

# **The Paratuberculosis Newsletter**

**September 2015**



**An official publication of the  
International Association for Paratuberculosis**

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**DEADLINE FOR NEXT ISSUE: 15 November 2015**

All contributions should be sent to [saxmose@sund.ku.dk](mailto:saxmose@sund.ku.dk)

Søren Saxmose Nielsen  
Editor

**1. IAP Business**

**Financial Report – June 30, 2015**



**International Association for Paratuberculosis**

112 Barnview Road  
Kennett Square, PA 19348 USA

**Financial Report--June 30, 2015**

	Checking	Money Market	PayPal	Total
Open (1/1/15)	\$10,779.62	\$13,884.76	\$ 337.50	\$ 25,001.88
Mid-Year (6/30/15)	\$36,164.59	\$13,887.63	\$ 480.75	\$ 50,532.97

INCOME

	<u>1/1/15 to 6/30/15</u>	<u>7/1/15 to 12/31/15</u>	<u>Annual Total</u>
Dues	\$ 150.00	\$	\$
Interest	\$ 2.87	\$	\$
ICP Deposit	\$ 16,431.05	\$	
ICP Proceeds	\$ 9,017.82		
<b>Total</b>	<b>\$ 25,601.74</b>	<b>\$</b>	<b>\$</b>

EXPENSES

	<u>1/1/15 to 6/30/15</u>	<u>7/1/15 to 12/31/15</u>	<u>Annual Total</u>
CreditCard/PayPal	\$ 70.65	\$	\$
<b>Total</b>	<b>\$ 70.65</b>		

Respectfully Submitted,

Raymond W. Sweeney, VMD  
Secretary-Treasurer

### Open Access publication subsidy

The Open Access publication system is gaining ground as the best way to make research widely available and, thus helping fulfilling the social justification of public resources. The IAP can take advantage of it to better fulfil its main objective of promoting and spreading the knowledge on paratuberculosis. Although this system has increasingly become a business that is posing a higher pressure to publish on researchers with some risk of decreasing the quality of the material being published, it still is a way to make research available to less wealthy societies that should help their scientists to stay current in the continuous flux of newly generated information. This perspective is fully in line with other IAP policies like the Helping Hand awards and has been approved by the Board of Directors, and discussed in the last General Membership meetings. From the last one, it came out a mandate to allow pre-publication application in order to better take advantage of this system by allowing research groups to plan in advance their publication strategies taking into account the resources made available with the IAP funding.

IAP can pay an Open Access publication fee for papers on paratuberculosis according to the following terms:

- 1) A Selection Committee will make the decision on each application and will establish new rules and policies on any aspect not specified in this guideline. Initially this Committee will be constituted by the Officers of the IAP: President, Vice-president, Secretary-Treasurer and Editor-in-Chief.
- 2) A manuscript is a) ready to be sent to a reliable peer-reviewed Open Access journal in English; b) already sent to a reliable peer-reviewed Open Access journal in English; c) accepted by a reliable peer-reviewed Open Access journal in English. Priority will be given from the latter to the former case and, in always, to journals in order of last published impact index.
- 3) The evaluation will be a continuous process that will be applied to all the applications submitted every three months until exhaustion of the provided fund.
- 4) The subsidy approval will be maintained for the same paper through up to three different journals if the first do not accept it.
- 5) The IAP subsidy has to be acknowledged in the paper acknowledgements sections in the following or similar terms: “The International Association for Paratuberculosis has paid this paper Open Access publication fees. This does not mean IAP official endorsement of the published contents”.
- 6) Only one paper per group and year will be subsidized. A paper will be considered from a different group in the same year if it has: a) different senior author (generally the one signing last, with the higher number of papers and/or with higher position in the institution), and b) no more than half the authors signed a previously funded paper.

