

Poster presentations

Session A Pathogenesis and immunology

- 1A-O1** **Modulation of cytokine expression and lymphocyte subsets during the periparturient period in dairy cows naturally infected with *Mycobacterium avium* subsp. *paratuberculosis*.**
Elizabeth L Karcher, Donald C Beitz, Judith R Stabel (JDIP award)
- 2A** **Differential cytokine gene expression profiles in the three pathological forms of sheep paratuberculosis.** Jennifer Anne Smeed, Craig Watkins, Susan Rhind, John Hopkins
- 3A** **Immune correlations with paucibacillary and multibacillary disease in sheep naturally infected with *Mycobacterium avium* subspecies *paratuberculosis*.** Sonia Maree Gillan, Rory O'Brien, Frank Griffin
- 4A** **Role of *Mycobacterium avium* subsp. *paratuberculosis* in the pathogenesis of Crohn's disease.**
Andrew Johnston Allen, Mary Jo Hamilton, George Barrington, Kevin Lahmers, Kun Taek Park, Chris Davies, William Davis
- 5A** **Proliferation of lymphocyte subsets in experimental ovine Johne's disease**
Kumudika de Silva, Douglas Begg, Deborah Taylor, Lyriisa Di Fiore, Richard Whittington
- 6A-O2** **Association between Two Polymorphisms in the Bovine CARD15/NOD2 Gene and Paratuberculosis Infection in Florida Dairy and Beef Cattle.** PJ Pinedo, CD Buergelt, R. Wu, GA Donovan, JE Williams, PG Melendez, L Morel, and DO Rae (Richard Merkal award)
- 7A** **Innate resistance of mice to *M. avium* subsp. *paratuberculosis* is controlled by SLC11A1.**
Valerie ROSSEELS, virginie Roupie, Virginie Piersoël, Denise Zinniel, Raúl G. Barletta, Kris Huygen
- 8A-O3** **Susceptibility to paratuberculosis is associated with functionally relevant single nucleotide polymorphisms in bovine Toll-Like Receptor 2.** Ad Koets, Hanneke Mertens, Daphne Oostenrijk, Marijke Keestra, Marije Overdijk, Peter Franken, Adrie Frijters, Victor Rutten
- 9A** **Experimental paratuberculosis in sheep with a caprine isolate of *Mycobacterium avium* subsp. *paratuberculosis*.** A Anand Kumar, Bhupendra Nath Tripathi
- 10A** **Screening of tissues to estimate comparative distribution of *Mycobacterium avium* subspecies *paratuberculosis* in target and non-target organs of goats and sheep in India, using culture and PCR.** J. Vohra, S.V.Singh , A.V. Singh , P.K.Singh, J.S.Sohal
- 11A** **Presence and characterization of *Mycobacterium avium* subspecies *paratuberculosis* from vaginal secretions of post-parturient farm goats, using culture, IS900 PCR and ELISA kit.**
S. V. Singh, J. Vohra, A.V.Singh, P.K.Singh, J.S.Sohal
- 12A-O4** **Mechanisms used by MAP to impair CD40-mediated IL-12p40 and iNOS gene expression in bovine monocyte-derived macrophages.** Sandra Sommer, Christopher J Colvin, Paul M Coussens
- 13A** **Apoptosis of mononuclear cells in experimental and natural ovine Johne's disease.** Sally Browne, Kumudika de Silva, Douglas Begg, Richard Whittington, David Emery
- 14A** **DNA Cocktail Vaccination Induces Th1 Response and Protects Mice against *Mycobacterium avium* subsp. *paratuberculosis* Challenge.** Yung-Fu Chang, Sung-Un Park, Kumanan Kathaperumal, Sean McDonough, Susan Stehman, Bruce Akey and John Huntley
- 15A-O5** **Immunization with a Novel Map74F Fusion Protein Protects Mice against *Mycobacterium avium* subsp. *paratuberculosis* Challenge.** Kumanan Kathaperumal, Li-Hsuen Chen, Ching-Juo Huang, Sean P. McDonough, Susan Stehman, Bruce Akey, John Huntley, Chao-Fu Chang, John Bannantine and Yung-Fu Chang

