

CURRICULUM VITAE

NAME: Morten Tryland
DATE OF BIRTH: 17. June 1961
CITIZENSHIP: Norwegian



PRESENT OCCUPATION: Professor (veterinary medicine – infection biology):
University of Tromsø - the Arctic University of Norway
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Professor II: Centre for Biosafety (GenØk) (2011–).

MAIN SCIENTIFIC FOCUS: Infectious diseases (semi-domestic reindeer, wildlife), zoonoses.

ACADEMIC DEGREE

Doctor scientiarum (Dr. Scient), University of Tromsø, December 1996: "Orthopoxviruses in Norway: distribution, reservoirs and characteristics". (Diagnostics and prevalence of poxvirus infections in wild animals, molecular characterization of field isolates, molecular and serological methods).

SCIENTIFIC PUBLICATIONS in peer reviewed international journals (2009-2013)

- Munyeme M, Muma JB, Samui KL, Skjerve E, Nambota AM, Phiri IG, Rigouts L, **Tryland M.** 2009. Prevalence of bovine tuberculosis and animal level risk factors for indigenous cattle under different grazing strategies in the livestock/wildlife interface areas of Zambia. *Trop Anim Health Prod.* 41(3):345-352.
- Das Neves, C., Roger, M., Yoccoz, N.G., Rimstad, E., **Tryland, M.** 2009. Evaluation of three commercial bovine ELISA kits for detection of antibodies against Alphaherpesvirus in reindeer (*Rangifer tarandus tarandus*). *Acta Vet Scand* Mar 9;51(1):9.
- Das Neves CG, Rimstad E, **Tryland M.** 2009. Cervid Herpesvirus 2 Causes Respiratory and Fetal Infections in Semidomesticated Reindeer. *J Clin Microbiol.* May;47(5):1309-13.
- Tryland, M.**, Kovacs, K., Lydersen, C, Thoresen, S.I. Serum chemistry reference values for free-ranging North Atlantic walrus (*Odobenus rosmarus rosmarus*) from the Svalbard archipelago. *Vet Clin Pathol.* 38:501-506.
- Das Neves CG, Thiry J, Skjerve E, Yoccoz NG, Rimstad E, Thiry E, **Tryland M.** 2009. Alphaherpesvirus infections in semidomesticated reindeer: a cross-sectional serological study. *Veterinary Microbiology* 139: 262-269.
- Okeke MI, Nilssen Ø, Moens U, **Tryland M**, Traavik T. 2009. In vitro host range, multiplication and virion forms of recombinant viruses obtained from co-infection in vitro with a vaccinia-vectored influenza vaccine and a naturally occurring cowpox virus isolate. *Virology Journal* 2009 May 12;6:55.
- Okeke MI, Adekoya OA, Moens U, **Tryland M**, Traavik T, Nilssen Ø. 2009. Comparative sequence analysis of A-type inclusion (ATI) and P4c proteins of orthopoxviruses that produce typical and atypical ATI phenotypes. *Virus Genes* 39(2):200-9.
- Das Neves CG, Mørk T, Godfroid T, Sørensen KK, Breines E, Hareide E, Thiry J, Rimstad E, Thiry E, **Tryland M.** 2009. Experimental infection of reindeer with Cervid herpesvirus 2. *Clinical and Vaccine Immunology* 16(12):1758-65.
- Das Neves CG, Mørk T, Thiry J, Godfroid J, Rimstad E, Thiry E, **Tryland M.** 2009. Cervid herpesvirus 2 experimentally reactivated in reindeer can produce generalized viremia and abortion. *Virus Research* Nov;145(2):321-8.
- Tryland M**, Das Neves CG, Sunde M, Mørk T. 2009. Cervid herpesvirus 2, the primary agent in an outbreak of infectious keratoconjunctivitis in semi-domesticated reindeer. *Journal of Clinical Microbiology* 47(11):3707-13.
- Maquart M, Le Flèche P, Foster G, **Tryland M**, Ramisse F, Djønne B, Al Dahouk S, Jacques I, Neubauer H, Walravens K, Godfroid J, Cloeckert A, Vergnaud G. 2009.

