

## 1. MOST SIGNIFICANT CONTRIBUTIONS

**i) Standardization of the serotyping system of *S. suis* and description of new serotypes.** My laboratory is considered as an international reference for the serotyping of this pathogen. We described most of the 35 recognized serotypes and we are constantly requested to send reference strains/sera worldwide. Recently, I significantly collaborated in the standardization and validation of the 3 available multiplex PCR (new molecular complete serotyping systems) developed independently by researchers from Thailand, Japan and China, respectively. I supervise the *S. suis* diagnostic serotyping laboratory and I receive strains isolated from diseased pigs in Canada and USA. We were the first to describe atypical serotypes in humans (zoonosis): serotypes 5 and 24 in Thailand (published in *The Lancet*), serotype 21 in Argentina, an untypable non-encapsulated strain and a serotype 9 strain in Thailand, and a non-encapsulated serotype 5 strain in USA.

**ii) International recognition.** My laboratory has a fundamental profile which has allowed me to publish *S. suis* papers in good impact and recognized basic research journals. In addition, I was also able to develop a recognized leadership in the field with knowledge users (veterinary practitioners), with whom I routinely discuss specific *S. suis* field cases and am asked to give my opinion/advice, thus influencing the direction of the decisions taken. This bivalence is also reflected by around 100 conferences (last 6 years only) where I was requested as invited speaker (frequently as keynote speaker) to present either basic research results by Universities/Research Institutes/National organizations or applied knowledge by field swine producer associations and swine practitioner organizations as well as pharmaceutical companies in South, Central and North America, Caribbean, Europe, and Asia. I acted under request as a leader of an expert panel from the WHO and FAO on a human outbreak of *S. suis* in China and a swine outbreak in Vietnam. I have been requested 12 times as an expert in legal cases of herd contaminations (App) or human infections (*S. suis*) in France, USA, Mexico, Canada and Australia. I was the organizer of the first (Beijing, China) and second (Buenos Aires, Argentina) International Symposiums on *S. suis*, confirming my leadership on the subject.

**iii) New aspects on the pathogenesis of the meningitis caused by *S. suis* in pigs.** My laboratory has the highest number of worldwide publications/laboratory on *S. suis*. Papers have been published in journals such as *Infection and Immunity*, *Molecular Microbiology*, *Journal of Immunology*, *The Lancet*, *Emerging Infectious Diseases*, *Journal of Infectious Diseases*, etc. We were the first one to elucidate many steps of the pathogenesis of the infection caused by this pathogen. In a visionary review on *S. suis* published in 2000 (*Vet Microbiol.* 2000;76(3):259-272, cited almost 400 times), we were the first to dissect the pathogenesis of the infection. We were also the first to describe that disease caused by *S. suis* is the consequence of an exacerbated inflammatory reaction and we identified the receptors involved. We also described how influenza virus recognize and adhere to the capsule polysaccharide of *S. suis* through its sialic acid in an unusual bacteria/virus interactions.

**iv) Virulence factors of *S. suis*: European and North American *S. suis* strains are different.** For the first time, as predicted in the year 2000, we demonstrated that virulence of *Streptococcus suis* serotype 2 strains highly varied in different continents. At that moment, this information convinced an important multinational pharmaceutical company, which was ready to commercialize a toxin-based vaccine to reconsider their strategy, since this vaccine would have not been useful in North America (most strains do not produce such toxin). Today, our hypothesis has been clearly confirmed by different researchers elsewhere. We hypothesize that the higher number of human cases observed in Euro/Asia can also be associated to a higher virulence potential of strains in those continents. We sequenced a high number of Canadian strains and we work in collaboration with international researchers to compare such strains with those isolated in Europe and Asia.

**v) Technological transfer to the industry:** My research/diagnostic laboratory for swine pleuropneumoniae (App) is also considered as an international reference laboratory for the detection of carrier animals. I have set up an ELISA test with a purified antigen (considered a reference diagnostic test for App). Three patents have been obtained and diagnostic kits are presently commercialized worldwide by a private company (Biovet Inc.). Another patent is pending on a *S. suis* vaccine (SAO protein) and we are closely working with a Canadian company to improve and commercialize the vaccine.

## 2. ACTIVITIES AND CONTRIBUTIONS

### STUDENT TECHNICAL AND PROFESSIONAL STAFF (2011-2016)

In addition to undergraduate students, graduate students and post-doctoral fellows, I am presently supervising 1 research assistant (S. Lacouture) in my research laboratory and 2 technicians in my diagnostic/research laboratory.