- 16A-O6 **New proposed immunopathological model for paratuberculosis in ruminants.** Maria V. Geijo, Elena Molina, Iker Sevilla, Felix Bastida, Joseba M. Garrido, Ramon A. Juste
- 17A **Comparison of the cell-mediated immune responses to reduced doses of *Mycobacterium avium* ssp *paratuberculosis* vaccine in cattle.** Ratre Platt, James Roth, Robert Stalberger, Charles Thoen, Yu-Wei Chiang, Hsien-Jue Chu
- 18A **Identification of bovine and caprine B cell epitopes of *M. avium* subspecies *paratuberculosis* 70 kD heat shock protein.** Ad Koets, Peter van Kooten, Wiebren Santema, Ruurd van der Zee, Marije Overdijk, Victor Rutten
- 19A **Early local immune responses to Mycobacterial 70 kD heat-shock protein vaccination.** Femke Broere, Willem van Eden, Victor Rutten, Ad Koets
- 20A **Development and characterization of attenuated mutant candidate vaccines for control of paratuberculosis.** Kun Taek Park, John L. Dahl, John P. Bannantine, Raúl G. Barletta, Andrew J. Allen, Mary Jo Hamilton, Min Kyung Park, William C. Davis
- 21A **Immune profile differences in red deer following experimental challenge with *Mycobacterium avium* subspecies *Paratuberculosis*.** Mark William Robinson, Rory O'Brien, Colin Mackintosh, Frank Griffin
- 22A-O7 ***Mycobacterium paratuberculosis* Under Stress: What Can the Bacteria Do?** Adel M. Talaat
- 23A **Proteomic evaluation of sera and milk from healthy and paratuberculosis infected cow.** Paola Roncada, Francesca Deriu, Alessio Soggiu, Norma Arrigoni, Luigi Bonizzi
- 24A **Decreased expression of MMP-9 and increased expression of TIMP-1 in peripheral blood of paratuberculosis-infected cattle in the ELISA-negative subclinical stage.** Eiichi Momotani, Xiaofei Wang, Hongyu Wang, Aodon -geril, Yujing Shu, Yuriko Momotani, Yasuyuki Mori
- 25A **CRH and urocortin expression in peripheral blood from experimentally infected cattle with *Mycobacterium avium* subsp. *paratuberculosis*.** Eiichi Momotani, Hongyu wang, Aodon -geril, Yujing Shu, Yuriko Momotani, Xiaofei Wang, Yasuyuki Mori
- 26A **Association between milk antibody and interferon-gamma (IFN- γ) responses in cattle from *Mycobacterium avium* subsp. *paratuberculosis* infected herds.** Heidi Mikkelsen, Søren Saxmose Nielsen, Gregers Jungersen
- 27A **Experimental infection of BALB/ c mice by oral, intraperitoneal and intravenous routes with bovine isolate of *Mycobacterium avium* subsp. *paratuberculosis*.** D.K Jolhe and B.N.Tripathi
- 28A **Development of a Johne's disease infection model in New Zealand white rabbits with a bovine isolate of *Mycobacterium avium* subsp. *paratuberculosis* using oral, intraperitoneal and intravenous routes of inoculation.** Dhanajay Kumar Jolhe, Bhupendra Nath Tripathi
- 29A **Immunologic responses to *Mycobacterium avium* subsp. *paratuberculosis* in neonatal calves after oral or intraperitoneal experimental infection.** J. R. Stabel, S. Robbe-Austerman, and W. C. Davis.
- 30A **Pathogenesis of *Mycobacterium avium* subsp. *paratuberculosis* in neonatal calves after oral or intraperitoneal experimental infection.** J. R. Stabel, M. V. Palmer, S. Robbe-Austerman, and B.Harris.
- 31A **Experimental infection of sheep with *M.avium* subspecies *paratuberculosis*: a brief review and introduction to an Australian ovine challenge model.** Douglas John Begg, Deborah Taylor, Kumudika de Silva, Lyrissa Di Fiore, Richard Whittington
- 32A **Signal Transduction in *Mycobacterium avium* spp. *Paratuberculosis*.** Horacio Bach, Dennis Wong, Jim Sun, Yossef Av-Gay
- 33A-O8 **Biofilm and Virulence of *Mycobacterium avium* subspecies *paratuberculosis*.** Chia-wei Wu, Shelly K. Schmoller, Adel M. Talaat

- 34A-O9 ***Mycobacterium avium* subsp. *paratuberculosis* enters intestinal mucosa through M cells and there is difference in the uptake across the ileal and jejunal mucosal epithelial cells in lambs.** Ponnusamy Duraisamy, Bhupendra Nath Tripathi, Sivakumar Periasamy, Amar Pal
- 35A ***Mycobacterium avium* subsp. *paratuberculosis* induced apoptosis: a complex mechanism in bovine macrophage.** Sivakumar Periasamy, Nem Singh

Session B Diagnostic methods, approaches and quality assurance

- 36B **A cultivation ring trail for *Mycobacterium avium* subsp. *paratuberculosis* in three certified laboratories.** Steen Bjørck Giese
- 37B **Comparison of Liquid Culture to Solid Media for Quantification of *Mycobacterium* in Tissues Following Experimental Infection.** Raymond W. Sweeney, Robert H Whitlock, Terry L Bowersock, Greg W Pruitt
- 38B **Radiometric culture of farm slurry – inexpensive tool for the detection of paratuberculosis in dairy cattle herds.** Jacek Michal Gwozdz, Marios Carajias, Ilhan Mohammad, Sally Ridge, Robin Condron
- 39B **Cross-pooled faecal culture and individual faecal PCR for paratuberculosis herd level monitoring.** Elena Molina, Iker Sevilla, Maria V. Geijo, Joseba M. Garrido, Jose Mari Plazaola, Ramon A. Juste
- 40B-O4 **Culture of *M. paratuberculosis* from Blood.** Katrina Bower, Doug Begg, Lyrissa Di Fiore, Deborah Taylor, and Richard Whittington
- 41B **In vitro effect of antibiotics on *Mycobacterium avium* subspecies *paratuberculosis* in Herrold's medium.** Gabriel Eduardo Traveria, María Fiorella Alvarado Pinedo, Luis María Peralta, Laura Cristina Bartoletti, Martín Quinteros.
- 42B-O3 **Can the detection rate of faecal shedders of MAP be increased by optimising the time point of faecal sampling?** Franziska Gierke, Mario Ziller, Heike Uta Köhler
- 43B-O2 **Evaluation of Different Organism Based Methods for the Detection and Identification of *Mycobacterium avium* subspecies *paratuberculosis* from Bovine Feces.** Janet B. Payeur and Randal T. Capsel
- 44B **Isolation and molecular confirmation of *Mycobacterium avium* subsp *paratuberculosis* in guanacos (*Lama guanicoe*) in Tierra del Fuego, Chile, by fecal culture and Real-Time PCR.** Miguel Ángel Salgado, David Herthnek, Göran Bölske, Juan Dusan Kruze
- 45B **Application of culture and PCR to bulk milk for detection of paratuberculosis in dairy cattle herds.** Jacek Michal Gwozdz, Marios Carajias, Ilhan Mohammad, Sally Ridge, Robin Condron
- 46B-O7 **A review of diagnostic accuracies of ELISA and faecal culture in cattle.** Søren Saxmose Nielsen, Nils Toft
- 47B **Sensitivity and specificity of unique 'Multi-species indigenous ELISA kit' with respect to fecal, milk and tissues culture for the diagnosis of Johne's and Crohn's disease in India.** S.V.Singh, A.V.Singh, P.K.Singh, J.S.Sohal
- 48B **Variability of Repeated Johne's Disease Milk ELISA Test Results in Canadian Dairy Herds.** Ulrike Silvia Sorge, David Francis Kelton, William Sears
- 49B **An alternative for the preadsorption step in the paratuberculosis serodiagnosis: *Mycobacterium fortuitum*.** Carla D Marassi, Walter M Oelemann, Leila Souza Fonseca, Paula Ristow, Walter Lilenbaum
- 50B **Diagnosis of bovine paratuberculosis: sensitivity of a commercial ELISA test on bovine bulk milk.** Norma Arrigoni, Giuliana Cammi, Ilaria Losini, Roberta Taddei, Marco Tamba, Gian Luca Belletti

