Publications PFIE 2020

Articles dans Périodiques à comité de lecture

Crisci E, Moroldo M, Vu Manh T-P, Mohammad A, Jourdren L, Urien C, Bouguyon E, Bordet E, Bevilacqua C, Bourge M, **Pezant J**, **Pléau A**, **Boulesteix O**, Schwartz I, Bertho N, Giuffra E. Distinctive cellular and metabolic reprogramming in porcine lung mononuclear phagocytes infected with type 1 PRRSV strains. *Frontiers in Immunology*, (2020), 11, art 588411, 17 p. ⟨10.3389/fimmu.2020.588411⟩. ⟨hal-03056234⟩

Guitton E, Faurie A, **Lavillatte S**, **Chaumeil T**, Gaboriaud P, Bussière FI, Laurent F, Lacroix-Lamandé S, Guabiraba R, Schouler C. Production of germ-free fast-growing broilers from a commercial line for microbiota studies. Journal of visualized experiments, (2020), 160, art e61148, 8 p. ⟨10.3791/61148⟩. ⟨hal-02953979⟩

Jouneau L, Lefebvre DJ, Costa F, Romey A, Blaise-Boisseau S, Relmy A, Jaszczyszyn Y, Dard-Dascot C, Déjean S, Versillé N, **Guitton E**, Hudelet P, Curet M, De Clercq K, Bakkali-Kassimi L, Zientara S, Bernard Klonjkowski B, Schwartz-Cornil I. The antibody response induced FMDV vaccines in sheep correlates with early transcriptomic responses in blood. *NPJ Vaccines*, (2020), 5, art 1, 11 p. ⟨10.1038/s41541-019-0151-3⟩. ⟨hal-02445465⟩

Kempf F, Menanteau P, Rychlik I, Kubasová T, Trotereau J, Virlogeux-Payant I, Schaeffer S, Schouler C, Drumo R, **Guitton E**, Velge P. Gut microbiota composition before infection determines the Salmonella super- and low-shedder phenotypes in chicken. *Microbial Biotechnology*, (2020), 13 (5), pp.1611-1630. ⟨10.1111/1751-7915.13621⟩. ⟨hal-02953002⟩

Peyny M, Jarrier-Gaillard P, Boulanger L, Daniel N, **Lavillatte S**, Cadoret V, Papillier P, Monniaux D, Peynot N, Duranthon V, Jolivet G, Dalbiès-Tran R. Investigating the role of BCAR4 in ovarian physiology and female fertility by genome editing in rabbit. *Scientific Reports*, (2020), 10 (1), art 4992, 11 p. ⟨10.1038/s41598-020-61689-6⟩. ⟨hal-02549941⟩

Riffault S, Hägglund S, Guzman E, Näslund K, Jouneau L, Dubuquoy C, Pietralunga V, Laubreton D, **Boulesteix O**, **Gauthier D**, Remot A, Boukaridi A, Falk A, Shevchenko G, Lind SB, Vargmar K, Zhang B, Kwong PD , Rodriguez MJ, Duran MG, Schwartz-Cornil I, Eléouët JF, Taylor G, Valarcher JF. A single shot pre-fusion-stabilized bovine RSV F vaccine is safe and effective in newborn calves with maternally derived antibodies. *Vaccines*, (2020), 8(2), art 231, 21 p. ⟨10.3390/vaccines8020231⟩. ⟨hal-02677111⟩

Riou M, Guégnard F, Le Vern Y, Grasseau I, Koch C, Blesbois E, Kerboeuf D. Effects of cholesterol content on activity of P-glycoproteins and membrane physical state, and consequences for anthelmintic resistance in the nematode *Haemonchus contortus*. *Parasite*, (2020), 27, art 3, 13 p. ⟨10.1051/parasite/2019079⟩. ⟨hal-02622805⟩

Shrestha M, Garreau H, Balmisse E, Bed'hom B, David I, **Guitton E**, Helloin E, Lenoir G, Maupin M, Robert R, Lantier F, Gunia M. Genetic parameters of resistance to Pasteurellosis using novel response traits in rabbits. *Genetics Selection Evolution*, (2020), 52, art 34, 14 p. ⟨10.1186/s12711-020-00552-8⟩. ⟨hal-02883281⟩

Sutton G, Thieulent C, Fortier C, Hue E, Marcillaud-Pitel C, **Pléau A**, **Deslis A**, **Guitton E**, Paillot R, Pronost S. Identification of a new equid Herpesvirus 1 DNA polymerase (ORF30) genotype with the isolation of a C2254/H752 strain in French horses showing no major impact on the strain behaviour. *Viruses*, (2020), 12, art 1160, 23 p. ⟨10.3390/v12101160⟩. ⟨hal-02971415⟩

Articles dans Périodiques à comité de lecture restreint ou vulgarisé.

