza virus origin. All the infected farms received feed from the same feed producer. The feed contained fresh swine offal and the outbreak was therefore suspected to be feed-borne. Since 2009, Influenza A viruses have been detected in farmed mink in Denmark almost every year. Outbreaks are typically associated with sneezing, pneumonia and haemolytic E. coli infections. Characteristic is also bleeding from the nose. The mortality varies but is normally between three to five per cent in the affected farms.

The aim of this study was to elucidate the origin of influenza A viruses detected in Danish farmed mink in recent years by genetic and phylogenetic analyses of influenza A virus genes. The results showed that the viruses involved were either closely related to contemporary swine influenza viruses (avian-like H1N2 or H1N1) or to H1N1pdm09. The 2009 H3N2 virus has not been detected since 2009. The avian-like HA swine H1N1 and H1N2 viruses have never been detected in humans in Denmark, but are the most prevalent subtypes detected in the Danish swine herds with respiratory disease. Thus feed content of swine origin is a likely source of these viruses in mink.

The H1N1pdm09 viruses have been circulating in Danish swine since 2010 and the same subtype is now considered seasonal influenza virus in humans, rather than being “pandemic”. Genetic analyses showed that some of the H1N1pdm09 viruses found in mink had a higher level of identity to H1N1pdm09 strains detected in humans than in swine. This suggests that these viruses were transmitted directly from humans to mink.

Prevalence of Capillaria plica in Danish wild carnivores

Capillaria plica is a parasitic nematode belonging to the family Capillaridae. The adult parasites reside in the urinary tract of wild and domestic canines. The infection is most often asymptomatic, but can cause a wide range of symptoms including urinary bladder inflammation, pollakisuria, dysuria and hematuria. Canines acquire the infection by ingesting the intermediate host, the earthworm (Lumbricidae). Epidemiological studies on C. plica infection in wildlife are few and only one previous Danish study examined the prevalence in red foxes, while studies on prevalence in other animals are limited. We examined the urine sediment or urinary bladder from 375 Raccoon dogs (Nyctereutes procyonoides), 247 red foxes (Vulpes vulpes), 20 beech martens (Martes foina), 16 wild mink (Neovison vison), 14 otters (Lutra lutra), nine European polecats (Mustela putorius), three European badgers (Meles meles) and one golden jackal (Canis aureus) received as a part of Danish wildlife surveillance. Capillaria plica was detected in 73.7% of red foxes, 20.0% of beech martens, 0.5% of raccoon dogs, and in the Golden jackal. Red foxes originating from all 5 regions of Denmark were infected, although with a significantly higher prevalence in the three regions in Jutland compared to Region Zealand.
Animal prevalence of livestock-associated methicillin-resistant Staphylococcus aureus in five Danish mink farms

Background. Livestock-associated methicillin-resistant Staphylococcus aureus (LA-MRSA) was for the first time isolated from Danish mink in 2013. Subsequent testing of all mink submitted for clinical diagnosis in Denmark, found 34 % (20/58) mink positive for LA-MRSA. In addition, 40 % (20/50) of screened healthy Danish mink farms were found positive. LA-MRSA in mink is believed to originate from contaminated slaughter-offal in the mink feed. Objective. The objective of the present study was to identify the animal-prevalence of LA-MRSA in five Danish mink farms. Materials and Methods. We collected 1,500 mink carcasses from five Danish mink farms. Farmers were asked to collect 100 mink for each of the three consecutive months following the whelping period (May-July 2017). From each carcass, the right forepaw and a pharyngeal-swab was collected for investigation of MRSA by enrichment, followed by screening on selective agar. Results. By July 1st 2017, 20 mink (5 adult, 15 mink kits) from one farm, were all tested negative. Results from the remaining mink will be presented at the conference. Discussion and Conclusion. In the preliminary results of this study, all mink tested negative. This finding may be explained by an overall low animal-prevalence in the farm. Another explanation could be the high proportion of young mink kits (15/20) tested. All mink kits were <5 weeks of age and had therefore not yet started feeding, which may reduce the likelihood of MRSA carriage. Perspectives. The anatomical location of LA-
MRSA on mink (pharynx and paws) poses a human health hazard to farmers, who handle the animals and are at risk of bites and scratches from infected sites. To what extent LA-MRSA has dispersed in the environment of LA-MRSA positive mink farms remains for investigation.