- 51B Evaluation of four commercial bovine-ELISA kits for the diagnosis of paratuberculosis in dairy goats.** Juan Dusan Kruze, Miguel Ángel Salgado, Ximena Constanza Badilla
- 52B Evaluation of four commercial ELISA kits for the diagnosis of bovine paratuberculosis in dairy herds of southern Chile.** Juan Dusan Kruze, María Paulina Fry, Miguel Ángel Salgado, Armin Fabián Mella, Michael Thomas Collins
- 53B Reproducibility of results in batches of three ELISA kits for the diagnosis of paratuberculosis in cattle: recommendations for kit evaluation criteria.** Jacek Michal Gwozdz, Marios Carajias
- 54B Application of three ELISA kits to bulk milk for detection of paratuberculosis in dairy cattle herds.** Jacek Michal Gwozdz, Marios Carajias, Ilhan Mohammad, Sally Ridge, Robin Condron
- 55B-O10 Development of a novel enzyme-linked immunosorbent assay for the diagnosis of Johne's disease.** Shigetoshi Eda, Yumiko Kaneko, Mary C. Scott, Adam J. Branscum
- 56B Development of ELISA method using purified protein derived from *Mycobacterium avium* subspecies *Paratuberculosis* isolate from Japan.** Wang X, Kojima H, Kato T, Ishigami S, Ishiguro S, Mori Y, and Yanaka T
- 57B Evaluation of Serological Diagnosis Capacity for Paratuberculosis Using Proficiency Testing by Interlaboratory Comparison at the Level of Veterinary Laboratories from Romania in 2006.** Gela Petriceanu, Ruxandra Alina Radulescu, Adriana Ragalie, Emanuela Guțu, Rodica Tănăsuică
- 58B Determination of optimal conditions to test bovine milk for antibodies against *Mycobacterium paratuberculosis* using an ELISA test.** Jacek Michal Gwozdz, Marios Carajias, Ilhan Mohammad
- 59B Diagnostic performance of PARACHEK® for the detection of antibodies against *Mycobacterium avium* subsp. *paratuberculosis* in milk and serum of Dutch dairy cattle.** Weniger, P, Schacher, P, Senn, K, Wisselink, H.J, Harders-Westerveen, J, Marg-Haufe, B, Meissner, K.
- 60B Antigenicity study of secreted proteins of *Mycobacterium avium* subsp *paratuberculosis* (*Map*) isolated from dairy herds in southern Chile.** Mónica Viviana Pradenas, María Clara Jara, Ángara Heidy Zambrano, Juan Dusan Kruze, Michael Thomas Collins
- 61B Three-year serological follow up of an ovine herd, naturally-infected by *Mycobacterium avium* subsp. *paratuberculosis* (*Map*).** P. Pourquier , S. Lesceu , Gilles Fourcas
- 62B Diagnostics for Resistance and Susceptibility to Johne's disease in deer.** Frank Griffin, Simon Liggett, Christie Rodgers
- 63B New cases of JD and Map infection in two dairy herds from Pernambuco and Rio de Janeiro States - Brazil.** Gomes, MJP., Mota , RA., Tokarnia, CH., Galvão, A., Brito, MF., Seixas, JN., Bercht, BS., Snel, GGM., Juffo, GD., Chies , JAB.
- 64B Diagnostic-test characteristics of microscopic examination of ZN-stained faecal smears and ELISA in cattle suspected of clinical paratuberculosis.** Maarten F. Weber, Jacobus Verhoeff
- 65B The use of MPB70 and MPB83 to distinguish between bovine tuberculosis (TB) and paratuberculosis (PTB).** Carla Marassi, Jim McNair, John Pollock, Paula Ristow, Leila Fonseca, Walter Oelemann, Walter Lilenbaum
- 66B Recombinant enoyl-CoA hydratase (*echA*) antigen of *Mycobacterium avium* subspecies *paratuberculosis* expressed in *Escherichia coli* can be used for serological diagnosis of Johne's disease.** Nagata R, Yoshihara K, Wang X, Yanaka T, and Mori Y
- 67B-O12 Comparative proteomic analysis of mycobacterial tuberculins and identification of *Mycobacterium avium* subspecies *paratuberculosis* antigens with diagnostic potential.** Wiebren Santema, Marije Overdijk, Judith Barends, Jeroen Krijgsveld, Victor Rutten, Ad Koets
- 68B-O9 Interference of intradermal tuberculin tests on the serodiagnosis of paratuberculosis in cattle.** Renato Varges, Carla Marassi, Walter Oelemann, Walter Lilenbaum
- 69B-O11 Detection of *Mycobacterium avium* subspecies *paratuberculosis* antibodies in bovine serum using a conductometric biosensor.** Chika C Okafor, Daniel L Grooms, Evangelyn C Alocilja