- MLVA-16 typing of 295 marine mammal *Brucella* isolates from different animal and geographic origins identifies 7 major groups within *Brucella ceti* and *Brucella pinnipedialis*. BMC Microbiology 9:145.
- Munyeme M, Rigouts L, Shamputa IC, Muma JB, Tryland M, Skjerve E, Djønne B. 2009. Isolation and characterization of *Mycobacterium bovis* strains from indigenous Zambian cattle using Spacer oligonucleotide typing technique. BMC Microbiology Jul 20;9:144.
- Foster G, Evans J, **Tryland M**, Holamby S, MacArthur I, Gordon E, Harley J, Voight K. 2010. Use of citrate adonitol agar as a selective medium for the isolation of *Escherichia fergusonii* from a captive reindeer herd. Vet Microbiol. 144(3-4):484-6.
- Das Neves CG, Roth S, Rimstad E, Thiry E, **Tryland M**. 2010. Cervid herpesvirus 2 infection in reindeer: a review. Vet Microbiol. 2010 Jun 16;143(1):70-80.
- Munyeme M, Muma JB, Munang'andu HM, Kankya C, Skjerve E, Tryland M. 2010. Cattle owners' awareness of bovine tuberculosis in high and low prevalence settings of the wildlife-livestock interface areas in Zambia. BMC Vet Res. 6(1):21.
- Munyeme M, Muma JB, Siamudaala VM, Skjerve E, Munang'andu HM, **Tryland M**. 2010. Tuberculosis in Kafue lechwe antelopes (*Kobus leche Kafuensis*) of the Kafue Basin in Zambia. Prev Vet Med 95(3-4):305-8.
- Chimana, H. M., Muma, J. B., Samui, K. L., Hangombe, B., Munyeme, M., Matope, G., Phiri, A. Godfroid, G., Skjerve, E., **Tryland, M**. 2010. Seroprevalence of Brucellosis in Commercial Dairy and Beef Cattle of Lusaka province, Zambia. Trop Anim Health Prod 42(7):1541-5.
- Tryland M**, Ryser-Degiorgis M-P, Okeke MI, Mörner T, Hård av Segerstad C. 2011. Orthopoxvirus infection in Eurasian lynx in Sweden. Emerging Infectious Diseases 17: 626-632.
- Weli SC, **Tryland M**. 2011. Avipoxviruses: infection biology and their use as vaccine vectors. Virology Journal, 8:49.
- Munyeme M, Muma JB, Munang'andu HM, Nalubamba KS, Kankya C, Skjerve E, Godfroid J, **Tryland M**. 2011. Failure to detect tuberculosis in lechwe antelopes (*Kobus leche smithemani*) in Zambia. BMC Res Notes 4: 233.
- Carroll DS, Emerson GL, Li Y, Sammons S, Olson V, Frace M, Nakazawa Y, Czerny CP, **Tryland M**, Kolodziejek J, Nowotny N, Olsen-Rasmussen M, Khrstova M, Govil D, Karem K, Damon IK, Meyer H. 2011. Chasing Jenner's Vaccine: Revisiting *Cowpox Virus* Classification. PLOS One 6(8):e23086. Epub 2011 Aug 8.
- Nymo IH, **Tryland M**, Godfroid J. 2011. A review of *Brucella* infection in marine mammals, with special emphasis on *Brucella pinnipedialis* in hooded seal (*Cystophora cristata*). Veterinary Research 42(1):93.
- Mørk T, Bohlin J, Fuglei E, Åsbakk K, **Tryland M**. 2011. Rabies in the arctic fox population in Svalbard, Norway. J Wildl Dis 47(4):945-57.
- Evans AL, das Neves CG, Finstad GF, Beckmen KB, Skjerve E, Nymo IH, **Tryland M**. 2012. Evidence of alphaherpesvirus infections in Alaskan caribou and reindeer. BMC Vet Res 14; 8:5.
- Tryland M**. 2012. Are we facing new health challenges and diseases in reindeer in Fennoscandia? Rangifer 32 (1): 35-48.
- Davidson RK, Romig T, Jenkins E, **Tryland M**, Robertson LJ. 2012. The impact of globalization on the distribution of *Echinococcus multilocularis*. Trends in parasitology 28(6):239-47. doi: 10.1016/j.pt.2012.03.004.
- Tryland M**, Nymo IH, Nielsen O, Nordøy E, Kovacs KM, Krafft BA, Thoresen SI, Åsbakk K, Osterrieder K, Roth SJ, Lydersen C, Godfroid J, Blix AS. 2012. Serum chemistry and antibodies against pathogens in Antarctic fur seals, Weddell seals, crabeater seals and Ross seals. J Wildl Dis 48(3): 632-645.
- Tryland M**, Berger T, Klein J, Josefsen TD, Åsbakk K, das Neves CG, Larsen HJ, Oksanen A. 2013. Experimental parapoxvirus infection (contagious ecthyma) in semi-domesticated reindeer (*Rangifer tarandus tarandus*). Veterinary Microbiology 162: 499-506.
- Carlos G. Das Neves, Hanne I. Ihlebæk, Eystein Skjerve, Willy Hemmingsen, Hong Li, **Morten Tryland**. 2013. Gammaherpesvirus infection in semidomesticated reindeer (*Rangifer tarandus tarandus*): a cross-sectional, serologic study in Northern Norway. J Wildl Dis 49(2): 261-269.

