

The Paratuberculosis Newsletter

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Note from the Editor

This issue of the IAP Newsletter contains the Financial Report for 2016, an update on the membership initiative and details of the 5-year Irish control programme for Paratuberculosis.

Your contributions to this newsletter, whether it be news, photos or comments from your part of the world about your paratuberculosis related activities would be greatly appreciated.

Kumi de Silva

IAP business

Guidelines for certification for movement of livestock for *Mycobacterium avium* subsp. *paratuberculosis* (MAP) infection

This document was requested by the IAP Governing Board and was prepared by a working group of IAP members headed by Dr. David Kennedy. The Board seeks comments from the IAP membership prior to consideration for approval. Please forward all comments to Prof. Ray Sweeney (rsweeney@vet.upenn.edu) by 01 March 2017.

Membership initiative

At the 13th ICP it was suggested that authors of scientific publications on paratuberculosis who are currently not members should be encouraged to join the Association. Eighteen such corresponding authors of publications in the latter half of 2016 have been contacted. Two responses have been received so far and one has joined the Association.

Financial Report



**International Association for
Paratuberculosis**

**112 Barnview Road
Kennett Square, PA 19348 USA**

Financial Report- December 31, 2016

	Checking	Money Market	PayPal	Total
Open (1/1/16)	\$35,385.77	\$13,891.70	\$ 1,412.63	\$ 50,690.10
May 31, 2016	\$45,614.77	\$14,034.62	\$ 619.63	\$ 60,269.02
December 31, 2016	\$39,432.11	\$14,068.77	\$ 1,367.27	\$ 54,868.15

INCOME

	<u>1/1/16 to 5/31/16</u>	<u>6/1/16 to 12/31/16</u>	<u>Annual Total</u>
Dues	\$ 11,080.00	\$ 970.00	\$ 12,050.00
Interest	\$ 2.92	\$ 4.15	\$ 7.07
Royalties-old proceedings		\$ 30.00	\$ 30.00
ICP-Nantes		\$ 9,409.57	\$ 9,409.57
Total	\$ 11,082.92	\$ 10,413.72	\$ 21,496.64

EXPENSES

	<u>1/1/16 to 5/31/16</u>	<u>6/1/16 to 12/31/16</u>	<u>Annual Total</u>
PayPal /Wire fees	\$ 504.00	\$ 32.36	\$ 504.00
Open Access Subsidy	\$ 1,000.00	\$	\$ 1,000.00
ICP-officer travel		\$ 5,105.65	\$ 5,105.65
Merkal/Helping Hands		\$ 10,676.58	\$10,676.58
Total	\$ 1,504.00	\$ 15,814.59	\$ 17,318.59

Respectfully Submitted,

Raymond W. Sweeney, VMD
Secretary-Treasurer

The ICONMAP Project, 2012-2017

Bryan Markey
University College Dublin

The ICONMAP Project is a multidisciplinary programme to deliver improved diagnosis, on-farm strategies, and economic drivers for the control of *Mycobacterium avium* subsp. paratuberculosis on Irish farms.

The prevalence of *Mycobacterium avium* subsp. paratuberculosis (MAP) is considered to have increased in Ireland prompting the development of the Animal Health Ireland national Johne's Disease Control Programme. ICONMAP stands for 'Improved Control of MAP' and is a five year, all-Ireland, multi-disciplinary, collaborative research programme funded by the Irish Government's Department of Agriculture Food and the Marine under the Research Stimulus Fund to the tune of €1.5 million. It is headed by Prof. Stephen Gordon and Assoc. Prof. Bryan Markey of the School of Veterinary Medicine, University College Dublin (UCD) and involves six partner institutions: UCD, Teagasc (Dr Laurence Shalloo, Dr Aine Macken Walsh), Cork Institute of Technology

(Dr Jim O'Mahony), Queen's University (Dr Irene Grant), Agri-Food and BioSciences Institute (Dr Lyanne McCallan, Dr Jim McNair) and the Central Veterinary Research Laboratory (Dr Kevin Kenny, Dr John Egan). The project comprises an overlapping, three-pronged approach to MAP research namely diagnostic assay evaluation and validation; novel biomarker discovery; on-farm control strategies and cost benefit analysis. The principal objectives of ICONMAP are:

- Optimisation and validation of the best available diagnostic assays for MAP for use in Ireland
- Evaluation and validation of novel detection methods
- Discovery and validation of a prognostic biomarker present in early infected animals which have a high probability of progressing to 'faecal shedder' status
- Evaluation of the farm factors, including sociological factors, which will affect the successful implementation of

a customised MAP control programme in Irish dairy herds

- Analysis of the cost/benefit ratio of a control programme in Irish dairy herds

The programme is now in its final year and directly supports Animal Health Ireland through research targeted at underpinning a cost effective, industry-led control programme for Johne's Disease in Ireland. Outputs from the project have been disseminated as scientific articles and conference presentations, detailed below. Additional outputs are expected as the project nears completion.