- 70B Paratuberculosis in sheep: diagnostic methods and genetic susceptibility.** Erminia Sezzi, Eugenio Lillini, Bruno de Sanctis, Gianluca Scorsino, Alessio Valentini, Lorraine Pariset, Luigi De Grossi
- 71B Correlation between the occurrence of sero-doubtful and sero-positive reactions and the presence of DNA-MAP in milk.** Agnieszka Wiszniewska, Joanna Szteyn, Aleksandra Ruszczyfska
- 72B Performance of clinical and postmortem diagnostic tests during progressive stages of experimental paratuberculosis in sheep.** A Anand Kumar, Bhupendra Nath Tripathi
- 73B Dairy herd prevalence of *Mycobacterium avium* subsp. *paratuberculosis* in bulk-tank milk samples obtained from three regions in Fars province, Iran by nested PCR.** Masoud Haghkhah, Maryam Ansari Lari, Amir Mansour Novin and Ayatollah Bahrami
- 74B Comparison of the isolation of *Mycobacterium paratuberculosis* from milk on the HEYM substrate and direct DNA isolation.** Authors Joanna Szteyn, Agnieszka Wiszniewska, Aleksandra Ruszczyfska
- 75B-O1 Real-time PCR testing of pooled (1:5) fecal samples comparison to HEYM culture.** R.H. Whitlock, B.L. Mangold, S. McAdams, T. Fyock, R. Sweeney, Y. Schukken, J. Smith, J. Van Kessel, E. Hovingh; J. Karns, D. Wolfgang, T. Johnson.
- 76B-O5 Nested Polymerase Chain Reaction for the Detection of *Mycobacterium avium* subspecies *paratuberculosis* in Bovine Allantoic Fluid and Fetuses.** Claus D. Buergelt, J. Elliot Williams, Joshua H. Decker and Gilles Monif.
- 77B ‘Single Colony PCR’ using physical method of DNA recovery for the characterization of tiny colonies of *Mycobacterium avium* subspecies *paratuberculosis*.** S V Singh, P K Singh, A V Singh, J S Sohal, Swati Subodh, K.Narayanasamy
- 78B Comparison of four methods of DNA isolation from intestinal tissues of goats infected with *Mycobacterium avium* subspecies *paratuberculosis* and evaluation of the sensitivity of PCR with respect to tissues culture.** P.K.Singh, A.V.Singh, J.S.Sohal, S.V.Singh
- 79B Ability of Simple and Nesting Polymerase Chain Reaction to Detect *Mycobacterium avium* subspecies *paratuberculosis* DNA Using Blotted Tissue Impressions of Bovine Tissue: A New Technique for Rapid Identification.** J. Elliot Williams, Claus D. Buergelt and Gilles R.G.
- 80B Real-time PCR for detection of *Mycobacterium avium* subsp. *avium* in milk and comparison to culture of environmental samples for herd testing.** David Herthnek, Søren Saxmose Nielsen, Göran Bölske
- 81B Detection and quantification of *Mycobacterium avium* subsp. *paratuberculosis* in ovine and bovine faeces by direct quantitative PCR.** Satoko Kawaji, Deborah L. Taylor, Yasuyuki Mori, Richard J. Whittington
- 82B Evaluation of three methods of DNA extraction for the detection of *Mycobacterium paratuberculosis* by polymerase chain reaction in milk.** Jacek Michal Gwozdz, Marios Carajias, Ross Bowles
- 83B A simple internal PCR control for *Mycobacterium avium* subsp. *paratuberculosis* constructed by PCR techniques.** Ian Marsh, Martin McLoon, Sue Austin, Shayne Fell, Vanessa Saunders, Leslie Reddacliff
- 84B-O8 Results from interferon gamma testing, ELISA testing, bacteriological and pathological examination in a Norwegian goat herd with naturally acquired paratuberculosis.** Kari Røste Lybeck, Mette Valheim, Berit Djønne, Liv Sølverød, Nils Leine, Ingrid Olsen
- 85B Seeing spots, developing an IFN-gamma ELISPOT assay to detect ovine *M. avium* subspecies *paratuberculosis* infection.** Douglas Begg, Kumudika de Silva, Lyrissa Di Fiore, Deborah Taylor, Richard Whittington
- 86B Novel diagnostic criteria of the Interferon-gamma test for bovine Paratuberculosis.** Yasuyuki

Mori, Reiko Nagata, Kazuhiro Yoshihara

- 87B** **Detection of *Mycobacterium avium* subspecies *paratuberculosis* by modified FASTplaqueTB bacteriophage assay.** Jeroen De Buck, Tanya Griffiths, Herman Barkema, Kevin Rioux
- 88B** **Evaluation of fluorescence labelling of *Mycobacterium avium* subsp. *paratuberculosis* by carboxyfluorescein diacetate succinimidyl ester and carboxyfluorescein diacetate.** Aodon -geril, Kazuhiro Yoshihara, Xiaofei Wang, Hongyu Wang, Yuriko Momotani, Yasuyuki Mori, Eiichi Momotani
- 89B-O6** **Proteomic Analysis for Biomarkers for Johne's Disease in Sheep Serum by SELDI-TOP Mass Spectrometry.** Ling Zhong, Deborah L. Taylor, Richard J. Whittington
- 90B** **Pathological and bacteriological diagnosis of paratuberculosis in farmed red deer (*Cervus elaphus*) and fallow deer (*Dama dama*) in Chile.** Enrique Arturo Paredes, Mónica Viviana Pradenas, Juan Dusan Kruze, María Clara Jara, Michael Thomas Collins
- 91B** **Pathology of ovine paratuberculosis in the North East of Portugal. A comparison of histopathology, faeces and tissue culture, polymerase chain reaction in blood, faeces and tissues, and serology.** Coelho AC, Pinto ML, Coelho AM, Quintas H, Pires MA, Sevilla I, Garrido JM, Rodrigues J, Juste RA
- 92B** **Association of disseminated *Mycobacterium avium* subspecies *paratuberculosis* infection with severity of granulomatous enteritis and mesenteric lymphadenitis in cattle.** Michelle M Dennis, Maria Celia Antognoli, Frank B Garry, Heather L Hirst, Jason E Lombard, Dan H Gould, Mo D Salman
- 93B** **Characterization of *Mycobacterium avium* subsp. *paratuberculosis* isolates in Tamil Nadu, India.** B.S.M.Ronald, T.G.Prabhakar, N.Daniel Joy Chandran, Prabakher G. Edwin, B.Murali Manohar
- 94B** **Strain typing based on sequence polymorphisms in a surface exposed PPE protein of *Mycobacterium avium* subspecies *Paratuberculosis*.** Tanya Griffiths, Kevin Rioux, Jeroen De Buck