**Antimicrobial resistance among pathogenic bacteria from mink (Neovison vison) in Denmark**

Background: For proper treatment of bacterial infections in mink, knowledge of the causative agents and their antimicrobial susceptibility patterns is crucial. The used antimicrobials are in general not registered for mink, i.e. most usage is “off-label”. In this study, we report the patterns of antimicrobial resistance among pathogenic bacteria isolated from Danish mink during the period 2014-2016. The aim of this investigation was to provide data on antimicrobial resistance and consumption, to serve as background knowledge for new veterinary guidelines for prudent and optimal antimicrobial usage in mink. Results: A total number of 308 *Escherichia coli* isolates, 41 *Pseudomonas aeruginosa*, 36 *Streptococcus canis*, 30 *Streptococcus dysgalactiae*, 55 *Staphylococcus delphini*, 9 *Staphylococcus aureus*, and 20 *Staphylococcus schleiferi* were included in this study. Among *E. coli*, resistance was observed more frequently among the hemolytic isolates than among the non-hemolytic ones. The highest frequency of resistance was found to ampicillin, 82.3% and 48.0% of the hemolytic of the non-hemolytic isolates, respectively. The majority of the *P. aeruginosa* isolates were only sensitive to ciprofloxacin and gentamicin. Among the *Staphylococcus* spp., the highest occurrence of resistance was found for tetracycline. Regarding the nine *S. aureus*, one isolate was resistant to cefoxitin indicating it was a methicillin-resistant *Staphylococcus aureus*. Both β-hemolytic *Streptococcus* species showed high levels of resistance to tetracycline and erythromycin. The antimicrobial consumption increased significantly during 2007-2012, and fluctuated at a high level during 2012-2016, except for a temporary drop in 2013-2014. The majority of the prescribed antimicrobials were aminopenicillins followed by tetracyclines and macrolides. Conclusions: The study showed that antimicrobial resistance was common in most pathogenic bacteria from mink, in particular hemolytic *E. coli*. There is a need of guidelines for prudent use of antimicrobials for mink.
Antimikrobielle stoffer Forbrug og resistensmønstre


General information
Publication status: Published
Organisations: National Veterinary Institute, Research group for Genomic Epidemiology, Bacteriology & Parasitology, Diagnostic & Development, Epidemiology, Kopenhagen Diagnostics
Contributors: Nikolaisen, N. K., Chriél, M., Jensen, V. F., Larsen, G., Pedersen, K., Struve, T.
Pages: 83-88
Publication date: 2017
Peer-reviewed: Yes

Arcanobacterium phocae infection in mink (Neovison vison), seals (Phoca vitulina, Halichoerus grypus) and otters (Lutra lutra)

Infectious skin disorders are not uncommon in mink. Such disorders are important as they have a negative impact on animal health and welfare as well as on the quality and value of the fur. This study presents the isolation of Arcanobacterium phocae from mink with severe skin lesions and other pathological conditions, and from wild seals and otters. In 2015, A. phocae was isolated for the first time in Denmark from outbreaks of dermatitis in mink farms. The outbreaks affected at least 12 farms. Originating from these 12 farms, 23 animals cultured positive for A. phocae. The main clinical findings were necrotizing pododermatitis or dermatitis located to other body sites, such as the lumbar and cervical regions. A. phocae could be isolated from skin lesions and in nine animals also from liver, spleen and lung, indicating a systemic spread. The bacterium was also, for the first time in Denmark, detected in dead seals (n = 9) (lungs, throat or wounds) and otters (n = 2) (throat and foot). An infectious skin disorder in mink associated with A. phocae has started to occur in Danish farmed mink. The origin of the infection has not been identified and it is still not clear what the pathogenesis or the port of entry for A. phocae infections are.

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Publication status: Published
Organisations: National Veterinary Institute, Innate Immunology, Diagnostic & Development, Bacteriology & Parasitology, Pathology
Contributors: Nonnemann, B., Chriél, M., Larsen, G., Hansen, M. S., Holm, E., Pedersen, K.
Number of pages: 6
Publication date: 2017
Peer-reviewed: Yes
Dødelig Haemonchus infektion hos giraffer: Nyt fra Veterinaerinstituttet

General information
Publication status: Published
Organisations: National Veterinary Institute, Bacteriology & Parasitology, Årslev Dyreklinik I/S
Contributors: Petersen, H. H., Larsen, G., Knold, S.
Pages: 44
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Peer-reviewed: Unknown