References

McAloon C., Whyte P., More S.J., O'Grady L. and Doherty M.L. (2015). Development of a HACCP-based approach to control paratuberculosis in infected Irish dairy herds. *Preventive Veterinary Medicine*, 120:152-161.

McAloon C., Whyte P., More S.J., Green M.J., O'Grady L., Garcia A.B. and Doherty M.L. (2015). The effect of paratuberculosis on milk yield - a systematic review and

meta analysis. *Journal of Dairy Science*, 99:1-12.

Garcia A.B. and Shalloo L. (2015). The economic impact and control of paratuberculosis in cattle. *Journal of Dairy Science*, 98:5019-5039.

Farrell D., Shaughnessy R.G., Britton L., MacHugh D.E., Markey B. and Gordon S.V. (2015). The identification of circulating miRNA in bovine serum and their potential as novel biomarkers of early *Mycobacterium avium* subsp. paratuberculosis infection. *PLOS One*, 10:e0134310.

McAloon, C.G., Whyte, P., O'Grady, L., Lorenz, I., Green, M., Hogan, I., Johnson, A., Doherty, M.L. (2016). Relationship between selected perinatal paratuberculosis management interventions and passive transfer of immunity in dairy calves. *Veterinary Record*, 2016, 179.

McAloon, C. G., Doherty, M. L., Donlon, J., Lorenz, I., Meade, J., O'Grady, L., & Whyte, P. (2016). Microbiological contamination of colostrum on Irish dairy farms. *Veterinary Record*, 2016, 178.

McAloon, C.G., Doherty, M.L., Whyte, P., O'Grady, L., More, S.J., Messam, L.L.M., Good, M., Mullaney, P., Strain, S. and

Green, M.J. (2016). Bayesian estimation of prevalence of paratuberculosis in dairy herds enrolled in a voluntary Johne's Disease Control Programme in Ireland. *Preventive Veterinary Medicine*, 128, pp.95-100.

Britton L., Cassidy J., O'Donovan J., Gordon S. and Markey B. (2016). Potential application of emerging diagnostic techniques to the diagnosis of Johne's disease (paratuberculosis). *Veterinary Journal*, 209: 32-39.

O'Brien L., Stewart L.D., Strain S. and Grant I.R. (2016). Novel monoclonal antibody and peptide binders for

Mycobacterium avium subsp. paratuberculosis and their application for magnetic separation. *PLOS One*, 11:e0147870.

Shaughnessy R., Farrell D., Riepema K., Bakker D. and Gordon S.V. (2016). Analysis of biobanked serum from a *Mycobacterium avium* subsp. paratuberculosis bovine infection model confirms the remarkable stability of circulating miRNA profiles and defines a bovine serum miRNA repertoire. *PLOS One*, 10:e0145089.



The success of our Association depends heavily on the continued involvement of its members; we need to interact not just at the biannual meetings but also in the years in-between. I would like to encourage you to engage in these discussions via the [website](#).

Paratuberculosis news

The IAP newsletter invites articles about your research group or research activities. Please [email](#) the Editor if you would like to contribute.

Upcoming events

The 14th International Colloquium on Paratuberculosis will be held in Cancun, Mexico from June 3-7 2018



More information at <http://14thicp.mx/>

The 15th ICP will be held Dublin, Ireland in 2020

Recent publications

Abdolmohammadi Khiav, L., M. Haghkhal, K. Tadayon and N. Mosavari (2016). "[Genotyping analysis of bovine, ovine, and caprine paratuberculosis in Iran: An IS900-RFLP study.](#)" Int J Mycobacteriol 5 Suppl 1: S228.

Acharya, K. R., N. K. Dhand, R. J. Whittington and K. M. Plain (2017). "[PCR Inhibition of a Quantitative PCR for Detection of Mycobacterium avium Subspecies Paratuberculosis DNA in Feces: Diagnostic Implications and Potential Solutions.](#)" Front Microbiol 8: 115.