Session C: Developments in molecular biology

- 95C-O1** **A molecular biological approach to producing a live vaccine for paratuberculosis.** Geoffrey W de Lisle, Gabriella M. Scandurra, May Young, Sonia M. Cavaignac, Desmond M. Collins
- 96C-O2** **Techniques for allelic exchange in *Mycobacterium paratuberculosis*.** Desmond M Collins, May Young
- 97C-O3** **Large Sequence Polymorphisms in *Mycobacterium avium* subspecies *paratuberculosis* (MAP) vaccine strains revealed by MAPAC microarray analysis.** Tim John Bull, Richard Anthony Linedale, Nicola Dierkes, John Hermon-Taylor, Kate Gould, Phillip Butcher, Jason Hinds
- 98C** **Genetic characterization novel Indian *Mycobacterium avium* subspecies *paratuberculosis* 'Bison type' isolate (S5) used to prepare vaccine and diagnostic kits.** J. S. Sohal, K. Narayanasamy, S. V. Singh
- 99C** **Short Sequence Repeat typing of Indian *Mycobacterium avium* subspecies *paratuberculosis* 'Bison type' isolates.** J. S. Sohal, Swati Subodh, S. V. Singh, A. V. Singh, P. K. Singh, N. Sheoran, K. S. Sandhu, K. Narayanasamy
- 100C** **Amplified Fragment Length Polymorphism to investigate MAP in Italy.** Chiara Gorni, Roberta Taddei, Norma Arrigoni, John Lewis Williams
- 101C-O4** **Genetic Association Study between Bovine NRAMP1 and CARD15 Genes & Infection by *M. a. paratuberculosis*.** Otsanda Ruiz, Carmen Manzano, Mikel Iriondo, Joseba Garrido, Ramon A. Juste, Andone Estonba

- 102C** **Use of Single Nucleotide Polymorphisms in inh-A gene to classify *Mycobacterium avium* subspecies *paratuberculosis* into Types I, II and III.** Elena Castellanos, Julio Alvarez, Alicia Aranaz, Beatriz Romero, Lucia de Juan, Javier Bezos, Sabrina Rodriguez, Karen Stevenson, Ana Mateos, Lucas Dominguez
- 103C** **Characterization of *Mycobacterium avium* subsp. *paratuberculosis* isolates by Large Sequence Polymorphisms (LSP) detection and hsp65 sequencing.** Julio Alvarez, Elena Castellanos, Lucía de Juan, Beatriz Romero, Javier Bezos, Sabrina Rodriguez, Alicia Aranaz, Ana Mateos, Lucas Dominguez
- 104C-O5** **Draft genome sequence of an ovine *Mycobacterium avium* subspecies *paratuberculosis* isolate.** Michael L Paustian, Vivek Kapur, Srinand Sreevatsan, John P Bannantine
- 105C** **Molecular Characterisation of Indian isolates of *Mycobacterium avium* subspecies *paratuberculosis*.** Bhupendra Nath Tripathi, Karen Stevenson
- 106C** **New characteristic ‘Molecular Signatures’ to distinguish Indian and non-Indian isolates of *Mycobacterium avium* subspecies *paratuberculosis*.** Sohal, J. S., Subodh Swati, Singh, S. V., Narayanasamy, K., Singh, P. K., Singh, A. V., Sheoran, N., Sandhu, K. S.
- 107C** **Comparative analysis of *Mycobacterium avium* subsp. *paratuberculosis* isolates from cattle, sheep and goats by short sequence repeat and pulsed-field gel electrophoresis typing.** Iker Sevilla, Lingling Li, Alongkorn Amonsin, Joseba M Garrido, Marivi Geijo, Elena Molina, Vivek Kapur, Ramon A Juste
- 108C-O6** **Survival, dormancy and the proteome of *Mycobacterium avium* subsp. *paratuberculosis* during the stress response to hypoxia and nutrient starvation.** Sanjeev Gumber, Deborah L Taylor, Ian B Marsh, Richard J Whittington
- 109C** **Targeting differential expression to identify subspecies specific proteins for the diagnosis of *Mycobacterium avium* subspecies *paratuberculosis* infections.** Valerie Hughes, Stuart Smith, Alfredo Garcia-Sanchez, Karen Kerr, Susan Denham, Jill Sales, Craig Watkins, Michael L Paustian, John P Bannantine, Karen Stevenson
- 110C** **Analysis of Toll-like receptor gene expression in *Mycobacterium paratuberculosis* infected sheep.** Deborah L. Taylor, Ling Zhong, Lyrissa Di Fiore, Douglas J. Begg, Kumudika De Silva, Richard J. Whittington
- 111C** **Detection of *Mycobacterium avium* subsp. *paratuberculosis* from cattle feces using Loop-mediated isothermal amplification (LAMP).** Maki Enosawa, Wataru Suzuki, Soichi Kageyama, Harumi Minekawa, Tsugunori Notomi, Sadao Onoe, Yasuyuki Mori
- 112C** **Population analysis of fecal microbiota from cows infected with *Mycobacterium avium* subspecies *paratuberculosis*.** Michael L Paustian, Terry L Fyock, Alexandra J Scupham, Robert H Whitlock, Judith R Stabel

Session D: National control programs

- 113D-O1** **Education for veterinarians and producers as part of the national control program.** J McDonald, EA Horn, E Patton, MT Collins
- 114D** **Control of paratuberculosis in Sweden.** Susanna Sternberg Lewerin, Estelle Ågren, Jenny Frössling, Göran Bölske, Andrea Holmström, Ann Lindberg, Elöd Szanto, Diana Viske
- 115D** **A new approach in the compulsory fight against paratuberculosis – eradication of clinical cases.** Khol, J.L., Dünser, M., Damoser, J., Baumgartner, W.
- 116D** **Results from a Paratuberculosis surveillance by government regulation in Austria.** Dünser, M., Khol, J.L., Damoser, J., Baumgartner, W.