- 7) At least one among the first, second or the senior authors must be a member of the IAP in good standing.
- 8) Applications are accepted until an IAP fund of US\$10.000 per year is exhausted in a first come, first serve schedule with a maximum of US\$1000 per paper.
- 9) Since these publications' copyright remain in the hands of the authors, the IAP might chose to include the subsidized papers in the Paratuberculosis Newsletter. At least the full bibliographic reference of all the subsidized papers will be published in it.
- 10) The call is open since its publication in The Paratuberculosis Newsletter and until otherwise noted in The Paratuberculosis Newsletter. Periodic reminders will also appear in its pages.
- 11) Applications must be sent by email to the Secretary-Treasurer of the IAP (or the Editor-in Chief) and must include a letter of application with the information detailed below, a copy of the full manuscript pdf file (if already sent, it must be the file generated by the editorial submission system) and a copy of the journal fees applying to the paper.
- 12) In case the article has been published at application time, it must include the final pdf file and the corresponding invoice.
- 13) Payment will be made effective only after the paper has been accepted for publication and a copy of the invoice has been received by the IAP. Only the amount shown there will be paid.

Ramon A. Juste  
President of the IAP

*Applications must include the following information*

- *Date of application*
- *Open Access journal name*
- *Manuscript title*
- *Authors*
- *Corresponding author*
- *Corresponding author institution and country*
- *Manuscript status (Not submitted/Submitted/Accepted)*
- *Attached full manuscript pdf file name.*

## 13<sup>th</sup> International Colloquium on Paratuberculosis

The 13<sup>th</sup> International Colloquium on Paratuberculosis will take place in Nantes, France, on 20-24<sup>th</sup> of June 2016. Please follow updates on the colloquium website:

<https://colloque6.inra.fr/icp2016/>



Abstract submission deadline is 31<sup>st</sup> of January 2016

## 2. Opinions

### I disagree!

*Rod Chiodini*  
*Founder of the Association,*  
*President, Emeritus*  
*Honorary Member, Governing Board*

As many of you know, when I resigned as President of the Association and turned the reins over to Mike Collins in 1996, because of personal and professional issues, I essentially disappeared from the scene and matters of the Association. Except for attendance at a single meeting, I was essentially absent. However, at least temporarily, I am back and those that know me also know that I am not afraid to speak my mind, give my opinion, and raise controversy. In keeping with that policy of political incorrectness, let me speak my mind.

First, when I resigned in 1996, because the then Governing Board felt it beneficial to have my input into matters of the Association as the founding father, I was made an honorary member of the Board of Directors with no country affiliation but full voting rights. Except for the first couple of years since my resignation, this has been ignored. I am now exercising that right and unless challenged by the Governing Board (there is no written documentation that I could find), I will assume the Association agrees and I hereby reaffirm my position on the Board of Directors.

The below is an official notification to the Secretary of the Association under Article 6, Section 5 to be placed on the agenda of the next General Membership Session of the Association.

- 1. Open Access Publication Subsidy.** Who came up with this idea? It does not make a lot of sense or, in my opinion, represent a wise use of Association assets. Before I address why this is policy should be dissolved, let me point out some discrepancies in the policy published in the recent Paratuberculosis Newsletter.

This was not discussed at the “last General Membership meeting”. I was there. The issue was raised that nobody had applied for the subsidy, except for a single Officer of the Association. That was essentially it. There was no discussion of this policy, what it would entail, or whether it should be implemented. Since the discussion was only about the few who had applied, I assumed that it was an established policy.

What is a “reliable peer-reviewed journal”? There are currently 10, 611 “high quality, open access, peer-reviewed journals” (<https://doaj.org/>), and this number is likely to be greater by the time this is published. Sure, priority will be given based on impact score, but papers will be considered every 3-months, with a maximum subsidy of

\$1,000 up to the \$10,000 maximum per year. That means that unless >10 papers are submitted for consideration at the same time, my submission to journal “X” with an impact factor of “0” should and will be subsidized. Also, how can the author honor the requirement to include an acknowledgment to the IAP for open access support if papers are considered for funding that are “published at application time”?

The larger issue and question is, as Ramon accurately points out, this influx of open access journals reduces the quality of material being published because, with >10,000 journal to choose from, anyone can get anything published. Should the Association really be supporting this? Is this a good use of Association resources and funds? My opinion is NO to all.