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Volume: 2017
Issue number: 11
ISSN (Print): 0106-6854
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BFI (2017): BFI-level 1
Web of Science (2017): Indexed yes
Original language: Danish
Electronic versions:
VI_nyt_DVT_11_2017.pdf
Source: PublicationPreSubmission
Source-ID: 139841419
Research output: Contribution to journal › Journal article – Annual report year: 2017 › Research › peer-review

Forekomst af antibiotikaresistens i bakterieisolate fra danske mink

General information
Publication status: Published
Organisations: National Veterinary Institute, Diagnostic & Development, Bacteriology & Parasitology, Epidemiology, Technical University of Denmark
Contributors: Chriél, M., Corvera Kløve Lassen, D., Larsen, G., Jensen, V. F., Pedersen, K.
Pages: 153-158
Publication date: 2017

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Title of host publication: Faglig årsberetning 2016 : Kopenhagen Fur
Place of publication: Aarhus N
Publisher: Kopenhagen Fur
Electronic versions:
DTU3.pdf
Research output: Chapter in Book/Report/Conference proceeding › Book chapter – Annual report year: 2017 › Research › peer-review
Livestock-associated methicillin-resistant Staphylococcus aureus is widespread in farmed mink (Neovison vison)

Livestock-associated methicillin-resistant Staphylococcus aureus (LA-MRSA) clonal complex (CC) 398 is widespread in the Danish pig production with around 90% of herds being positive. Since 2009, cases of CC398 LA-MRSA infections in Danish mink farmers have been observed. The objective of the study was to examine the presence of LA-MRSA in farmed mink. The investigation comprised three different sample types 1) clinical samples from carcasses submitted to the laboratory for diagnostic examination, 2) paws and pharyngeal swabs from healthy animals collected at pelting, and 3) feed samples from mink feed producers. In clinical samples, LA-MRSA was found in 34% of submissions and was most prevalent in samples from paws (33%) and pharynx (17%), followed by nasal and intestinal samples (each 13%), whereas it was never detected in perineal samples. LA-MRSA was found in healthy animals on 40% of the investigated farms, including paw samples (29%) and pharyngeal samples (16%). Twenty out of the 108 feed samples from feed producers were positive for LA-MRSA. The dominant spa-types were t034 and t011 associated to CC398, corresponding to the dominant spa-types detected in the Danish pig production, from which slaughter offal is used for mink feed. The spa-types, the high prevalence of LA-MRSA on paws and in pharynx, and its detection in feed samples, suggest feed as a possible source of LA-MRSA in mink.

General information
Publication status: Published
Organisations: National Veterinary Institute, Bacteriology & Parasitology, Diagnostic & Development, Statens Serum Institut, Technical University of Denmark
Pages: 44-49
Publication date: 2017
Peer-reviewed: Yes

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Journal: Veterinary Microbiology
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ISSN (Print): 0378-1135
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BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 2.7 SJR 1.175 SNIP 1.241
Web of Science (2017): Impact factor 2.524
Web of Science (2017): Indexed yes
Original language: English
Keywords: LA-MRSA, CC398, Neovison vison, Farmed mink, Mink feed
DOIs: 10.1016/j.vetmic.2017.05.027
Source: PublicationPreSubmission
Source-ID: 132940085
Research output: Contribution to journal › Journal article – Annual report year: 2017 › Research › peer-review

Mink kan også have influenza
De senere år er der i flere tilfælde fundet influenza virus i mink med kompliceret og dødelig lungebetændelse. I Danmark rekvireres undersøgelse for influenzavirus imidlertid kun sjældent i forbindelse med diagnostiske indsendelser fra syge mink. Derfor undersøges der i reglen kun for influenza virus, hvis der opstår mistanke om influenza ved obduktionen, eller hvis der er alvorlige langvarige udbrud. For at kunne iværksætte foranstaltninger, der begrænser forekomsten af influenza hos mink, er det nødvendigt at kende udvielsen af influenza virus i blandt andet farmede mink i Danmark. Formålet med denne undersøgelse var at gennemføre en systematisk undersøgelse af forekomsten af influenzavirus i minkfoder, samt at se, om udbredelsen af influenzavirus i minkfoder varierer med tiden. Der blev påvist influenza A virus i mink fra otte farme. Genetiske analyser indikerede, at disse virus stammede fra både danske svin og mennesker. For at forbygge udbrud af influenza i farmede mink anbefales det, at undgå kontakt mellem mink og influenza- og svinægter personer, samt sikre at minkfoder indeholder biprodukter fra slagsesvin er varmebehandlet eller inaktivere på anden vis.