- 117D-O5** **Experimental control program for paratuberculosis in dairy cattle in the Veneto region.**
Nicola Pozzato, Elisabetta Stefani, Massimo Bottazzari, Nicola Benini, Fabrizio Cestaro,
Gastone Passarini, Gaddo Vicenzoni
- 118D** **Study design and application of a paratuberculosis assurance program in Brown breeders herds in the Italian Central Alps.** Nicola Pozzato, Marcella Paoli, Elisabetta Stefani,
Luca Busani, Giovanni Farina, Claudio Valorz, Gaddo Vicenzoni
- 119D** **Cattle movements in to and out of Johne's infected beef suckler herds in Ireland.**
Peter C. Mullowney, Damien Barrett, John Egan, Richard Fallon, Martin Blake, Margaret Good
- 120D** **A Risk Assessment Approach to the Control of Johne's Disease.** Susan Duthie, Peter Orpin,
David Snodgrass
- 121D-O2** **Paratuberculosis control programme by faecal culture in cattle and other ruminants in the Czech Republic in the years 1992-2006.** Pavlik I., Parmova I., Lamka J., Rozsypalova Z.,
Beran V., Tesinska I., Kralik P., Kralova A.
- 122D** **Danish Control Programme for Bovine Paratuberculosis.** Søren Saxmose Nielsen
- 123D-O3** **Results of the Dutch bulk milk quality assurance programme for paratuberculosis.**
Maarten F. Weber, Gerdien van Schaik, Hilmar J. van Weering
- 124D** **Johne's disease control program in Israeli dairy farms - prevalence in national level.**
Ori Koren
- 125D** **Prevalence of *Mycobacterium avium* subspecies *paratuberculosis* infection over the first three years of the U.S. National Johne's Disease Demonstration Herd Project.** Charles P Fossler,
Jason E Lombard, Michael A Carter
- 126D** **Incidence of *Mycobacterium avium* subspecies *paratuberculosis* infection over four years of the U.S. National Johne's Disease Demonstration Herd Project.**
Charles P Fossler, Jason E Lombard, Michael A Carter
- 127D** **Abattoir Surveillance for Ovine Johnes Disease in New South Wales.** Ian Joseph Links
- 128D** **A Comparison of Vaccination for Ovine Johne's Disease and Prevalence of Lesions Detected by Abattoir Monitoring in New South Wales.** Ian Joseph Links
- 129D-O4** **Industry and government partnerships - an alternate model for national disease control programs.** Lorna Citer, Nicholas Keatinge, David John Kennedy
- 130D** **Paratuberculosis diagnosis and control in Thailand.** Monaya Ekgatat, Suree Thammasart,
Reka Kanitpun, Surapong Wongkasemjit, Chokchai Nokdhes, Chira Kongkrong,
Watcharachai Narongsak, Utit Trenuntawan, Nittaya Srikawkheaw, Masaharu Kanameda
- 131D-O6** **Present approach to Johne's disease control in Japan and the feature of its incidence.**
Sota Kobayashi, Toshiyuki Tsutsui, Takehisa Yamamoto, Akiko Nishiguchi

Session E: Epidemiology and control strategies

- 132E-O2** **Review of prevalences of paratuberculosis in farmed animals in Europe.**
Søren Saxmose Nielsen, Nils Toft
- 133E** **A Serological Survey of Paratuberculosis in Finnish Suckler Herds.** Jaana Seppänen,
Eija Seuna, Sinikka Pelkonen
- 134E** **Investigation of paratuberculosis status based on comparative analysis of serology and faecal culture in a dairy herd in Thuringia (Germany).** M. N. Ebert, S. K. Munjal, W. Siebert,
U. Schau, K. Donat

- 135E **Survey on paratuberculosis prevalence in dairy herds of the Lombardia Region (Italy).** Norma Arrigoni, Giuliana Cammi, Ilaria Losini, , Roberta Taddei, Marco Tamba, Gian Luca Belletti
- 136E **Paratuberculosis in Sheep from Serra da Estrela Region, Portugal.** Vala H., Santos C., Esteves F., Albuquerque T., Afonso A., Botelho A., Seixas C.& Amado A.
- 137E **Factors associated with *Mycobacterium avium* subsp. *paratuberculosis* seroprevalence in sheep in Trás-os-Montes e Alto Douro, Portugal.** Coelho AC, Pinto ML, Silva S, Coelho AM, Aires A, Garrido JM, Rodrigues J, Juste RA
- 138E-O3 **Seroprevalence of bovine paratuberculosis in dairy cattle herds in the Mexico-U.S. border area in Baja California, Mexico.** Sawako Hori-Oshima, Luis Armando Campos-Barba, Jose Francisco Moreno-Rosales, Tomas Benjamin Renteria-Evangelista, Gilberto Lopez-Valencia, Alfonso De la Mora, Armando Corral-Madrid
- 139E **Epidemiology of Johne's Disease in organised dairy farms of Punjab (India) and analysis of associated risk factors.** Rajni Garg, Prasannakumar Patil, Randhir Singh, Shukriti Sharma, Vishal Mahajan, Sunil Verma, Kulbir Singh Sandhu
- 140E **Real time estimates of prevalence of Bovine Johne's Disease in dairy cattle herds in Mathura region of North India using fecal culture and indigenous ELISA kit and characterization of *Mycobacterium avium* subspecies *paratuberculosis* by IS 900 PCR.** P. Mishra, S.V.Singh, A.K.Bhatiya, P.K.Singh, A.V. Singh, J.S.Sohal
- 141E **Evaluation of indigenous ELISA kit with tissues culture and PCR for the estimation of Ovine Johne's disease (OJD) in farmer's flocks in India.** P.K. Singh, S.V. Singh, A.V. Singh, J. S. Sohal
- 142E **Status of *Mycobacterium avium* subsp. *paratuberculosis* infection in farm and farmer's goats in India by screening of target tissues using culture, PCR and evaluation of indigenous ELISA kit.** P.K.Singh, S.V.Singh, A.V.Singh, J. S. Sohal
- 143E **Seroprevalence of partuberculosis in selected population of ruminants in India.** B.N. Tripathi, G.G. Sonawane, S.K. Munjal, R.B. Bind, D. Gradinaru, S.C. Dubey, D. Mondal, O.P. Paliwal and Nem Singh
- 144E **Prevalence estimates of *Mycobacterium avium* subspecies *paratuberculosis* in animals, milk, milk-products and human beings in India.** S.V.Singh, A.V.Singh, P.K.Singh, J.S.Sohal,
- 145E **Prevalence of *Mycobacterium avium* subsp. *paratuberculosis* by PCR in blood sheep in the North East of Portugal.** Coelho AC, Pinto ML, Coelho AM, Sevilla I, Garrido JM, Rodrigues J, Juste RA
- 146E ***Mycobacterium avium* subsp. *paratuberculosis* (MAP) infection in cull cows from Johne's herds.** Terry L. Fyock , R. Whitlock , Y. Schukken , J. Van Kessel, J. Karns ,E. Hoving , and J. Smith
- 147E **Time from shedding of *Mycobacterium avium* subsp. *paratuberculosis* to occurrence of ELISA-positive cows.** Gepke Jansingh, Søren Saxmose Nielsen
- 148E-O4 **Epidemiological survey of *Mycobacterium avium* subspecies *paratuberculosis* isolates in Europe.** Linda May, Susan Denham, Ian Heron, Lucia de Juan, Julio Alvarez, Gerald Friedrich Gerlach, Karen Dohmann, Ivo Pavlik, Marketa Kopečna, Peter Willemsen, Douwe Bakker, Virginie Thibault, Franck Biet, Alastair Greig
- 149E **Molecular typing of *Mycobacterium avium* subsp *paratuberculosis* strains from different Chilean domestic and wildlife animal hosts.** Miguel Ángel Salgado, David Herthnek, Juan Dusan Kruze, Mónica Viviana Pradenas, Göran Bölske
- 150E **Variable Numbers of Tandem Repeats (VNTR) Typing of *Mycobacterium avium* subsp. *paratuberculosis* Isolates in Japan.** Kei Nishimori, Yuji Nakaoka, Satoshi Tachibana, Kiyoshi Tanaka, Ikuo Uchida, Tomoko Nishimori, Mariko Saito, Hideki Hanyuu, Yasuyuki Mori, and Masashi Eguchi