### PROFESSIONAL INVOLVEMENTS

#### Awards

- Pfizer Awards for Excellence in Research 2012
- Honour Professor – Universidad de Buenos Aires – Argentina (2010)
- Diagnostician of the year – Canadian Animal Health Laboratorians Network (CAHLN) (2005)
- Pfizer Awards for Excellence in Research 1997
- Pfizer Awards for Excellence in Research 2003
- Zoetis Award for Excellence in Research 2012
- Fisher Scientific Award in Microbiology, Canadian Society of Microbiologists (2001)

#### Invited lectures – (Period 2011-2016): **77** (Career: **270**): (see list below)

- **68** in Caribbean, South & Central America, **83** in Europe, **91** in Canada/USA, **23** in Asia, **1** in Africa and **2** in Australia, **2** on the web; from Associations of either swine producers or swine veterinarians, Pharmaceutical companies, Microbiology Associations and different Universities.

#### Reviewer – (Period 2011-2016)

- Reviewer for **171** manuscripts from international peer reviewed journals
- Reviewer for **42** grants from Canada, USA, Spain, Denmark, France, Belgium, Italy, Argentina, Mexico, The Netherlands, Germany and UK. Examples: Welcome Trust (UK), National Pork (USA), Research Foundation (Belgium), etc.

#### Professional involvements

- Director of the Research Group on Infectious Diseases of Pigs (GREMIP), Université de Montréal.
- (2005 to 2009): 16 research members, more than 80 persons. [www.medvet.umontreal.ca/gremip](http://www.medvet.umontreal.ca/gremip).
- Director of the Research Center of Porcine Infectiology (CRIP, strategic group from FQRNT) (2006 to 2009): 29 research members. [www.crip.umontreal.ca](http://www.crip.umontreal.ca).
- Member of the NSERC Committee 1011 for Discovery Grants (2006-2007; 2008-2010)
- NSERC- appeal advisor (2010-2012).
- Member of the scientific committee of the « 21rd International Pig Veterinary Society Congress (IPVS), Vancouver, Canada, June 2010.
- Member of the scientific committee of the « 22rd International Pig Veterinary Society Congress (IPVS), Jeju, South Korea, June 2012.
- Member of the scientific committee of the « 23rd International Pig Veterinary Society Congress (IPVS), Cancun, Mexico, June 2014.
- Member of the scientific committee of the « 24rd International Pig Veterinary Society Congress (IPVS), Dublin, Ireland, June 2016
- Chairman on the 24rd IPVS, Dublin, Ireland, June 2016
- Chairman of one session at the 3<sup>rd</sup> International Workshop of *Streptococcus suis*, Brownschweig, Germany, September 2016
- Member of the Editorial Committee of the Revista Argentina de Microbiologia - 2014-...
- President of the First International Symposium on *Streptococcus suis*, Beijing, 2013

- President of the Second International Symposium on *Streptococcus suis*, Lancefield Symposium on Streptococci and Streptococcal Diseases, Buenos Aires, Argentina, 2014.
- Official officer from the *Food and Agriculture Organization of the United Nations* (2007) (FAO).
- Nominated expert for the World Health Organization in the 2005 *S. suis* human outbreak in China.
- External evaluator: postgraduate program, Universidad Autonoma de Mexico, 2010 and 2012.
- Associated Editor of *Veterinary Research* (2010-...), *BioMed Central* (2010-...) and *Journal of Clinical Microbiology* (2006-2009).
- Worldwide specialist on swine diseases: Porcine Academy (Latinamerica and Spain)  
<http://www.academiaporcina.com/autores/> - 2016-...
- Part of the expert panel of the Hotbed of Research “One Health” Program of Veterinary Medicine of the Faculty of Agricultural Sciences at the University of La Salle (Bogota, Colombia). February 2016.

### **Legal expert**

- Legal expert on a case of human infection by *S. suis* in an abattoir (Mexico; 2007-2009).
- Legal expert on a case of transmission of swine pleuropneumonia (France; 2007-2009).
- Legal expert on transmission of infection of swine pleuropneumonia (Australia; 2008-2009).
- Legal expert on transmission of infectious diseases from one herd to another (Canada, 2011).
- Legal expert on patent breakdown (USA, 2012-2014).