General information
Publication status: Published
Organisations: National Veterinary Institute, Virology, Bacteriology & Parasitology, Diagnostic & Development
Pages: 102-105
Publication date: 2017
Peer-reviewed: No
MRSA i mink (Neovison vison) indsendt til diagnostik

General information
Publication status: Published
Organisations: National Veterinary Institute, Bacteriology & Parasitology, Diagnostic & Development
Contributors: Larsen, G., Chriél, M., Hansen, J. E., Pedersen, K.
Pages: 149-152
Publication date: 2017

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Title of host publication: Faglig årsberetning 2016 : Kopenhagen Fur
Place of publication: Aarhus N
Publisher: Kopenhagen Fur
Electronic versions:
DTU2.pdf

Research output: Chapter in Book/Report/Conference proceeding › Book chapter – Annual report year: 2017 › Research › peer-review

Projekt skal undersøge MRSA i danske mink

General information
Publication status: Published
Organisations: National Veterinary Institute, Bacteriology & Parasitology, Diagnostic & Development
Contributors: Fertner, M. E., Hansen, J. E., Larsen, G., Pedersen, K., Chriél, M.
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Publication date: 2017
Peer-reviewed: Unknown

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Journal: Dansk Pelsdyravl
Volume: oktober 2017
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Original language: Danish
Electronic versions:
MRSA_pelsdyravl_publiceret_7_2017.pdf

URLs:
Research output: Contribution to journal › Journal article – Annual report year: 2017 › Communication

Spirocerca-parasitten: En tropisk/subtropisk hundeparasit, som medfører kæftelignende svulster, er nu påvist i tre danske ræve fra Thy-området


General information
An outbreak of bovine meningoencephalomyelitis with identification of Halicephalobus gingivalis

Halicephalobus gingivalis is an opportunistic parasite which is known to cause fatal meningoencephalomyelitis primarily in equines but sporadically also in humans. In April 2014, laboratory examination of the head of a young dairy calf, euthanized due to severe central nervous system symptoms, revealed the presence of granulomatous to necrotizing encephalitis and myriads of nematodes in the brain lesion. Morphologically the parasites were identified as H. gingivalis. The diagnosis was confirmed by molecular analysis of the large subunit (LSU) rRNA and the small subunit (SSU) rRNA genes, revealing genetic variations of 0.5–4.4% and 0.7–8.6%, respectively, between the H. gingivalis isolated from the Danish calf and published isolates, collected worldwide from free-living and parasitic stages of the nematode. Clinical symptoms and histological changes indicated infection with H. gingivalis from another three calves in the herd. This is the first scientific publication of H. gingivalis induced meningoencephalomyelitis in ruminants. As ante mortem diagnosis is a major challenge, the infection may easily remain undiagnosed in cattle.
Diagnostiske undersøgelser af pelsdyr ved DTU Veterinærinstituttet - november 2015 - oktober 2016

General information
Publication status: Published
Organisations: National Veterinary Institute, Diagnostic & Development, Bacteriology & Parasitology, Virology, Epidemiology, Pathology
Contributors: Chriél, M., Larsen, G., Holm, E., Hjulsager, C. K., Pedersen, K., Jensen, V. F., Jensen, T. K., Hansen, M. S.
Number of pages: 26
Publication date: 2016

Publication information
Place of publication: Frederiksberg C
Publisher: DTU Veterinærinstituttet
Original language: Danish

Bibliographical note
Rapporten er ikke offentlig tilgængelig

Research output: Book/Report – Annual report year: 2017 – Commissioned

Lammelser af bagparten hos mink forårsaget af knoglemarvsbetændelse i ryghvirvlerne

General information
Publication status: Published
Organisations: National Veterinary Institute, Section for Bacteriology, Pathology and Parasitology, University of Copenhagen
Contributors: Larsen, G., Nonnemann, B., Buelund, L. E., Holm, E., Jensen, T. K., Chriél, M.
Pages: 115-117
Publication date: 2016

Host publication information
Title of host publication: Faglig årsberetning 2015 : Kopenhagen Fur
Place of publication: Aarhus N
Publisher: Kopenhagen Fur
Electronic versions:
Faglig_rsberetning_2015.pdf
Source: PublicationPreSubmission
Source-ID: 123345075
Research output: Chapter in Book/Report/Conference proceeding – Annual report year: 2016 – Research

MRSA in mink (Neovision vision)