- 151E **PCR detection of *Mycobacterium avium* subspecies *paratuberculosis* and its use on a limited survey of environmental water samples.** George Aboagye, Michael Rowe, and Arthur Gilmour
- 152E **Distribution of *Mycobacterium avium* subspecies *paratuberculosis* in the Lower Florida Keys.** Elizabeth Manning, Kerri Pedersen, Joseph Corn
- 153E **Johne's Disease in a Free-Ranging White-tailed Deer from Virginia and Subsequent Surveillance for *Mycobacterium avium* subspecies *paratuberculosis*.** Elizabeth J.B. Manning, Heather Cushing, Jonathan
- 154E ***Mycobacterium avium* subsp. *paratuberculosis* (MAP) in semen and organs of a breeding bull.** Khol, J.L., Beran, V., Kralik, P., Tesinska, I., Aurich, C., Pavlik, I., Baumgartner, W.
- 155E-O5 **In utero infection of cattle with *Mycobacterium avium* subsp. *paratuberculosis*.** Richard J. Whittington, Peter A. Windsor
- 156E **Acidification of raw cow milk and effects on the culturability of *Mycobacterium avium* subsp. *paratuberculosis*.** Lucy M Mutharia, Melinda Raymond
- 157E **Development of "Colostrum Pasteurizer".** Fumitoshi Saito, Yuji Nakaoka, Kensei Kogishi, Kazunori Kato, Takafumi Wakamatsu, Yuji Mikami
- 158E-O6 **Bayesian methods for assessing genetic similarity and familial aggregation of paratuberculosis in beef cattle of unknown pedigree.** Jason B Osterstock, Geoffrey T Fosgate, Noah D Cohen, James N Derr, and Allen J Roussel **(Richard Merkal award)**
- 159E-O7 **Effects of infection by *Mycobacterium avium paratuberculosis* on fertility of dairy cows.** Clara Marcé, François Beaudeau, Nathalie Bareille, Henri Seegers, Christine Fourichon
- 160E-O8 **Association between Johne's Disease Milk ELISA Test Result and Milk Production and Breed in Canadian Dairy Cows.** Ulrike Silvia Sorge, David Francis Kelton, William Sears
- 161E **Bulk milk contamination by *Mycobacterium avium* subsp. *paratuberculosis* and related risk factors.** Norma Arrigoni, Giuliana Cammi, Giorgio Galletti, Ilaria Losini, Roberta Taddei, Marco Tamba, Gian Luca Belletti
- 162E **The effects of biosecurity measures for paratuberculosis on seroprevalence and clinical disease in Northern Italian dairy herds.** Simone Taddei, Ezio Bottarelli, Francesca Ghidini, Chiara Piancastelli, Sandro Cavirani
- 163E **Reduced incidence of Johne's disease in dairy cattle herds on a long-term herd management program.** Cecile Ferrouillet, Scott Wells, William Hartmann, Sandra Godden
- 164E **The economical value of *Mycobacterium avium* subsp *paratuberculosis* fecal shedding and culling due to clinical Johne's disease on Minnesota dairy farms.** Eran Akiva Raizman, John Fetrow, Scott Joseph Wells
- 165E **Optimizing management of infectious cows only - simulations indicate an effective and more feasible control strategy.** Anne Braad Kudahl, Søren Saxmose Nielsen
- 166E **A multi-species approach to control Johne's disease in New Zealand.** C Heuer, JC Glossop, R Jackson, DM West, and PR Wilson
- 167E **Association of farm management and soil risk factors with ovine Johne's disease in Australia.** Navneet K Dhand, Jeff Eppleston, Richard J Whittington, Jenny-Ann LML Toribio
- 168E **Safety and Efficacy of Silirum® Bovine Johne's Disease Vaccine in an Experimental Bovine Challenge Model.** Raymond W. Sweeney, Robert H Whitlock, Terry L Bowersock, Greg W Pruitt
- 169E-O9 **Preliminary evaluation of a field trial on the use of vaccination in dairy cattle farms with paratuberculosis.** Joseba M. Garrido, Elena Molina, Maria V. Geijo, Jose Mari Plazaola, Iker Sevilla, Ramon A. Juste