Yes, Ramon is correct in that it is annoying even for investigators at large Institutions not to have access to certain Journals either because their Library does not subscribe to that Journal or there is a 12-month embargo. I don't think this is a problem just in “less wealthy societies”. But does \$10,000 a year really accomplish anything when there are so many other ways in which “less wealthy societies” as well as investigators at large Institutions can gain access to these Articles within a reasonable time?

What do I do when I cannot access an article because of an embargo or something else? Let's take this example (actual case):

Waddell LA, Rajić A, Stärk KD, McEWEN SA. The zoonotic potential of *Mycobacterium avium* ssp. *paratuberculosis*: a systematic review and meta-analyses of the evidence. *Epidemiol Infect.* 2015 May 20:1-23. [Epub ahead of print]

My Institution does not have access to this Journal and it is not open access. But getting it was/is no big issue, regardless of my society wealth. In PubMed, you click on the “Full Text Link” which brings you to the Journal and Article. There you have the choice to buy it for \$45.00, rent it for \$5.99 or you can scroll down to Correspondence, click on the email link for the corresponding author, and request a copy. Within 24 hours, I had the full pdf of the article. All journals provide the corresponding author's email address. Regardless of society wealth, anyone can do that without having or paying open access fees. I will admit that it is sometimes annoying to have to wait sometimes 2-3 days for the author to send me the article, but I have yet not received an article within a very reasonable time. If you cannot spend the minute or 2 to find the authors email address and send them an email or



cannot wait the day or two to receive the article, then open access is not going to help you because you are obviously not that interested in the article to begin with.

If you personally want to give open access, there are ways you can do that without paying open access fees. Join Research Gate (<https://www.researchgate.net/>) and upload your full text articles in your bibliography. I went through the effort to scan all my old articles (pre-pdf) and upload them in ResearchGate to provide open access to these old articles from the 1980's. Articles in ResearchGate are indexed by MSN (bing), Google (and Google Scholar) and Yahoo. Because of that, I find many articles that I do not have access to simply by cut/pasting the article title into one of the search engines above or directly in ResearchGate. Alternately, you can upload your articles to other indexed websites of your choosing and provide "open access" that way. And you don't have to pay for it!

If an individual is not willing to go through that little effort described above then they are not that interested in the article and giving them open-access is not going to accomplish much. If you don't make the effort to make your articles freely available either by not uploading them somewhere or not responding to email requests, then paying your open access fees will not accomplish much either.

Therefore and for reasons cited above, I propose that the Open Access Subsidy be abolished.

**A. I hereby propose that this proposal to abolish the Open Access Subsidy be placed on the Agenda of the next Executive and General meeting of the Association.**

Furthermore, I disagree with the notion that this policy is "fully in line with other IAP policies like the Helping Hand awards". Although the Laws & By-Laws of the Association have changed since I first wrote them in 1988, Article IX of the Association's Laws & By-Laws, entitled "FELLOWSHIP AND GRANTS PROGRAM" defines the purpose as "used to encourage new programs and research in paratuberculosis". How does open access accomplish that purpose? How does it fit or align with previous policies of the Association under this Article?

In 1994, the Association amended the Laws & By-Laws to include the R. S. Merkal Memorial Fellowship under the Fellowship and Grant Program for the purpose of providing funding for the participation and attendance of a graduate student at Colloquia of the Association. This program has been proven to "encourage new

programs and research in paratuberculosis”. Applications for the R. S. Merkal Memorial Fellowship occasionally included requests from non-students: investigators from “less wealthy societies” who had contributed to paratuberculosis research but did not have the funds to attend the meeting. Some of these individuals were funded to attend Colloquia under a discretionary “companionate” clause. The Association, though then acting President Mike Collins, took it a step further and created the “Helping Hands” Program. It is undisputable that both of these programs fall within the objectives and purpose of the Fellowship and Grants Program of the Association. In my opinion, it is a stretch to fit the “Open Access Subsidy” within this overall Program purpose.

If it does not fit under Article IX, which I challenge, then this open access subsidy program cannot exist as a policy under Article IX but requires a full membership vote to amend the Laws & By-Laws of the Association.