Bull, T. J., T. Munshi, H. Mikkelsen, S. B. Hartmann, M. R. Sorensen, J. S. Garcia, P. M. Lopez-Perez, S. Hofmann, K. Hilpert and G. Jungersen (2016). "[Improved Culture Medium \(TiKa\) for Mycobacterium avium Subspecies Paratuberculosis \(MAP\) Matches qPCR Sensitivity and Reveals Significant Proportions of Non-viable MAP in Lymphoid Tissue of Vaccinated MAP Challenged Animals.](#)" Front Microbiol 7: 2112.

Cardwell, J. M., S. Van Winden, W. Beauvais, A. Mastin, W. A. De Glanville, J. Hardstaff, R. E. Booth, J. Fishwick and D. U. Pfeiffer (2016). "[Assessing the impact of tailored biosecurity advice on farmer behaviour and pathogen presence in beef herds in England and Wales.](#)" Prev Vet Med 135: 9-16.

Davidson, F. W., C. Ahlstrom, J. De Buck, H. G. Whitney and K. Tahlan (2016). "[Examination of Mycobacterium avium subspecies paratuberculosis mixed genotype infections in dairy animals using a whole genome sequencing approach.](#)" PeerJ 4: e2793.

Donat, K. (2017). "The Thuringian bovine paratuberculosis control programme - results and experiences." Berliner Und Munchener Tierarztliche Wochenschrift 130(1-2): 42-49.

Eftekhari, M. and N. Mosavari (2016). "[Isolation and molecular identification of Mycobacterium from commercially available pasteurized milk and raw milk samples collected from two infected cattle farms in Alborz Province, Iran.](#)" Int J Mycobacteriol 5 Suppl 1: S222-s223.

Fernandez, M., J. Benavides, P. Castano, N. Elguezabal, M. Fuertes, M. Munoz, M. Royo, M. C. Ferreras and V. Perez (2017). "[Macrophage Subsets Within Granulomatous Intestinal Lesions in Bovine Paratuberculosis.](#)" Veterinary Pathology 54(1): 82-93.

Foddai, A. C. and I. R. Grant (2017). "[Sensitive and specific detection of viable Mycobacterium avium subsp. paratuberculosis in raw milk by the Peptide-mediated magnetic separation \(PMS\)-phage assay.](#)" J Appl Microbiol.

Hansen, S., J. Schafer, K. Fechner, C. P. Czerny and A. Abd El Wahed (2016). "[Development of a Recombinase Polymerase Amplification Assay for Rapid Detection of the Mycobacterium avium subsp. paratuberculosis.](#)" PLoS One 11(12): e0168733.

Hatamifar, M., N. Mosavari and J. Kazemi (2016). "[Development of an indirect ELISA system to diagnosis paratuberculosis using surface antigens of Mycobacterium avium subsp. paratuberculosis in cattle.](#)" Int J Mycobacteriol 5 Suppl 1: S188.