General information
Publication status: Published
Organisations: National Veterinary Institute, Section for Bacteriology, Pathology and Parasitology
Contributors: Larsen, G., Chriél, M., Pedersen, K.
Pages: 119-121
Publication date: 2016

Host publication information
Title of host publication: Proceedings of the XIth International Scientific Congress in Fur Animal Production
Place of publication: Helsinki, Finland
Publisher: Libris
Editors: Mäki-Tanila, A., Valaja, J., Mononen, J., Sironen, T., Vapalahti, O.
(Scientifur; No. 3/4, Vol. 40).
Subtypning af influenza på danske minkfarme i 2014

General information
Publication status: Published
Organisations: National Veterinary Institute, Section for Virology
Pages: 109-113
Publication date: 2016

Host publication information
Title of host publication: Faglig årsberetning 2015 : Kopenhagen Fur
Place of publication: Aarhus N
Publisher: Kopenhagen Fur
Electronic versions:
Faglig_arsberetning_2015.pdf
Research output: Chapter in Book/Report/Conference proceeding > Report chapter – Annual report year: 2016 > Research

Udbrud med Clostridium septicum i danske mink

General information
Publication status: Published
Organisations: National Veterinary Institute, Section for Bacteriology, Pathology and Parasitology
Contributors: Larsen, G., Nonnemann, B., Holm, E., Pedersen, K., Chriél, M.
Pages: 105-108
Publication date: 2016

Host publication information
Title of host publication: Faglig årsberetning 2015 : Kopenhagen Fur
Place of publication: Aarhus N
Publisher: Kopenhagen Fur
Electronic versions:
Faglig_arsberetning_2015.pdf
Research output: Chapter in Book/Report/Conference proceeding > Report chapter – Annual report year: 2016 > Research

Widespread presence of mrsa CC398 in the danish production of farmed mink (neovison vison)

General information
Publication status: Published
Organisations: National Veterinary Institute, Section for Bacteriology, Pathology and Parasitology, Statens Serum Institut, Technical University of Denmark
Pages: 70-71
Publication date: 2016

Host publication information
Title of host publication: The Danish Microbiological Society Annual Congress 2016 : Programme & Abstracts
Place of publication: Copenhagen
Publisher: American Society for Microbiology
Article number: P54
Electronic versions:
Programme & Abstracts book
Research output: Chapter in Book/Report/Conference proceeding > Conference abstract in proceedings – Annual report year: 2016 > Research > peer-review
Diagnostiske undersøgelser af pelsdyr ved DTU Veterinærinstituttet - november 2014 - oktober 2015

General information
Publication status: Published
Organisations: National Veterinary Institute, Diagnostic & Development, Bacteriology & Parasitology, Virology, Pathology
Contributors: Chriél, M., Larsen, G., Holm, E., Hjulsager, C. K., Strandbygaard, B., Hansen, M. S.
Number of pages: 26
Publication date: 2015

Publication information
Place of publication: Frederiksberg C
Publisher: DTU Veterinærinstituttet
Original language: English

Bibliographical note
Rapporten er ikke offentlig tilgængelig
Research output: Book/Report › Report – Annual report year: 2015 › Commissioned

High prevalence of Alaria alata in farmed wild boars (Sus scrofa) in Denmark – preliminary results of ongoing surveillance of zoonotic parasites

General information
Publication status: Published
Organisations: National Veterinary Institute, Section for Bacteriology, Pathology and Parasitology, National Food Institute
Contributors: Enemark, H. L., Al-Sabi, M. N. S., Takeuchi-Storm, N., Larsen, G., Chriél, M.
Publication date: 2015
Peer-reviewed: Yes
Event: Abstract from 25th International Conference of the World Association for the Advancement of Veterinary Parasitology, Liverpool, United Kingdom.
Source: FindIt
Source-ID: 2282296519
Research output: Contribution to conference › Conference abstract for conference – Annual report year: 2015 › Research › peer-review

Rapportering af diagnostiske undersøgelser af faldvildt 2015

General information
Publication status: Published
Organisations: National Veterinary Institute, Section for Bacteriology, Pathology and Parasitology
Contributors: Chriél, M., Hansen, M. S., Larsen, G., Holm, E., Petersen, H. H., Hjulsager, C. K.
Number of pages: 27
Publication date: 2015

Publication information
Place of publication: Frederiksberg C
Publisher: Veterinærinstituttet, Danmarks Tekniske Universitet
Original language: Danish
Electronic versions:
Rapportering_af_diagnostiske_unders_gelser_af_faldvildt_2015.pdf
Source: PublicationPreSubmission
Source-ID: 127215109
Research output: Book/Report › Report – Annual report year: 2016 › Research