If the Association has \$10,000.00 per year to invest, I would propose that the Association fulfill the “Grants” part of the Fellowship and Grants Program of the Association’s Laws & By-Laws which has been ignored for over 25-years. Think about it, what could you do with \$10,000 per year to support a graduate student in paratuberculosis research? What could a “less wealthy society” do with the money? Whether it be for supplies or as a student stipend, I think the money used for this purpose would far more benefit and “encourage new programs and research in paratuberculosis” than an open access subsidy.

Therefore I propose that the money earmarked for the open access subsidy be reallocated to fund a Graduate Student Grants Program.

**B. I hereby propose that this proposal to establish the Graduate Student Grants Program be placed on the Agenda of the next Executive and General meeting of the Association.**

A Committee should be formed to create the guidelines of the Graduate Student Grants Program, including eligibility requirements, length of funding, amount of funding, and other pertinent issues and matters related to the organization of the Grants Program.

**C. I hereby propose the creation of a Graduate Student Grants Program Committee be placed on the Agenda of the next Executive and General meeting of the Association.**

If proposal A above fails, and the Membership votes to maintain the Open Access Subsidy “Policy”, then proposals B & C are effectively withdrawn.

2. **Privileged Information at Association Meetings.** Back in the 1980’s, I believe it was a meeting of the American Society for Microbiology (ASM) either in New Orleans or Las Vegas, I attended an intriguing and perhaps ground-breaking talk. After the talk, there were several questions put forth by the audience, but in almost all cases the answer was something like: “There is a patent pending and the information you request is proprietary”. There was an outraged expressed not only by the audience but the ASM as a whole. As a result of this episode, the ASM made a universal rule that an agreement to present research data at their meetings was an agreement to full disclosure. I remember that day as clearly as if it happened yesterday.

I was therefore very surprised while listening to a talk on a revolutionary new method of cultivating *M. paratuberculosis* at the 12th International Colloquium on Paratuberculosis in Parma that the response to all questions asked was something like “There is a patent pending and the information you request is proprietary”. In fact, the entire basis of this talk was to try to get people to test and evaluate their “product” at someone else’s expense, i.e., they would provide you with the product but not tell you what is in it or anything else about it. Those of you that attended the Colloquium know what talk I am referring to.

These types of talks are insulting, are uninformative, and offer nothing to the listening audience: they have self-serving motives and solely promote self-serving interests. It is for this reason that such talks are not allowed at most meetings. I thought this issue was resolved 30 years ago.

I strongly recommend that the program committee for the upcoming 13th International Colloquium for Paratuberculosis in Nantes makes full disclosure a requirement for acceptance of a paper for a poster or oral presentation. Furthermore, anyone to violate the full disclosure requirement should be severely penalized, including prohibition from presenting at future colloquia.

**D. I hereby propose the Association as a whole adapt a policy that all material and data presented at any Meeting of the Association must be presented with full disclosure and that this proposal be placed on the Agenda of the next Executive and General meeting of the Association.**

3. **Why join the Association.** Back when the Association first started there was a reason to join. You received the Paratuberculosis Newsletter (which had reasonable scientific content) in the mail, you received discounted prices on books and colloquia proceedings (then in paper copy and full articles, not just abstracts), you received discounted meeting costs (and you could not join when you registered), and a few other benefits of being a member.

Now, the Paratuberculosis Newsletter is electronic (always felt this was a mistake) and is available to the general public online, Colloquia Proceedings are now just short abstracts and available online for the general public at no cost, and the increased cost of attending colloquia can simply be offset by joining the Association. Other than saying you are a member of the Association, what are the benefits of joining the Association? Why should I become a member? How can I convince my colleagues to join?

The services offered by the Association need to be considered and what can be done to provide something for the money. Whether it is through real-time dynamic website interactions or some other method, resources need to be developed that not only serve the Association members but also can be used to attract new members.

When you look at publications related to paratuberculosis and look at the authors, most are not members of the Association. This is even true for Association Officers and members of the Board of Directors whereby they are generally the only Members not the rest of the authors.

A Committee should be formed to advise the Association on services and incentives that can and should be offered to the membership to increase participation and can be used as a membership recruitment tool. This Committee should be charged with assembling lists of potential members and recruiting new members to the Association.