### **CONTRIBUTIONS TO THE TRAINING OF HIGHLY QUALIFIED PERSONNEL (HQP) (2011-2016)**

HQP training is one of my main objectives: graduate students, post-doctoral fellows, research assistants, technicians, as well as undergraduate and visiting graduate students (see below). We are out of campus in St-Hyacinthe (small city), which is sometimes not a highly attractive destination for graduate students. However, I was lucky and able to attract highly qualified candidates probably due to our reputation on HQP training as well as our international recognition on *S. suis*. During the last 6 years, my graduate students accumulated more than 30 scholarships and awards, including many NSERC (one Alexander Graham Bell and one L'Oréal-UNESCO, Lecours), many FRQNT, one FPPQ (swine producers) as well as many excellence awards from our Research Center, Faculty and/or University. Some students won first prizes for oral presentations at scientific meetings (Wang, Lecours, Auger). Since international collaborations have been important in my career, I encouraged my students to perform training abroad, exposing them to a new research environment, facing other realities, having life experiences in another country, improving their CV, and learning new technologies. During the last 6 years, and through competitive-based FRQNT scholarships, 6 of my students and my research assistant performed 8 training in foreign laboratories: Lecours (twice in Spain), Roy (Japan), Auger (UK), Calzas (France), Fittipaldi (China), Dominguez (Germany), and Lacouture (France). My students (first authors on papers concerning their own research) have developed solid CVs. I encouraged collaborations amongst students, which increased their publication records. Only as an example of the scientific level, the thesis of Fittipaldi was honoured as the best PhD thesis in sciences at the University of Montreal in 2009, an award never obtained yet by any other student at the Faculty of Veterinary Medicine. The thesis of MC Dominguez-Punaro and that of MP Lecours were also chosen as finalist for such award. All my students on *S. suis* that graduated since 2008 have been in the Dean's list of honor. Most of my ex-students now have positions in Academia, Government or private sector. Several visiting students (MSc or PhD student) coming for training to my laboratory were from abroad, being part of international collaborations: Spain (2), Argentina (4), France (4), Vietnam (1), Chile (1), Brazil (1), and Mexico (1). Their visit had an important impact on my graduate students who had to directly work with them: these are great opportunities for them to open their minds.

#### 4. PATENTS AND INTELLECTUAL PROPERTY RIGHTS

1. Harel, J., M. Gottschalk and Y. Li. *Streptococcus suis* polypeptides and polynucleotides encoding same and their use in vaccine and diagnostic applications.
  - ❖ WO 2007/025390) App. Num PCT/CA2006/001454
  - ❖ American application US60/713,328 – September 2005
  - ❖ Canada Patent pending #2.620.774 – 10 juin 2008
  - ❖ United States Patent Pending, Publication –60/713,328 02.09.2005 US
  - ❖ Brazil Patent Application: 06790631.3–1212 PCT/CA2006001454
  - ❖ China Patent Application : PCT/CA2006/001454
  - ❖ Australia Patent Application : 2006287077
  
2. Gottschalk, M., D. Dubreuil et R. Lallier. A serological diagnostic kit for the detection of *Actinobacillus pleuropneumoniae* serotype 2 in swine. 1997.
  - ❖ European patent #98400859,9
  - ❖ American patent CIP #6350584.
  
3. Gottschalk, M., D. Dubreuil et R. Lallier. A serological diagnostic kit for the detection of *Actinobacillus pleuropneumoniae* serotypes 5a et 5b in swine. 1996.
  - ❖ Canadian patent No. 2 227 448.
  - ❖ American patent No. 2 270 985.
  
4. Gottschalk, M., D. Dubreuil et R. Lallier. A serological diagnostic kit for the detection of *Actinobacillus pleuropneumoniae* serotypes (1, 9, 11), 2, (3, 6, 8), (4, 7), 5, 10 and 12 in swine.
  - ❖ Canadian patent No. 6 218 195
  - ❖ European patent No 0843820.