- Swaantje J. Roth, B. Karsten Tischer, Kit M. Kovacs, Christian Lydersen, Nikolaus Osterrieder, **Morten Tryland**. 2013. Phocine herpesvirus 1 (PhHV-1) in harbor seals from Svalbard, Norway. *Veterinary Microbiology* 164(3-4):286-92. doi: 10.1016/j.vetmic.2013.03.008.
- Ingebjørg H. Nymo, Jacques Godfroid, Kjetil Åsbakk, Anett K. Larsen, Carlos G. das Neves, Rolf Rødven, **Morten Tryland**. 2013. A protein A/G indirect enzyme-linked immunosorbent assay for the detection of anti-*Brucella* antibodies in Arctic wildlife. *J Vet Diagn Invest*. 2013 May;25(3):369-75. doi: 10.1177/1040638713485073.
- Stewart P, Campbell L, Skogtvedt S, Griffin KA, Arnemo JM, **Tryland M**, Girling S, Miller MW, Tranulis MA, Goldmann W. 2013. Genetic predictions of prion disease susceptibility in carnivore species based on variability of the prion gene coding region. *PLoS One*. 2012;7(12):e50623. doi: 10.1371/journal.pone.0050623.
- Smits SL, Schapendonk CM, van Leeuwen M, Kuiken T, Bodewes R, Stalin Raj V, Haagmans BL, das Neves CG, **Tryland M**, Osterhaus AD. 2013. Identification and characterization of two novel viruses in ocular infections in reindeer. *PLoS One*. 8(7):e69711. doi: 10.1371/journal.pone.0069711.
- Anett K. Larsen, Ingebjørg Nymo, Preben Boysen, Morten **Tryland**, Jacques Godfroid. 2013. Entry and elimination of marine mammal brucella spp. By hooded seal (*Cystophora cristata*) alveolar macrophages in vitro. *PLoS One*. 2013 Jul 25;8(7):e70186. doi: 10.1371/journal.pone.0070186.
- Nymo I, **Tryland M**, Frie AK, Haug T, Foster G, Rødven R, Godfroid J. 2013. Age dependent prevalence of anti-*Brucella* antibodies in hooded seals *Cystophora cristata*. *Dis Aquat Organ* 106(3):187-96.
- Tryland M**, Nesbakken T, Robertson L, Grahek-Ogden D, Lunestad BT. 2013. Human pathogens in marine mammal meat – a Norwegian perspective. *Zoonoses and Public Health* 60: 1-18 (doi: 10.1111/zph.12080).
- Nymo IH, das Neves CG, **Tryland M**, Bårdsen B-J, Santos RL, Turchetti AP, Janczak AM, Djønne B, Lie E, Berg V, Godfroid J. 2014. *Brucella pinnipedialis* hooded seal (*Cystophora cristata*) strain in the mouse model with concurrent exposure to PCB 153. *Comparative Immunology, Microbiology and Infectious Diseases* <http://dx.doi.org/10.1016/j.cimid.2014.01.005>

BOOK CHAPTERS

- Tryland M**. 2011. Seal parapoxvirus. *In*: Liu D (Ed), *Molecular detection of human viral pathogens*. CRC Press, pp. 1029-1037.
- Tryland M**, Susan Kutz, Pat Curry. 2012. Wildlife Health in a Changing North: A Model for Global Environmental Change. *In*: Aguirre A, Ostfeld RS, Tabor GM, House C, Pearl MC (Eds), *Conservation Medicine – ecological health in practice*. Oxford University Press, pp. 122-134.