Diagnostiske undersøgelser af pelsdyr ved DTU Veterinærinstituttet: november 2013 - oktober 2014

General information
Publication status: Published
Organisations: National Veterinary Institute, Section for Bacteriology, Pathology and Parasitology
Number of pages: 22
Publication date: 2014

Publication information
Faldvildt undersøgelser på DTU Veterinærinstituttet i 2013


First report of Spirocerca sp. in Denmark – a tumor-inducing parasite in carnivores

During routine health surveillance of wild carnivores in Denmark, several tumors, measuring up to 3.0 x 4.5 x 2.5 cm, were detected in the stomach and the omentum of an autopsied red fox (Vulpes vulpes). The fox was hunted in the Hanstholm Nature Reserve, which is 230 km from the closest mainland borders. The tumors had a thick layer of fibrous tissue in which adult worms of Spirocerca sp. were detected. Despite egg excretion by female worms (identified by histology and examination of female worms), no eggs were detected in feces by sedimentation, floatation with saturated sugar solution or sieving. Partial sequencing of two segments of the mitochondrial cox1 gene revealed unique sequences that were distinct from known isolates of S. lupi from Europe, Asia and Africa. Phylogenetic analysis supported the later finding by grouping Danish isolates in one separate node which was distant from other nodes including S. lupi from other countries. It is not known whether this case was an autochthonous infection or whether it was introduced by migrating paratenic or definitive hosts. This is the first report of Spirocerca sp. in Denmark. Additional molecular and/or biological studies are warranted to further characterize the isolated Spirocerca species.

Genetically distinct isolates of Spirocerca sp. from a naturally infected red fox (Vulpes vulpes) from Denmark

Spirocerca lupi causes formation of nodules that may transform into sarcoma in the walls of aorta, esophagus and stomach of infected canids. In February 2013, post mortem examina-tion of a red fox (Vulpes vulpes) hunted in Denmark revealed the presence of several nodulescontaining adult worms of Spirocerca sp. in the stomach and the omentum. The
nODULESLARGELY CONSISTED OF FIBROUS TISSUE WITH INFILTRATION OF MONONUCLEAR CELLS, NEUTROPHILIC GRANULOCYTES AND MACROPHAGES WITH HEMOSIDERIN DEPOSITION. PARASITOLOGICAL EXAMINATION BY THREE COPROMICROSCOPIC METHODS, SEDIMENTATION, FLOATATION WITH SATURATED SUGAR-SALT SOLUTION, AND SIEVING FAILED TO DETECT EGGS OF SPIROCERCA SP. IN FECES COLLECTED FROM THE COLON. THIS IS THE FIRST REPORT OF SPIROCERCOSIS IN DENMARK, AND MAY HAVE BEEN CAUSED BY A RECENT INTRODUCTION BY MIGRATING PARATENIC OR DEFINITIVE HOST. ANALYSIS OF TWO OVERLAPPING PARTIAL SEQUENCES OF THE COX1 GENE, FROM INDIVIDUAL WORMS, REVEALED DISTINCT GENETIC VARIATION (7–9%) BETWEEN THE DANISH WORMS AND ISOLATES OF S. LUPI FROM EUROPE, ASIA AND AFRICA. THIS WAS CONFIRMED BY PHYLOGENETIC ANALYSIS THAT CLEARLY SEPARATED THE DANISH WORMS FROM OTHER ISOLATES OF S. LUPI. THE DISTINCT GENETIC DIFFERENCES OF THE CURRENT WORMS COMPARED TO OTHER ISOLATES OF S. LUPI MAY SUGGEST THE PRESENCE OF A CRYPTIC SPECIES WITHIN SPIROCERCA.