## 5. PUBLICATIONS AND WORK

NOTE: “\*”: HQP UNDER THE SUPERVISION/CO-SUPERVISION OF THE APPLICANT

PUBLISHED/in PRESS/ (2011-2016) : 94

1. Segura, M., C. Calzas\*, D. Grenier, **M. Gottschalk**. 2016. Initial steps of the pathogenesis of the infection caused by *Streptococcus suis*: fighting against non-specific defenses. FEBS Letters. doi: 10.1002/1873-3468.12364. PMID: 27539145
2. Athey, T.B., S. Teatero, S. Lacouture\*, D. Takamatsu, **M. Gottschalk**, N. Fittipaldi. 2016. Determining *Streptococcus suis* serotype from short-read whole-genome sequencing data. BMC Microbiology. 16: 162. PMID: 27449127
3. Kerdsin, A., **M. Gottschalk**, R. Hatrongjit, S. Hamada, Y. Akeda, K. Oishi. 2016. Fatal septic meningitis in child caused by *Streptococcus suis* Serotype 24. Emerging Infectious Diseases. 22: 1519-1520. PMID: 27439179
4. Vinogradov, E., G. Goyette-Desjardins, M. Okura, D. Takamatsu, **M. Gottschalk**, M. Segura. 2016. Structure determination of *Streptococcus suis* serotype 9 capsular polysaccharide and assignment of functions of the cps locus genes involved in its biosynthesis. Carbohydrates Research. 5: 25-30. PMID: 27423880
5. Auger, J.P. \*, N. Fittipaldi, M.O. Benoit-Biancamano, M. Segura, **M. Gottschalk**. 2016. Virulence studies of different sequence types and geographical origins of *Streptococcus suis* Serotype 2 in a mouse model of infection. Pathogens. pii: E48, doi: 10.3390/pathogens5030048. PMID: 27409640
6. Roy, D. \*, D. Grenier, M. Segura, A. Mathieu-Denoncourt\*, **M. Gottschalk**. 2016. Recruitment of Factor H to the *Streptococcus suis* cell surface is multifactorial. Pathogens. 47: doi:10.3390/pathogens5030047. PMID: 27399785
7. Espinosa, I., M. Baez, E. Lobo, S. Martinez, **M. Gottschalk**. 2016. Antimicrobial Activity of Penicillin G and N-acetylcystein on Planktonic and Sessile Cells of *Streptococcus suis*. Polish Journal of Microbiology. 65: 105-109. PMID: 27282001
8. Auray, G. \*, C. Lachance, Y. Wang, C.A\*. Gagnon, M. Segura, **M. Gottschalk**. 2016. Transcriptional Analysis of PRRSV-Infected Porcine Dendritic Cell Response to *Streptococcus suis* Infection Reveals Up-Regulation of Inflammatory-Related Genes Expression. PLoS One, 11 (5):e0156019. PMID: 27213692
9. Goyette-Desjardins, G. \*, C. Calzas\*, T. C. Shiao, A. Neubauer, J. Kempker, R. Roy, **M. Gottschalk**, M. Segura. 2016. Protection Against *Streptococcus suis* Serotype 2 Infection Using a Capsular Polysaccharide Glycoconjugate Vaccine. Infection and Immunity. PMID: 27113360
10. Athey T.B., S. Teatero, D. Takamatsu, J. Wasserscheid, K. Dewar, **M. Gottschalk**, N. Fittipaldi. Population structure and antimicrobial resistance profiles of *Streptococcus suis* serotype 2 sequence type 25 strains. PLoS One. 11: e0150908. PMID: 26954687
11. Hatrongjit, R., A. Kerdsin, **M. Gottschalk**, S. Hamada, K. Oishi, Y. Akeda. 2016. Development of a multiplex pcr assay to detect the major clonal complexes of *Streptococcus suis* relevant to human infection. Journal of Medical Microbiology. doi: 10.1099/jmm.0.000239. PMID: 26932590
12. Van Calsteren, M.R., G. Goyette-Desjardins\*, F. Gagnon, M. Okura, D. Takamatsu, R. Roy, **M. Gottschalk**, M. Segura. 2016. Explaining the serological characteristics of *Streptococcus suis* serotypes 1 and 1/2 from their capsular polysaccharide structure and biosynthesis. Journal of Biological Chemistry. Pii: jbc.M115.700716. PMID: 26912653
13. Sánchez Del Rey, V\*, J.F. Fernández-Garayzábal, L. Domínguez, **M. Gottschalk**, A.I. Vela. 2016. Screening of virulence-associated genes as a molecular typing method for characterization of *Streptococcus suis* isolates recovered from wild boars and pigs. Veterinary Journal. pii: S1090-0233(15)00478-5. PMID: 26831161