- 170E **Paratuberculosis vaccination in cattle: Culling follow-up.** Joseba M. Garrido, Elena Molina, Maria V. Geijo, Jose Mari Plazaola, Iker Sevilla, Ramon A. Juste
- 171E-O10 **Johne's disease vaccination: a valuable tool in managing Johne's disease.** Elisabeth Patton, Barbara Knust, Darlene Konkle, Jeff Bohn, and Scott Wells
- 172E **Changes in the prevalence of *Map* shedding following the commencement of paratuberculosis control programs using Gudair™ vaccine in Australian merino flocks.** Eppleston J, Windsor P, Sergeant, E and Whittington R
- 173E **An outbreak of Johne's disease in a newly established commercial goat farm leading to heavy losses and closure.** S.V. Singh, A.V. Singh, P.K. Singh, J.S. Sohal
- 174E-O1 **Recovery in advance clinical cases of Johne's disease in naturally infected goats using a highly efficacious indigenous vaccine made from novel Indian strain of *Mycobacterium avium* subsp. *paratuberculosis* 'Bison type'.** S.V.Singh, P.K.Singh, A.V.Singh, J.S.Sohal
- 175E **Comparative efficacy of an indigenous 'Inactivated vaccine' using field strain of *Mycobacterium avium* subspecies *paratuberculosis* 'Bison type' with a commercial vaccine for the control of Capri-Paratuberculosis in India: a challenge trial.** S.V. Singh, P.K. Singh, A.V. Singh, J.S. Sohal, A.K.Srivastav
- 176E **Quick and early response to vaccination and improvements in production traits in a naturally infected breeding farm of Jamunapari goats in India using indigenous vaccine against Johne's disease.** S. V. Singh, M. K. Singh, N.P. Singh, P.K. Singh, A.V.Singh, J.S.Sohal, V.K.Gupta, V.S.Vihan

Session F: Public health

- 177F-O1 ***Mycobacterium Paratuberculosis* and Crohn's Disease: That's What Epidemiology is All about.** Eran, A. Raizman
- 178F-O2 **High prevalence of *Mycobacterium avium* subspecies *paratuberculosis* (MAP) DNA in the blood of healthy human blood donors and the effect of treatment with chronic antiMAP antibiotic therapy in patients with Inflammatory Bowel Disease (IBD).** Juste RA, Greenstein RG, Elguezabal N, Garrido JM, Pavon A, Geijo MV, Sevilla I, Cabriada JL, Tejada A, García-Campos F, Berriatua E, Casado R, Ochotorena I, Izeta A
- 179F **Detection of *Mycobacterium avium* subsp. *paratuberculosis* DNA in blood and immune responses in humans with Inflammatory Bowel Disease.** Ramon A. Juste, Natalia Elguezabal, Andres Pavon, Joseba M. Garrido, Maria V. Geijo, Iker Sevilla, Jose Luis Cabriada, Angel Tejada, Francisco Garcia Campos, Roberto Casado, Itziar Ochotorena, Ander Izeta
- 180F **Isolation, identification and characterization of *Mycobacterium avium* subspecies *paratuberculosis* from multiple clinical samples of Crohn's disease patients in India using microscopic examination, culture, ELISA and PCR tests.** A.V Singh, S.V. Singh, P.K. Singh, J.S. Sohal
- 181F-O3 **Association of *Mycobacterium avium* subsp. *paratuberculosis* with Type-1 diabetes, a possible trigger.** Leonardo A Sechi, Valentina Rosu, Daniela Paccagnini, Sara Salza, Adolfo Pacifico, Niyaz Ahmed, Stefania Zanetti
- 182F-O6 **Thiopurine drugs (azathioprine and 6-mercaptopurine) inhibit *Mycobacterium paratuberculosis* growth in vitro.** Michael T. Collins, Sung-Jae Shin
- 183F-O5 **The effect of chemical and physical stress factors on *Mycobacterium avium* subsp. *paratuberculosis*.** Beran V., Devlieghere F., Uyttendaele M., Rajkovic A., Smigic N., Pavlik I.
- 184F **Sero-prevalence of *Mycobacterium avium* subsp. *paratuberculosis* in spontaneous cases of abortions in human beings in North India using native and commercial protoplasmic antigens in indigenous ELISA kit.** A.V.Singh, P.K.Singh, J.S.Sohal, S.V.Singh, S.V.S.Malik

- 185F-O4** **Is *M. avium* subspecies *paratuberculosis* (MAP) the cause of multiple “autoimmune” and “inflammatory” diseases in man? Inferences from the antiMAP activity of methotrexate, 6-MP, 5-ASA and thalidomide, on MAP in culture.** Robert John Greenstein, Lyia Su, Sheldon T Brown
- 186F** **The coupling of culture enrichment with real time quantitative PCR (qPCR) to detect viable *Mycobacterium avium* subsp. *paratuberculosis*.** John Donaghy, Jane Johnston, Michael Rowe
- 187F** **Lethality of the milk spray-drying process for *Mycobacterium avium* subsp. *paratuberculosis* using a model system.** Michael T Rowe, Mike Johnston, Edward Hitchings, Jane Johnston, John Donaghy
- 188F** **Evaluation of Real Time and End point PCR for the Detection of *Mycobacterium avium* subsp. *paratuberculosis* (Map) in artificially-contaminated Raw and Pasteurised Dairy Products.**
Anne Fisher, John Donaghy, Michael Rowe
- 189F** **Estimation of presence of *Mycobacterium avium* subspecies *paratuberculosis* in un-pasteurized (individual and pooled milk) and commercial pasteurized milk and milk products in India and its characterization using culture, ELISA and PCR.** H. Shankar, S. V. Singh, P.K. Singh, A.V. Singh, J.S. Sohal
- 190F** **Detection of *Mycobacterium avium* subsp. *paratuberculosis* DNA in commercially pasteurized cow’s milk in Italy.** Eugenio Lillini, Luigi De Grossi, Giuseppe Bitonti, Antonella Cersini

Session G: Future directions

- 191G-O1** **Proposed International Guidelines for Experimental Challenge Models for Johne’s Disease.**
Raymond W. Sweeney, Murray E Hines II, Judith R Stabel