**E. I hereby propose the creation of a Membership Committee to identify and recruit prospective members of the Association and that this proposal be placed on the Agenda of the next Executive and General meeting of the Association.**

4. **Payment of Dues.** As I said initially, I have been out of the loop for a while and have no idea why this 2-year membership fee was implemented. I can only assume that it was implemented for bookkeeping convenience as I cannot imagine any other reason. If that is correct, it would seem unjustified and counterproductive.

When the Association was in its infancy, there were a few prospective members that wanted to join the Association but their Institution would not pay their membership fees and to pay the fees personally would have a significant impact on their personal finances. I think that situation may still exist and somehow I think that doubling the cost would create double the impact particularly considering the apparent increased sensitivity of the Association toward “less wealthy societies”.

If the entire reason for this is convenience, then the Association should invest in a membership management software or, alternately and preferably, invest in having the Association’s website handle memberships automatically.

Keeping in line with 3 above, there should be incentives for advance payments, incentives for new members, and incentives or special pricing for student members.

Also, why are dues due by April of each year? This is certainly not conducive to new membership as it hampers membership outside a few months before or after April. Members and prospective members should be able to join and pay dues anytime during the year.

**F. I hereby propose that the membership fee structure for the Association be re-evaluated and that this proposal be placed on the Agenda of the next Executive and General meeting of the Association.**

I propose the following fee structure:

- One year Membership: \$50.00
- Two Year Membership: \$90.00
- Three Year Membership: \$120.00
- One Year Student Membership: \$25.00

Also, fees should be payable anytime during the year and run for a full year from the date of payment. Also, individuals should not be allowed to join the Association for the sole purpose of obtaining member pricing for Colloquia and a delinquent member must pay all dues in arrears when renewing an existing membership. I would also propose a \$10.00 late fee for anyone who is more than 60 days in arrears.

I look forward to discussing these proposals at the next Executive and General Meeting of the Association in Nantes.

### **3. List of Recent Publications**

- Arrazuria R, Sevilla IA, Molina E, Pérez V, Garrido JM, Juste RA, Elguezabal N. [Detection of \*Mycobacterium avium\* subspecies in the gut associated lymphoid tissue of slaughtered rabbits](#). BMC Vet Res. 11:130.
- Arrazuria R, Molina E, Mateo-Abad M, Arostegui I, Garrido JM, Juste RA, Elguezabal N. [Effect of various dietary regimens on oral challenge with \*Mycobacterium avium\* subsp. \*paratuberculosis\* in a rabbit model](#). Res Vet Sci. 101:80-3.
- Arru G, Caggiu E, Leoni S, Mameli G, Pugliatti M, Sechi GP, Sechi LA. [Natalizumab modulates the humoral response against HERV-Wenv\(73-88\) in a follow-up study of Multiple Sclerosis patients](#). J Neurol Sci. 2015 Jul 8 [Epub ahead of print].
- Banche G, Allizond V, Sostegni R, Lavagna A, Bergallo M, Sidoti F, Daperno M, Rocca R, Cuffini AM. [Application of multiple laboratory tests for \*Mycobacterium avium\* ssp. \*paratuberculosis\* detection in Crohn's disease patient specimens](#). New Microbiol. 2015 Jul 6 [Epub ahead of print].
- Bannantine JP, Stabel JR, Laws E, D Cardieri MC, Souza CD. [Mycobacterium avium subspecies paratuberculosis recombinant proteins modulate antimycobacterial functions of bovine macrophages](#). PLoS One. 10:e0128966.
- Begg DJ, de Silva K, Plain KM, Purdie AC, Dhand N, Whittington RJ. [Specific faecal antibody responses in sheep infected with \*Mycobacterium avium\* subspecies paratuberculosis](#). Vet Immunol Immunopathol. 166:125-31.
- Carlos P, Roupie V, Holbert S, Ascencio F, Huygen K, Gomez-Anduro G, Branger M, Reyes-Becerril M, Angulo C. [In silico epitope analysis of unique and membrane associated proteins from \*Mycobacterium avium\* subsp. \*paratuberculosis\* for immunogenicity and vaccine evaluation](#). J Theor Biol. 2015 Aug 13 [Epub ahead of print].
- Carvalho IA, Schwarz DG, Pietralonga PA, Faria AC, Braga IF, Carvalho GD, Valente FL, Machado JP, Guimarães LM, Ferrari ML, Silva Júnior A, Moreira MA. [Presence of \*Mycobacterium avium\* subsp. \*paratuberculosis\* \(MAP\) in Brazilian patients with inflammatory bowel diseases and in controls](#). Sao Paulo Med J. 2015 Jul 3. [Epub ahead of print].
- Cieslik W, Spaczynska E, Malarz K, Tabak D, Nevin E, O'Mahony J, Coffey A, Mrozek-Wilczkiewicz A, Jampilek J, Musiol R. [Investigation of the Antimycobacterial Activity of 8-Hydroxyquinolines](#). Med Chem. 2015 Aug 7 [Epub ahead of print].
- Cossu D, Mameli G, Galleri G, Cocco E, Masala S, Frau J, Marrosu MG, Manetti R, Sechi LA. [Human interferon regulatory factor 5 homologous epitopes of Epstein-Barr virus and \*Mycobacterium avium\* subsp. \*paratuberculosis\* induce a specific humoral and cellular immune response in multiple sclerosis patients](#). Mult Scler. 21:984-95.
- Donat K, Hahn N, Eisenberg T, Schlez K, Köhler H, Wolter W, Rohde M, Pützschel R, Rösler U, Failing K, Zschöck PM. [Within-herd prevalence thresholds for the detection of](#)