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18. **Gottschalk, M.**, S. Lacouture\*. 2015. Canada : Distribution of *Streptococcus suis* (from 2012 to 2014) and *Actinobacillus pleuropneumoniae* (from 2011 to 2014) setotypes isolated from diseased pigs. Canadian Veterinary Journal. 56: 1093-1094. *PMID*: 26483588
19. Morales, B., Á. Ruiz, S. Lacouture, **M. Gottschalk**. 2015. Clonal distribution of *Streptococcus suis* isolated from diseased pigs in the central region of Chile. Canadian Journal of Veterinary Research. 79: 343-6. *PMID*: 26424917
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23. Kerdsin, A., R. Hatrongjit, **M. Gottschalk**, D. Takeuchi, S. Hamada , Y. Akeda, K. Oishi. 2015. Emergence of *Streptococcus suis* serotype 9 infection in humans. Journal of Microbiology, Immunology and Infection. pii: S1684-1182(15)00822-1. *PMID*: 26362754
24. Pérez-Sancho, M., A.I. Vela, T. Garcia-Seco, **M. Gottschalk**, L. Dominguez, J.F. Fernández-Garayzabal. 2015. Assessment of MALDI-TOF MS as alternative tool for *Streptococcus suis* identification. Frontiers in Public Health. Doi: 10.3389/fpubh.2015.00202. *PMID*: 26347858
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33. Calzas, C. \*, P. Lemire\*, G. Auray\*, V. Gerdts, **M. Gottschalk**, M. Segura. 2015. Antibody Response Specific to the Capsular Polysaccharide is Impaired in *Streptococcus suis* Serotype 2-Infected Animals. *Infection and Immunity*. 83: 441-453. *PMID: 25385801*
34. Wongsawan, K., **M. Gottschalk**, P. Tharavichitkul. 2015. Serotype- and virulence-associated gene profile of *Streptococcus suis* isolates from pig carcasses in Chiang Mai Province, Northern Thailand. *Journal of Veterinary Medical Science*. 77:233-236. *PMID : 25367105*
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91. Zheng, X., H. Zheng, R. Lan, C. Ye, Y. Wang, J. Zhang, H\*. Jing, M. Segura, **M. Gottschalk**, and J. Xu. 2011. Identification of genes and genomic islands correlated with high pathogenicity in *Streptococcus suis* using whole genome tilling microarrays. PLoS One. **2011** 6:e17987. *PMID:21479213*
92. Bonifait, L., K. Vaillancourt, **M. Gottschalk**, M. Frenette, D. Grenier. **2011**. Purification and characterization of the subtilisin-like protease of *Streptococcus suis* that contributes to its virulence. Veterinary Microbiology. 148: 333-340. *PMID:21030165*
93. Okura, M., M. Osaki, N. Fittipaldi\*, **M. Gottschalk**, T. Sekizaki, D. Takamatsu. **2011**. The minor pilin subunit Sgp2 is necessary for assembly of the pilus encoded by the *srtG* cluster of *Streptococcus suis*. Journal of Bacteriology. 193: 822-831. *PMID:21148736*
94. Vilalta, C., M. Schneider, R. Lopez-Jimenez, **M. Gottschalk**, L. Fraile. **2011**. Marbofloxacin reaches high concentration in pig tonsils in a close dependent fashion. Journal of Veterinary Pharmacology and Therapeutics. 34: 95-97. *PMID:21219353*

#### REFEREED BOOK CHAPTERS (2011-2016):

- **Gottschalk, M.** “*Actinobacillosis*”. In ““Diseases of Swine”, **2012**. Straw, B.E., J.J. Zimmerman, S. D’Allaire and D.J. Taylor. Editors: Blackwell Publishing, Ames, Iowa, USA, 10<sup>th</sup> Edition. pp 653-659.
- **Gottschalk, M.** “*Streptococcosis*”. In ““Diseases of Swine”, **2012**. Straw, B.E., J.J. Zimmerman, S. D’Allaire and D.J. Taylor. Editors: Blackwell Publishing, Ames, Iowa, USA, 10<sup>th</sup> Edition. pp 841-855
- **Gottschalk, M.** and M. Segura. 2012. *Streptococcus suis*: un agente zoonotico emergente. In "Temas de Zoonosis. 5". Edited by Dres. Roberto Cacchione, Juan Basualdo Farjat, Ricardo Durlach, Pablo Martino & Alfredo Seijo, Asociación Argentina de Zoonosis. pp 89-101.
- **Gottschalk, M.**, N. Fittipaldi, M. Segura. 2013. “*Streptococcus suis*” in “Meningitis: cellular and molecular basis”. CABI publishers. In Press.
- **Gottschalk, M.** 2014. Chapter on Streptococcal infections in pigs. The Merck Veterinary Manual. In Press.