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Organisations: National Veterinary Institute, Section for Bacteriology, Pathology and Parasitology, Section for Public sector service and commercial diagnostics
Contributors: Al-Sabi, M. N. S., Hansen, M. S., Chriél, M., Holm, E., Larsen, G., Enemark, H.
Number of pages: 8
Pages: 389-396
Publication date: 2014
Peer-reviewed: Yes

MONITORING OF FRANCISELLA TULARENSIS AND YERSINIA PSEUDOTUBERCULOSIS IN DANISH HARES (LEPUS EUROPAEUS) BY FLUORESCENT IN SITU HYBRIDIZATION
The National Veterinary Institute conducts general health surveillance of wildlife by examination of dead animals submitted by private individuals and government agencies from across Denmark. During 2012 and 2013, 1265 terrestrial mammals, 76 marine mammals and 262 birds were examined. A total of 59 hares (Lepus Europaeus) have been screened for presence of the zoonotic bacteria Francisella tularensis and Yersinia pseudotuberculosis by fluorescent in-situ hybridization (FISH). Ten hares were positive for Y. pseudotuberculosis and one was positive for F. tularensis. F. tularensis and Y. pseudotuberculosis has a wide host range and causes high mortality in hares. When it comes to zoonotic potential F. tularensis poses the major risk for humans, where it causes tularemia - a potentially deadly disease. FISH is an easy, cheap and not at least safe method for monitoring F. tularensis and Y. pseudotuberculosis. Health surveillance of wildlife is vital in order to track changes in disease prevalence. The frequent detection of zoonotic agents in wild hares emphasizes the importance of handling game - and especially dead wildlife - with strict hygiene.

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Contributors: Hansen, M. S., Chriél, M., Larsen, G., Holm, E., Jensen, T. K.
Publication date: 2014
Peer-reviewed: Yes
Event: Abstract from European Wildlife Disease Association congress, Edingburgh, United Kingdom.
Electronic versions:
2014_EWDA_Poster_Mette_Sif_Hansen.pdf
Source: PublicationPreSubmission
Source-ID: 103298954
Research output: Contribution to conference › Conference abstract for conference – Annual report year: 2014 › Research › peer-review
Nyt fra DTU Veterinærinstituttet: Vaccination af mink kræver omhu

General information
Publication status: Published
Organisations: National Veterinary Institute
Contributors: Larsen, G., Chriél, M.
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Peer-reviewed: Unknown

Publication information
Journal: Dansk Veterinaertidsskrift
Volume: 13
ISSN (Print): 0106-6854
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BFI (2014): BFI-level 1
Original language: English
Electronic versions:
DVT_13_2014.pdf
Source: PublicationPreSubmission
Source-ID: 101564616
Research output: Contribution to journal › Comment/debate – Annual report year: 2014 › Communication

Poster: Faldvildt undersøgelser på DTU Veterinærinstituttet i 2013

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Contributors: Hansen, M. S., Larsen, G., Holm, E., Jensen, T. K., Al-Sabi, M. N. S., Chriél, M.
Pages: 102-103
Publication date: 2014
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Publication information
Journal: Flora og Fauna
Volume: 120
Issue number: 3
ISSN (Print): 0015-3818
Original language: English

Bibliographical note
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Source: PublicationPreSubmission
Source-ID: 103601058
Research output: Contribution to journal › Journal article – Annual report year: 2014 › Research › peer-review

Rapportering af diagnostiske undersøgelser af faldvildt 2014

General information
Publication status: Published
Snabelklove hos danske rådyr
Snabelklove er en lidelse hos rådyr som medfører at klovene bliver meget lange. I nogle tilfælde er både bi- og hovedklove forvoksede. På grund af de deforme klove ændres dyrets dyretræning, hvilket hos andre dyrearter er forbundet med lange smertevoldende forløb – og det må formodes også at være tilfældet for rådyr. Årsagen hos rådyr er ukendt, men i jægerkredse har der været spekuleret i misdannelser eller hormonforstyrrelser eller for lidt slid af klovene på grund af jordbundsforholdene.

Formålet med denne undersøgelse er at fastlægge om laminitis (også kaldet forfangenhed) er den del af det kompleks af foderskiftsforløb, som kan ses hos rådyr efter bratte foderskift. Hvis det viser sig at bratte foderskift kan relateres til fund af snabelklove skal resultatet anvendes til at fremme sundhedstilstanden i den danske rådyrpopulation ved at vejlede/rådgive jægere om risici ved fodring i naturen.


General information
Publication status: Published
Organisations: National Veterinary Institute, Section for Bacteriology, Pathology and Parasitology, University of Copenhagen
Publication date: 2014

Publication information
Original language: English
Electronic versions: Snabelklove_hos_danske_r_dyr.pdf
Source: PublicationPreSubmission
Source-ID: 104233624
Research output: Book/Report › Report – Annual report year: 2014 › Commissioned › peer-review
transmission of CDV to farmed mink and that the virus may be maintained in the wild animal reservoir between outbreaks.