- [Mycobacterium avium subspecies paratuberculosis-positive dairy herds using boot swabs and liquid manure samples](#). Epidemiol Infect. 2015 Jun 26:1-12. [Epub ahead of print].
- Eisenberg SW, Rutten VP, Koets AP. [Dam Mycobacterium avium subspecies paratuberculosis \(MAP\) infection status does not predetermine calves for future shedding when raised in a contaminated environment: a cohort study](#). Vet Res. 46:70.
- Farrell D, Shaughnessy RG, Britton L, MacHugh DE, Markey B, Gordon SV. [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.
- Galiero A, Fratini F, Turchi B, Colombani G, Nuvoloni R, Cerri D. [Detection of Mycobacterium avium subsp. paratuberculosis in a sheep flock in Tuscany](#). Trop Anim Health Prod. 2015 Aug 6. [Epub ahead of print] PubMed PMID: 26245917.
- Ganusov VV, Klinkenberg D, Bakker D, Koets AP. [Evaluating contribution of the cellular and humoral immune responses to the control of shedding of Mycobacterium avium spp. paratuberculosis in cattle](#). Vet Res. 46:62.
- Garcia AB, Shalloo L. Invited review: [The economic impact and control of paratuberculosis in cattle](#). J Dairy Sci. 98:5019-39.
- Gioffré A, Correa Muñoz M, Alvarado Pinedo MF, Vaca R, Morsella C, Fiorentino MA, Paolicchi F, Ruybal P, Zumárraga M, Travería GE, Romano MI. [Molecular typing of Argentinian Mycobacterium avium subsp. paratuberculosis isolates by multiple-locus variable number-tandem repeat analysis](#). Braz J Microbiol. 46:557-64.
- Godden SM, Wells S, Donahue M, Stabel J, Oakes JM, Sreevatsan S, Fetrow J. [Effect of feeding heat-treated colostrum on risk for infection with Mycobacterium avium ssp. paratuberculosis, milk production, and longevity in Holstein dairy cows](#). J Dairy Sci. 98:5630-41.
- Groenendaal H, Zagmutt FJ, Patton EA, Wells SJ. [Cost-benefit analysis of vaccination against Mycobacterium avium ssp. paratuberculosis in dairy cattle, given its cross-reactivity with tuberculosis tests](#). J Dairy Sci. 98:6070-84.
- Gulliver EL, Plain KM, Begg DJ, Whittington RJ. [Histopathological characterization of cutaneous delayed-type hypersensitivity and correlations with intestinal pathology and systemic immune responses in sheep with paratuberculosis](#). J Comp Pathol. 153:67-80.
- Katsafadou AI, Tsangaris GT, Billinis C, Fthenakis GC. [Use of proteomics in the study of microbial diseases of small ruminants](#). Vet Microbiol. 2015 Jul 17 [Epub ahead of print].
- Kirkeby C, Græsbøll K, Halasa T, Toft N, Nielsen SS. [Mean effective sensitivity for Mycobacterium avium subsp. paratuberculosis infection in cattle herds](#). BMC Vet Res. 11:190.