#### PRESENTATIONS AS GUEST SPEAKER (2011-2016):

1. Research update and current knowledge on *Actinobacillus suis*, *Streptococcus suis*, *Haemophilus parasuis*, *Actinobacillus pleuropneumoniae*. Boehringer Ingelheim, Leading Edge Summit 2016. Canmore, Alberta, **CANADA**. August 24, 2016.
2. *Streptococcus suis* infections: controversies and contradictions. 3<sup>rd</sup> International Workshop on *Streptococcus suis*. Braunschweig/Hannover, **GERMANY**. September 8<sup>th</sup>, 2016. Keynote speaker.
3. How to diagnose and control *A. pleuropneumoniae* infections. PorciForum. Lleida, **SPAIN**. March 3<sup>rd</sup>, 2016.
4. News on respiratory infections caused by bacteria in pigs. Organized by Ceva, Germany. Düsseldorf, **GERMANY**. February 29, 2016.
5. New solutions in the protection of respiratory system of pigs. Organized by Ceva Poland. Lodz, **POLAND**, March 1<sup>st</sup>, 2016
6. Webseminar on *Streptococcus suis* and *Haemophilus parasuis* infections. Organized by Academia Porcina. Around 180 participants from 11 countries. **WEB**. March 10, 2016. Invited speaker.
7. Actualidades App. Official committee of Swine Health of Sonora Ciudad Obregon, **MEXICO**. December 15, 2015.
8. Infection caused by *Actinobacillus pleuropneumoniae* : control of the infection. Official Veterinary Service. Ho Chi Minh City, **VIETNAM**. November 13, 2015.
9. Human infection by *Streptococcus suis* in Asia ». University of Nong Lam, Ho Chi Minh City, **VIETNAM**. November 11, 2015.7

10. Control of swine pleuropneumonia. Swine veterinarian association of Sonora. Ciudad Obregon, **MEXICO**. November 10, 2015. **Declined**
11. Update on *Streptococcus suis* and *Actinobacillus pleuropneumoniae*. Annual autumn conference for swine practitioners, following the Emerging and re-emerging pig diseases meeting. Wroclaw, **POLAND**. October 9-10, 2015.
12. *Streptococcus suis*, a neglected but emerging zoonotic agent. 55<sup>th</sup> Interscience Conference on Antimicrobial Agents and Chemotherapy and 28<sup>th</sup> International Congress of Chemotherapy Meeting. American Society of Microbiology, ICAAC/ICC meeting. San Diego, California, **UNITED STATES**, September 19, 2015. Not a keynote lecture
13. Los últimos avances técnico-científicos en el control de *Actinobacillus pleuropneumoniae*. Curso en Línea, Plataforma de Formación en Producción Porcina. Infopork, Behringer Ingelheim. **WEB**. 3 septembre 2015. Formation en ligne.
14. New developments on the control of swine pleuropneumonia. Meeting for Russian swine practitioners (organized by Huvepharma). St-Petersburg, **RUSSIA**. August 26, 2015.
15. *Streptococcus suis* and *Actinobacillus pleuropneumoniae*: why do they stay so actual? 3<sup>rd</sup> Veterinary Symposium, Conference organized by Huvepharma. Golden Sands Resort, **BULGARIA**. June 8-10, 2015. Keynote speaker
16. “*Streptococcus suis*: an important swine pathogen but a neglected zoonotic agent”. Faculty of Veterinary Medicine, Ghent University, **BELGIUM**. May 18, 2015. Invited speaker
17. Disease caused by "*suis*". Asociación de Especialistas en Producción Porcina de CAJEME, Ciudad Oregon, **MEXICO**. May 15, 2015. Keynote speaker. **Declined**
18. *Actinobacillus pleuropneumoniae* heterogeneity of pathogenicity. 7<sup>th</sup> European Symposium of Porcine Health Management, Nantes, **FRANCE**, 24 avril 2015. Keynote speaker (plus de 1400 participants)
19. *Streptococcus suis* and porcine pleuropneumonia: how practitioners may deal with these highly important diseases? European Symposium on Porcine Health Management (esphm2015), Nantes, **FRANCE**, 23 avril 2015.
20. Action and Biosecurity prospective on *Actinobacillus*. ACADEMIA 2015 - Vetoquinol, Nantes, **FRANCE**, 22 avril 2015. Keynote speaker
21. *Streptococcus suis*: an important swine pathogen, but a neglected zoonotic agent. Barcelone, **SPAIN**, 17 avril 2015. Invited speaker
22. *Streptococcus Suis*: A fascinating but somehow neglected zoonotic agent. XIX Lancefield International Symposium on *Streptococci* and Streptococcal Diseases. Buenos Aires, **ARGENTINA**. November 10, 2014.
23. Laboratory techniques for isolation and characterization of *Actinobacillus pleuropneumoniae* and *Streptococcus suis* strains recovered from diseased pigs. Merck/MSD training course. Bangkok, **THAILAND**. November 10, 2014. **Declined**
24. An update on *Streptococcus suis* and *Actinobacillus pleuropneumoniae* infections. Merck/MSD official launch of a new swine vaccine. Tokyo, **JAPAN**. November 3, 2014. **Declined**
25. The latest on *Actinobacillus pleuropneumoniae*. Launching Porcilis APP, Merck/MSD, Wuhan, **CHINA**, Septembre 15-16, 2014. **Declined**
26. An update on *Streptococcus suis* and *Actinobacillus pleuropneumoniae* infections. Merck/MSD official launch of a new swine vaccine. Wuhan, **CHINA**. September 15, 2014. **Declined**
27. Infection caused by *Actinobacillus pleuropneumoniae* in pigs. Conferences organized by Lapissa for swine practitioners. Ciudad Obregon. **MEXICO**. September 5, 2014.
28. Bacterial respiratory infections of swine. Conferences organized by Lapissa for swine practitioners. La Piedad. **MEXICO**. September 3, 2014.
29. Reduction of infection pressure to reduce clinical signs caused by bacterial pathogens in pigs. XII<sup>o</sup> Congreso Nacional de Producción Porcina, VII<sup>o</sup> Congreso Del Mercosur, XVIII Jornadas De Actualización Porcina. Mar del Plata. **ARGENTINA**. August 15, 2014.