SCIENTIFIC PRESENTATIONS ON INTERNATIONAL CONFERENCES (2011-2013)

- Torill Mørk, Jon Bohlin, Eva Fuglei, Kjetil Åsbakk, **Morten Tryland**. Rabies in the arctic fox population in Svalbard, Norway. *Fighting Infections: Challenges and Recent Progress - A British-Scandinavian Meeting in Microbiology and Infection*, Bergen, Norway, 25.-28. May 2011, page 40.
- Morten Tryland**, Bjørn-Tore Lunestad, Truls Nesbakken, Lucy Robertson, Eystein Skjerve and Danica Grahek-Ogden. Human pathogens in marine mammal meat. *Fighting Infections: Challenges and Recent Progress - A British-Scandinavian Meeting in Microbiology and Infection*, Bergen, Norway, 25.-28. May 2011, page 31.
- Morten Tryland**, Torill Mørk, Marianne Sunde, Carlos G. das Neves, Erik Ågren, Tone Lille-Mæhlum, Antti Oksanen, Sauli Laaksonen. Infectious keratoconjunctivitis in semi-domesticated reindeer (*Rangifer tarandus tarandus*) – chasing causative agents. [abstract/oral]. 13th International Arctic Ungulate Conference, Yellowknife, Canada, 22.-26. August 2011, page 33.
- Morten Tryland**, Jörn Klein, Therese Berger, Terje D. Josefsen, Carlos G. das Neves, Kjetil Åsbakk. Experimental parapoxvirus infections in semi-domesticated reindeer (*Rangifer tarandus tarandus*). [abstract/oral]. *Wildlife Disease Association – 60th International Conference - Wildlife Resources in a Changing World*, Quebec City, Canada, 14.-19. August 2011, page 80.
- Arinze Stanley Okoli, Malachy Ifeanyi Okeke, Ugo Moens, Øivind Nilssen, **Morten Tryland**, Jack Ansgar Bruun, Thomas Bøhn, Terje Traavik. Quantitative Proteomic Evaluation of nrMVA- and hanpMVA-infected BHK-21 cells. *GenØk Biosafety Conference - Tough choices – new biosafety decisions in high stake arenas*. Tromsø, 22.-24. August, 2011.
- Tone Lille-Mæhlum, Marianne Sunde, Torill Mørk, Carlos G. das Neves, Sauli Laaksonen, Marit Madderom, Pia Haubro Andersen, **Morten Tryland**. Infectious keratoconjunctivitis (IKC) in reindeer (*Rangifer tarandus*) in Scandinavia with special attention to the conjunctival flora and occurrence of infections with alphaherpesvirus. *European Society of veterinary Ophthalmology*, Prague, October 2011.

Morten Tryland, Torill Mørk, Marianne Sunde. Infectious keratoconjunctivitis in semi-domesticated reindeer (*Rangifer tarandus tarandus*) – challenges in treatment. International Conference of Zoo and Wild Animals, Vienna, Austria, May 8-11, 2013, page 29.

REFEREE-WORK

- Referee-work conducted for >20 different international scientific journals.
- Editorial member for the journal "The Open Veterinary Science Journal" ISSN: 1874-3188 www.benthamscience.org/open/tovsj (January 2008 –).
- Referee for research applications to the North Pacific research Board (2009).

SUPERVISOR EXPERIENCE

PhD students: Main supervisor (4 students, 1 ongoing), co-supervisor (4 students).

Masterstudents: Main supervisor (2 students).

Graduate students (NVH and international): supervisor for 13 students.

ADMINISTRATIVE EXPERIENCE

- Deputy for head of Section of Immunoprophylaxis, National Vet. Institute, Oslo (1998-99).
- Responsible for the production of hyperimmune-serum in horses, National Veterinary Institute, Oslo (1998-99).
- Scientific head of Virology section, Dept. of Microbiology and Virology, University of Tromsø 2002-2004.
- Member of board and deputy for head of Institute of Arctic Veterinary Medicine 2002-2004.
- Deputy for head of Section of Arctic Veterinary Medicine 2004–2005.
- Acting head of Section of Arctic Veterinary Medicine (July 2005 – November 2005).
- Project coordinator (NORAD/SIU/NUFU): network project, 6 African countries (Jan 2007 – Dec 2011).