**General information**
Publication status: Published
Organisations: National Veterinary Institute, Section for Virology, Section for Public sector service and commercial diagnostics, Kopenhagen Diagnostics
Number of pages: 11
Publication date: 2014
Peer-reviewed: Yes

**Publication information**
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Volume: 9
Issue number: 1
Article number: e85598
ISSN (Print): 1932-6203
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BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 3.54 SJR 1.518 SNIP 1.107
Web of Science (2014): Indexed yes
Original language: English
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fetchObject.pdf
DOIs:
10.1371/journal.pone.0085598

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Source: FindIt
Source-ID: 259571410
Research output: Contribution to journal › Journal article – Annual report year: 2014 › Research › peer-review

**Årsrapport for vildtsundhed 2013**

**General information**
Publication status: Published
Organisations: National Veterinary Institute, Section for Bacteriology, Pathology and Parasitology, Section for Epidemiology
Number of pages: 24
Publication date: 2013

**Publication information**
Original language: Danish
Research output: Book/Report › Report – Annual report year: 2014 › Research › peer-review

**Hvalpesyge hos mink**

**General information**
Publication status: Published
Organisations: National Veterinary Institute, Section for Bacteriology, Pathology and Parasitology, Section for Public sector service and commercial diagnostics
Contributors: Jensen, T. K., Larsen, G., Chriél, M.
Publication date: 2013

**Bibliographical note**
Source: dtu
Source-ID: u::7342
Research output: Non-textual form › Sound/Visual production (digital) – Annual report year: 2013 › Research
Immunhistokemisk metode til påvisning af mink virus enteritis

General information
Publication status: Published
Organisations: National Veterinary Institute, Section for Bacteriology, Pathology and Parasitology
Contributors: Hansen, M. S., Chriél, M., Larsen, G., Holm, E., Jensen, T. K.
Pages: 161-162
Publication date: 2013

Host publication information
Title of host publication: Faglig Årsberetning 2013 : Kopenhagen Fur
Place of publication: Aarhus N
Publisher: Kopenhagen Fur
Electronic versions:

URLs:
http://issuu.com/kopenhagenfur/docs/faglig___rsberetning
Research output: Chapter in Book/Report/Conference proceeding » Book chapter – Annual report year: 2014 » Research » peer-review

Omfattende udbrud af hvalpesyge i danske mink (Neovison vison) og vilde rovdyr

General information
Publication status: Published
Organisations: National Veterinary Institute, Section for Virology, Kopenhagen Fur
Pages: 171-178
Publication date: 2013

Host publication information
Title of host publication: Faglig Årsberetning 2013 : Kopenhagen Fur
Place of publication: Aarhus N
Publisher: Kopenhagen Fur
Electronic versions:

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http://issuu.com/kopenhagenfur/docs/faglig___rsberetning
Research output: Chapter in Book/Report/Conference proceeding » Book chapter – Annual report year: 2014 » Research » peer-review

Rystemink

General information
Publication status: Published
Organisations: National Veterinary Institute, Section for Bacteriology, Pathology and Parasitology
Contributors: Chriél, M., Hansen, M. S., Holm, E., Larsen, G., Hjulsager, C. K.
Pages: 117-120
Publication date: 2013

Host publication information
Title of host publication: Faglig Årsberetning 2013 : Kopenhagen Fur
Place of publication: Aarhus N
Publisher: Kopenhagen Fur
Electronic versions:

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http://issuu.com/kopenhagenfur/docs/faglig___rsberetning
Source: PublicationPreSubmission
Source-ID: 104540848
Research output: Chapter in Book/Report/Conference proceeding » Book chapter – Annual report year: 2014 » Research » peer-review
Halvårsrapport for vildtsundhed 2012

General information
Publication status: Published
Organisations: National Veterinary Institute, Section for Bacteriology, Pathology and Parasitology
Number of pages: 18
Publication date: 2012

Miltbrandsemfysem hos ungkreaturer

General information
Publication status: Published
Organisations: National Veterinary Institute, Section for Bacteriology, Pathology and Parasitology, Section for Public sector service and commercial diagnostics, Tinglev Dyrehospital I/S, Seges Knowledge Centre for Agriculture
Contributors: Larsen, G., Krogh, K., Lage, N., Angen, Ø.
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Peer-reviewed: Yes

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ISI indexed (2012): ISI indexed no
Original language: Danish
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Source: dtu
Source-ID: u::5540
Research output: Contribution to journal › Journal article – Annual report year: 2012 › Research › peer-review