30. Virus-Bacteria co-infections: a myth or a reality? XII° Congreso Nacional de Producción Porcina, VII° Congreso Del Mercosur, XVIII Jornadas De Actualización Porcina. Mar del Plata. **ARGENTINA**. August 14, 2014.
31. Bacterial infections of swine. XVII Congreso Nacional Porciamericas 2014, Carthagène, **COLOMBIE**, 17 juillet 2014. **Declined**
32. The role of internationally recognized specialists in the detection of carrier animals (sub-clinical infections) in swine: from the simple diagnosis to lawsuits. Symposium des étudiants de l'ACMV 2014, Faculté de médecine vétérinaire de l'Université de Montréal, Saint-Hyacinthe, Québec, **CANADA**, 11 janvier 2014.
33. An update for swine veterinarians on *Streptococcus suis* infections. AFMVP-Actualités en production porcine. Amphithéâtre d'honneur de l'Ecole Nationale Vétérinaire d'Alfort. Maisons-Alfort, **FRANCE**, 12-13 décembre 2013. **Declined**
34. Mechanisms of Inflammation caused by *Streptococcus suis*: sepsis and meningitis. VI jornadas de la Asociación Argentina de Inmunología Veterinaria (AAIV) y I Congreso Latinoamericano de Inmunología Veterinaria, Rosario, Casilda, **ARGENTINA**, November 27-29, 2013.
35. Co-infections in respiratory diseases in pigs: role of the immune system. VI jornadas de la Asociación Argentina de Inmunología Veterinaria (AAIV) y I Congreso Latinoamericano de Inmunología Veterinaria, Rosario, Casilda, **ARGENTINA**, November 27-29, 2013.
36. Serology as a diagnostic tool in veterinary medicine. VI jornadas de la Asociación Argentina de Inmunología Veterinaria (AAIV) y I Congreso Latinoamericano de Inmunología Veterinaria, Rosario, Casilda, **ARGENTINA**, November 27-29, 2013.
37. *Streptococcus suis* - An Emerging Zoonotic Pathogen. Annual Meeting of the German Society for Infectiology. Rostock, **ALLEMAGNE**, 22-25 septembre 2013.
38. Porcine respiratory complex: importance of co-infections. Keynote lecture. 5<sup>th</sup> Workshop Regional Porcino, organized by Boehringer Ingelheim, Santa Marta, **COLOMBIA**, September 3-4, 2013.
39. *Streptococcus suis* and influenza virus: a novel described mechanism of bacteria-virus interactions with respiratory epithelial cells. First International Workshop on *Streptococcus suis*. Beijing, **CHINA**, August 12-13, 2013.
40. Swine bacterial respiratory diseases. High Quality congress. MSD. Buenos Aires, **ARGENTINA**. June 26, 2013. **Declined**
41. Respiratory Diseases. 7 Suinter, Fox du Iguazu, **BRAZIL**, June 20, 2013. **Declined**
42. The pathogenesis of the meningitis caused by *Streptococcus suis*. National Veterinary Institute. Pulawy, **POLAND**, June 4, 2013.
43. Control and prevention of swine pleuropneumonia (June 3). XVIII Annual Pig Conference. Pulawy, **POLAND**, June 3-5, 2013.
44. *Actinobacillus pleuropneumoniae*: an old but still relevant swine pathogen in the XXI Century (June 3). XVIII Annual Pig Conference. Pulawy, **POLAND**, June 3-5, 2013.
45. *Streptococcus suis* infections (and some comments on Hps) (June 4). XVIII Annual Pig Conference. Pulawy, **POLAND**, June 3-5, 2013.
46. Update *Streptococcus suis* and APP. 12<sup>th</sup> Annual meeting of the Canadian Animal Health Laboratorians Network (CAHLN). Faculté de médecine vétérinaire de l'Université de Montréal, St-Hyacinthe, Qc, **CANADA**, 26-29 mai 2013.
47. Update on *Actinobacillus pleuropneumoniae* and *Streptococcus suis*. Canadian Animal Health Laboratorians Network (CAHLN), 2013 meeting. Saint-Hyacinthe, Quebec, **CANADA**, May 27, 2013.
48. *Streptococcus suis*: a new emerging or an old neglected zoonotic pathogen? International Congress on Meningeal Disease Vaccines. IV Neisseria Vaccines 2013, I Workshop on Meningitis and Septicaemia, Tryp Peninsula Hotel. Varadero, **CUBA**, May 19-24, 2013.
49. The pathogenesis of the meningitis caused by *Streptococcus suis*. International Congress on Meningeal Disease Vaccines. IV Neisseria Vaccines 2013, I Workshop on Meningitis and Septicaemia. Tryp Peninsula Hotel, Varadero, **CUBA**, May 19-24, 2013.