- Heuvelink, A., A. A. Hassan, H. van Weering, E. van Engelen, M. Bulte and O. Akineden (2016). "[An intra-laboratory cultural and real-time PCR method comparison and evaluation for the detection of subclinical paratuberculosis in dairy herds.](#)" Folia Microbiol (Praha).
- Hussain, T., S. Z. A. Shah, D. M. Zhao, S. Sreevatsan and X. M. Zhou (2016). "[The role of IL-10 in Mycobacterium avium subsp paratuberculosis infection.](#)" Cell Communication and Signaling 14.
- Imperiale, B. R., R. D. Moyano, D. I. G. AB, M. A. Romero, M. F. Alvarado Pinedo, M. P. Santangelo, G. E. Traveria, N. S. Morcillo and M. I. Romano (2017). "[Genetic diversity of Mycobacterium avium complex strains isolated in Argentina by MIRU-VNTR.](#)" Epidemiol Infect: 1-10.
- Kennedy, A. E., N. Byrne, J. O'Mahony and R. G. Sayers (2017). "[Investigations and implications of associations between mycobacterial purified protein derivative hypersensitivity and MAP-antibody ELISA in Irish dairy cows.](#)" Res Vet Sci 115: 13-16.
- Kirkeby, C., K. Graesboll, S. S. Nielsen, L. E. Christiansen, N. Toft and T. Halasa (2016). "[Adaptive Test Schemes for Control of Paratuberculosis in Dairy Cows.](#)" PLoS One 11(12): e0167219.
- Kochler, J., S. Gschaider, J. Spargser, A. Tichy, C. Mader, M. Vill, P. Ortner, J. Kossler and J. L. Khol (2017). "Reproducibility of negative boot swab samples for paratuberculosis in cattle herds in Tyrol (Austria)." Berliner Und Munchener Tierarztliche Wochenschrift 130(1-2): 29-33.
- Kohler, H. (2017). "Paratuberculosis - practical Herd Diagnosis and Control." Berliner Und Munchener Tierarztliche Wochenschrift 130(1-2): 3-3.
- Kohler, H., M. Ziller, F. Gierkem and K. Donat (2017). "Within-pool prevalence limits for the identification of paratuberculosis infected herds using antibody detection in pooled milk samples." Berliner Und Munchener Tierarztliche Wochenschrift 130(1-2): 34-41.
- Laurin, E. L., J. Sanchez, M. Chaffer, S. L. B. McKenna and G. P. Keefe (2017). "[Assessment of the relative sensitivity of milk ELISA for detection of Mycobacterium avium ssp paratuberculosis infectious dairy cows.](#)" Journal of Dairy Science 100(1): 598-607.
- Liu, X., J. Li, X. Yang, D. Wang, J. Wang and J. Wu (2017). "[The seroprevalence of Mycobacterium avium subspecies paratuberculosis in dairy cattle in Xinjiang, Northwest China.](#)" Ir Vet J 70: 1.
- Matos, A. C., L. Figueira, M. H. Martins, M. Matos, S. Alvares, A. Mendes, M. L. Pinto and A. C. Coelho (2017). "[Detection of Mycobacterium avium subsp. paratuberculosis in kidney samples of red deer \(Cervus elaphus\) in Portugal: evaluation of different methods.](#)" J Vet Med Sci.
- Mosavari, N., M. M. Geravand, K. Tadayon and R. Keshavarz (2016). "[Mycobacterial coinfection and persisting bovine tuberculosis-Has the time arrived for a policy review?](#)" Int J Mycobacteriol 5 Suppl 1: S82-s83.
- Mouli, V. P., K. Munot, A. Ananthakrishnan, S. Kedia, S. Addagalla, S. K. Garg, J. Benjamin, V. Singla, R. Dhingra, V. Tiwari, S. Bopanna, S. Hutfless, G. Makharia and V. Ahuja (2017). "[Endoscopic and clinical](#)

[responses to anti-tubercular therapy can differentiate intestinal tuberculosis from Crohn's disease.](#)"

Alimentary Pharmacology & Therapeutics 45(1): 27-36.

Munoz-Mendoza, M., B. Romero, A. del Cerro, C. Gortazar, J. F. Garcia-Marin, S. Menendez, J. Mourelo, L. de Juan, J. L. Saez, R. J. Delahay and A. Balseiro (2016). "[Sheep as a Potential Source of Bovine TB: Epidemiology, Pathology and Evaluation of Diagnostic Techniques.](#)" Transboundary and Emerging Diseases 63(6): 635-646.

Noll, I., T. Eisenberg, K. Failing, M. Rohde, K. Schlez, W. Wolter, A. Fawzy and M. Zschock (2017). "Herd prevalence of Mycobacterium avium ssp paratuberculosis (MAP) in Hessian dairy herds." Berliner Und Munchener Tierarztliche Wochenschrift 130(1-2): 13-20.

Pewsner, M., F. C. Oraggi, J. Frey and M. P. Ryser-Degiorgis (2017). "[Assessing Fifty Years of General Health Surveillance of Roe Deer in Switzerland: A Retrospective Analysis of Necropsy Reports.](#)" PLoS One 12(1): e0170338.

Pisanu, S., T. Cubeddu, S. Uzzau, S. Rocca and M. F. Addis (2017). "[Proteomic changes in the ileum of sheep infected with Mycobacterium avium subspecies paratuberculosis.](#)" Vet J 219: 1-3.

Prentice, J. C., G. Marion, M. R. Hutchings, T. N. McNeilly and L. Matthews (2017). "[Complex responses to movement-based disease control: when livestock trading helps.](#)" J R Soc Interface 14(126).

Purkhart, R., G. Becher, P. Reinhold and H. U. Kohler (2016). "[Detection of Mycobacteria by VOC analysis of in vitro cultures using differential ion mobility spectrometry \(DMS\).](#)" J Med Microbiol.

Putzschel, R., E. Einax, V. Zoche-Golob and K. Donat (2017). "Spread of infection with Mycobacterium avium subsp paratuberculosis (MAP) in cattle herds in Saxony and Thuringia on herd level." Berliner Und Munchener Tierarztliche Wochenschrift 130(1-2): 21-28.

Rossi, G., G. A. De Leo, S. Pongolini, S. Natalini, L. Zarenghi, M. Ricchi and L. Bolzoni (2017). "[The Potential Role of Direct and Indirect Contacts on Infection Spread in Dairy Farm Networks.](#)" PLoS Comput Biol 13(1): e1005301.