INTERNATIONAL EXPERIENCE

- Project coordinator (NORAD/SIU/NUFU): network project hosted by Norwegian School of Veterinary Science (NVH) in cooperation with Norwegian Veterinary Institute (Oslo) and Tanzania (main partner) South Africa, Zimbabwe, Mozambique, Tanzania, Uganda and Zambia. (Jan 2007 – Dec 2011).
- Sabbatical with University of Alaska, Fairbanks, Alaska, USA (June – October 2012). Main activity: field work, laboratory work and lectures for local herders on reindeer and wildlife infectious diseases.

OTHER ACTIVITY

- Member of Management Committee, COST ACTION 845 Brucellosis in animals and man" (May 2005 – 2007).
- Member of Norwegian Scientific Committee for Food Safety (Vitenskapskomiteen for mattrygghet; 2007–).
- Member of International Committee, Wildlife Disease Association (September 2011 –).

RESEARCH PROJECTS

- **Reinhelse – forprosjekt** (RUF). Responsible for the virology project (50 000 NOK, 2001).
- **"Contagious ecthyma in reindeer – detection and prophylaxis"**. Reindriftens utviklingsfond (RUF) (320 000,- NOK, 2002-03).
- **"Population ecology of walruses (*Odobenus rosmarus rosmarus*) on Svalbard"**. Norwegian Research Council (NFR), 1.500 000 NOK (2002-2004, Norwegian Polar Institute). Health parameter assessments.
- **"Poxviruses in Norway: biodiversity, characteristics and recombinations between naturally occurring and genetically engineered vaccine viruses"**. Norwegian Research Council (NFR). Responsible for sub-project. University of Tromsø and GenØk).
- **"Virus infections in reindeer in Finnmark – impact on calf mortality"**. Reindriftens utviklingsfond (RUF), 340 000,- NOK (2005-2007). Project leader.
- **"ZOOTOX-2007-11: Collaborative research in environmental toxicology and zoonotic diseases in the Human / Domestic animal / Wildlife interface areas of Eastern and Southern Africa – A South-North Veterinary Network"**. NVH og Sokoine (Tanzania), with Uganda, Zambia, Mozambique, Zimbabwe and South-Africa as partners. SIU/NUFU programme (5 800 000 NOK, 2007-2011). Project coordinator.
- **"Epidemiological investigations of Zoonotic Tuberculosis in the Livestock and Wildlife Interface areas of the Kafue Basin in Zambia"**. NVH priority project (2007). NVH and NFR (150 000 NOK). Project leader.
- **"Morbillivirus-infections in seals in Norwegian waters"**. NVH priority project (2008). NVH and NFR (95 000 NOK). Project leader.
- **"Reindeer health 2008-2010: Research on reindeer viral infections in Norway"**. Reindriftens utviklingsfond (RUF), 700 000 NOK (2008-2010). Project leader.
- **"Transmissible keratoconjunctivitis in reindeer"**. Reindriftens utviklingsfond (RUF), 420 000 NOK (2010-2013). Project leader.

- **"Nordic co-operation on reindeer health: Impact of severe infectious eye disease (kvitøye, Çalbmevikke) - causes, prophylaxis and treatment"**. Nordic Council of Ministers (Nordisk Råd), 444 000 DK (2010-2013). Project leader.
- **"Epidemiology of Infectious Keratoconjunctivitis and Alphaherpesviruses in Arctic Ungulates"**. Morris Foundation (USA), 25 000 USD (2010-2012). Project leader.
- **"Climate And Reindeer Diseases (CARD)"**. Terrestrial flagship, The Fram Centre, 520 000 NOK (2011 - 2012). Project leader.
- **«Infeksjonssjukdommer hos rein i kystnære beiteområder – variasjoner i forhold til endringer i klima»**. Reindeer Development Fund (Reindriftens utviklingsfond), 1 815 000 NOK (2013-2015). Project leader.