50. L'infection causée par *Streptococcus suis* : un agent zoonotique en émergence. Fisher Scientific BioMed, UQAM UQTR INRS. Faculté de médecine vétérinaire, Université de Montréal, Saint-Hyacinthe, Québec, **CANADA**, 23 avril 2013.
51. Detection/Interpretation of *Actinobacillus pleuropneumoniae* Antibodies. Iowa State University Swine Disease Conference. Ames, Iowa, **UNITED STATES**. November 8, 2012.
52. *Streptococcus suis*: an important zoonotic agent. Universidad Nacional de Colombia, Sede Bogota, Facultad de Medicina Veterinaria y de Zootecnia. Seminario internacional sobre enfermedades zoonoticas porcinis. Bogota, **COLOMBIA**, November 15-16, 2012.
53. Études collaboratives de la maladie émergente causée par *Streptococcus suis* en Asie. Rencontre internationale de l'industrie vétérinaire & de la salubrité alimentaire, Innovet, Saint-Hyacinthe, Québec, **CANADA**. 16 octobre 2012
54. Co-infection virus-suis. Foro Pfizer, Barcelona. **SPAIN** October 1st, 2012.
55. Co-infecciones en enfermedades respiratorias del cerdo. XI Congreso Nacional de Produccion Porcina, VI Congreso del Mercosur, Salta. **ARGENTINA**. August 16, 2012
56. *Actinobacillus pleuropneumoniae* in Latin America. **Keynote inaugural lectura**. XI Congreso Nacional de Producción Porcina, XVII Jornadas de Actualización and VI Congreso de Producción Porcina del Mercosur, Salta. **ARGENTINA**. August 14, 2012.
57. *Streptococcus suis*, del cerdo al humano: un nuevo patogeno emergente o un antiguo patogeno olvidado? Congreso de la Universidad Autonoma de Mexico, Mexico DF. **MEXICO**. July 22-27, 2012.
58. What is new on *Actinobacillus* and the *suis*. Keynote lecture « Carlos Pijoan » at the Asociacion Mexicana de Veterinarios Especialistas en Cerdos, Guadalajara, **MEXICO**. July 20, 2012.
59. Respiratory diseases infections in swine. Asociacion Colombiana de Porcicultores, Pereira, **COLOMBIA**, July 17-19, 2012. **Declined**
60. Important swine bacterial infectious diseases. Gyeonggido Veterinary Service, Jeju, **SOUTH KOREA**. June 13, 2012.
61. Leading lecture: "*Actinobacillus pleuropneumoniae*: an old pathogen still present in swine herds in the XXI century. 22<sup>nd</sup> International Pig Veterinary Society Congress (IPVS 2012), Jeju, **KOREA**. June 12, 2012. **Keynote speaker**
62. Studies on *Streptococcus suis* and *Haemophilus parasuis* at the Université de Montréal. Centre de Recerca en Sanitat Animal (CRESA), Universitat Autònoma de Barcelona, Barcelona. **SPAIN**. March 23, 2012.
63. Interactions between *Streptococcus suis* and influenza virus: preliminary results. University of Thammasat, Bangkok, **THAILAND**. December 12, 2011.
64. *Streptococcus suis* infections: Research in Canada". Oxford University Clinical Research Unit. Hanoi, **VIETNAM**. December 7, 2011.
65. Characterization of the inflammation caused by *Streptococcus suis*: role in human infections. Oxford University Clinical Research Unit, Ho Chi Ming City (Saigon), **VIETNAM**. December 5, 2011.
66. Collaborative studies between China and Quebec on human strains of *Streptococcus suis*. Center for Diseases Control, Beijing, **CHINA**. November 30, 2011
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