- Klinkenberg D, Koets A. [The long subclinical phase of \*Mycobacterium avium\* ssp. \*paratuberculosis\* infections explained without adaptive immunity](#). Vet Res. 46:63.
- Koets AP, Eda S, Sreevatsan S. [The within host dynamics of \*Mycobacterium avium\* ssp. \*paratuberculosis\* infection in cattle: where time and place matter](#). Vet Res. 46:61.
- Koets AP, Gröhn YT. [Within- and between-host mathematical modeling of \*Mycobacterium avium\* subspecies \*paratuberculosis\* \(MAP\) infections as a tool to study the dynamics of host-pathogen interactions in bovine paratuberculosis](#). Vet Res. 46:60.
- Kos J, Zadrazilova I, Nevin E, Soral M, Gonec T, Kollar P, Oravec M, Coffey A, O'Mahony J, Liptaj T, Kralova K, Jampilek J. [Ring-substituted 8-hydroxyquinoline-2-carboxanilides as potential antimycobacterial agents](#). Bioorg Med Chem. 23:4188-96.
- Kuenstner JT, Mukherjee S, Weg S, Landry T, Petrie T. [The treatment of infectious disease with a medical device: results of a clinical trial of ultraviolet blood irradiation \(UVBI\) in patients with hepatitis C infection](#). Int J Infect Dis. 37:58-63.
- Lacasta D, Ferrer LM, Ramos JJ, González JM, Ortín A, Fthenakis GC. [Vaccination schedules in small ruminant farms](#). Vet Microbiol. 2015 Jul 17 [Epub ahead of print].
- Leite FL, Eslabão LB, Pesch B, Bannantine JP, Reinhardt TA, Stabel JR. [ZAP-70, CTLA-4 and proximal T cell receptor signaling in cows infected with \*Mycobacterium avium\* subsp. \*paratuberculosis\*](#). Vet Immunol Immunopathol. 2015 Jul 2 [Epub ahead of print].
- Liaskos C, Spyrou V, Athanasiou LV, Orfanidou T, Mavropoulos A, Rigopoulou EI, Amiridis GS, Shoenfeld Y, Billinis C, Bogdanos DP. [Crohn's disease-specific anti-CUZD1 pancreatic antibodies are absent in ruminants with paratuberculosis](#). Clin Res Hepatol Gastroenterol. 39:384-90.
- Louzoun Y, Mitchell R, Behar H, Schukken Y. [Two state model for a constant disease hazard in paratuberculosis \(and other bovine diseases\)](#). Vet Res. 46:67.
- Martcheva M, Lenhart S, Eda S, Klinkenberg D, Momotani E, Stabel J. [An immunological model for Johne's disease in cattle](#). Vet Res. 46:69.
- Matos AC, Dias AP, Morais M, Figueira L, Martins MH, Matos M, Pinto ML, Coelho AC. [Granuloma Coinfection with \*Mycobacterium bovis\*, \*Mycobacterium avium\* subsp. \*paratuberculosis\*, and \*Corynebacterium pseudotuberculosis\* in five hunted Red deer \(\*Cervus elaphus\*\) in Portugal](#). J Wildl Dis. 51:793-4.
- Mitchell RM, Schukken Y, Koets A, Weber M, Bakker D, Stabel J, Whitlock RH, Louzoun Y. [Differences in intermittent and continuous fecal shedding patterns between natural and experimental \*Mycobacterium avium\* subspecies \*paratuberculosis\* infections in cattle](#). Vet Res. 46:66.
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