Roy, G. L., J. De Buck, R. Wolf, R. A. Mortier, K. Orsel and H. W. Barkema (2017). "[Experimental infection with Mycobacterium avium subspecies paratuberculosis resulting in decreased body weight in Holstein-Friesian calves.](#)" Can Vet J 58(3): 296-298.

Ruggiero, S., E. Pieragostini, G. Rubino and F. Petazzi (2017). "[Impact of Mycobacterium avium subspecies paratuberculosis on profit efficiency in semi-extensive dairy sheep and goat farms of Apulia, southern Italy.](#)" Prev Vet Med 136: 56-64.

Serrano, M., N. Elguezabal, I. A. Sevilla, M. V. Geijo, E. Molina, R. Arrazuria, A. Urkitza, G. J. Jones, M. Vordermeier, J. M. Garrido and R. A. Juste (2017). "[Tuberculosis Detection in Paratuberculosis Vaccinated Calves: New Alternatives against Interference.](#)" PLoS One 12(1): e0169735.

- Smith, R. L., M. A. Al-Mamun and Y. T. Grohn (2017). "[Economic consequences of paratuberculosis control in dairy cattle: A stochastic modeling study.](#)" *Prev Vet Med* 138: 17-27.
- Sonawane, G. G. and B. N. Tripathi (2016). "[Comparative evaluation of diagnostic tests for the detection of Mycobacterium avium subsp. paratuberculosis in the tissues of sheep affected with distinct pathology of paratuberculosis.](#)" *Int J Mycobacteriol* 5 Suppl 1: S88-s89.
- Sonawane, G. G. and B. N. Tripathi (2016). "[Expression of inflammatory cytokine and inducible nitric oxide synthase genes in the small intestine and mesenteric lymph node tissues of pauci- and multibacillary sheep naturally infected with Mycobacterium avium ssp. paratuberculosis.](#)" *Int J Mycobacteriol* 5 Suppl 1: S77-s78.
- Taheri, M. M., N. Mosavari, M. M. Feizabadi, K. Tadayon, R. Keshavarz, R. A. Pajoochi, K. Soleimani and S. D. Pour (2016). "[Rapid identification of Mycobacterium avium ssp paratuberculosis laboratory strains by IS900-Nested polymerase chain reaction.](#)" *Int J Mycobacteriol* 5 Suppl 1: S232-s233.
- Teymouri, H., N. Mosavari and H. Poor Taghi (2016). "[Detection of Mycobacterium avium subsp. Paratuberculosis in Cattle by using Indirect Absorbed ELISA \(enzyme-linked immunosorbent assay\) system and culture in Alborz Province, Iran.](#)" *Int J Mycobacteriol* 5 Suppl 1: S220-s221.
- Uchiya, K. I., S. Tomida, T. Nakagawa, S. Asahi, T. Nikai and K. Ogawa (2017). "[Comparative genome analyses of Mycobacterium avium reveal genomic features of its subspecies and strains that cause progression of pulmonary disease.](#)" *Sci Rep* 7: 39750.
- Venegas-Vargas, C., S. D. Manning, P. M. Coussens, J. A. Roussey, P. Bartlett and D. Grooms (2017). "[Bovine Leukemia Virus and Mycobacterium avium subsp. paratuberculosis Are Not Associated with Shiga Toxin-Producing Escherichia coli Shedding in Cattle.](#)" *J Food Prot* 80(1): 86-89.
- Wolf, R., K. Donate, J. L. Khol, H. W. Barkema, J. Kastelic and P. Wagner (2017). "Detection of Mycobacterium avium subspecies paratuberculosis infected cattle herds using environmental samples: a review." *Berliner Und Munchener Tierarztliche Wochenschrift* 130(1-2): 4-12.
- Zamani, S., M. R. Zali, H. A. Aghdaei, L. A. Sechi, M. Niegowska, E. Caggiu, R. Keshavarz, N. Mosavari and M. M. Feizabadi (2017). "[Mycobacterium avium subsp. paratuberculosis and associated risk factors for inflammatory bowel disease in Iranian patients.](#)" *Gut Pathog* 9: 1.
- Zarei Kordshouli, F., A. Khodakaram Tafti and M. Haghkhah (2016). "[Pathological, bacteriological, and molecular characteristics of natural outbreaks of Johne's disease in goats of Fars Province, Iran.](#)" *Int J Mycobacteriol* 5 Suppl 1: S202.

Deadline for next issue: 15 May 2017

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