Beaugé C. et Riou M. Etude de l'impact et choix de l'enrichissement du milieu sur l'élevage de lignées de souris transgéniques exempts d'organismes pathogènes spécifiques (EOPS) et opportunistes. *STAL*, 2020, 42-52.

Communications orales présentées à des Congrès

Riou M., Guégnard F., Le Vern Y., Koch C., Kerboeuf D. Nouvelle stratégie de modulation par les stérols de la résistance aux anthelminthiques médiée par les P-glycoprotéines chez *Haemonchus contortus*. Presented at 10. Journées du Consortium anti-Parasitaire et anti-Fongique (CaPF), Montpellier, FRA (2020-03-12 - 2020-03-13), 15 diapositives.

Posters, Affiches présentés dans des Congrès

Riou M., Rossignol C., Jacques I., Langevin L., Cornu P., **Breton S.**, **Pezant J.**, **Crochet D**., Huis R, Lantier F. Functional Impact on a Confocal Microscope of Airborne Decontamination using Hydrogen Peroxide Vapour. Presented at VetBioNet Third Annual Meeting, Visioconference, Europe, (2020-12-17 – 2020-12-18).

Citations dans les remerciements/acknowledgments
En italique les articles où la PFIE est co-auteur

Bréa D, Soler L, Fleurot I, Melo S, Chevaleyre C, Berri M, Labas V, Teixeira-Gomes AP, Pujo J, Cenac N, Bähr A, Klymiuk N, Guillon A, Si-Tahar M, Caballero I. Intrinsic alterations in peripheral neutrophils from cystic fibrosis newborn piglets. *Journal of Cystic Fibrosis*, (2020), 19 (5), pp. 830-836. ⟨10.1016/j.jcf.2020.02.016⟩. ⟨hal-03012482⟩
[*We also thank Dr.* ***Mickaël Riou*** *and the Experimental Infectiology Platform (UE-1277* ***PFIE****, INRAE Centre de Recherche Val de Loire, Nouzilly, France) for their technical support with the MS9-5 Hematology Counter*].

Bryson K J, Garrido D, Esposito M, McLachlan G, Digard P, Schouler C, Guabiraba R, Trapp S, Vervelde L. Precision cut lung slices: a novel versatile tool to examine host-pathogen interaction in the chicken lung. *Veterinary Research*, (2020), 51, art 2, 16 p.
[*We also thank the personnel from the INRAE experimental unit* ***PFIE*** *(Plateforme d'Infectiologie Expérimentale, Centre Val de Loire, Nouzilly, France)*].

Guesdon W, Pezier T, Menard S, Nicolosi A, Le Vern Y, Silvestre A, Diana J, Laurent F, Lacroix-Lamandé S. *Cryptosporidium parvum* subverts antimicrobial activity of CRAMP by reducing its expression in neonatal mice. *Microorganisms*, (2020), 8 (11), ⟨10.3390/microorganisms8111635⟩.
[We thank ***Fanny Faurie*** *and* ***Corinne Beaugé*** *at INRAE-PFIE for rearing and supplying mice. We also are grateful to* ***Maud Renouard*** *and* ***Thierry Chaumeil*** *for parasite multiplication on calf at INRAE-PFIE]*

Jouneau L, Lefebvre DJ, Costa F, Romey A, Blaise-Boisseau S, Relmy A, Jaszczyszyn Y, Dard-Dascot C, Déjean S, Versillé N, ***Guitton E****, Hudelet P, Curet M, De Clercq K, Bakkali-Kassimi L, Zientara S, Bernard Klonjkowski B, Schwartz-Cornil I. The antibody response induced FMDV vaccines in sheep correlates with early transcriptomic responses in blood. Vaccines, (2020), 5, art 1, 11 p.*
[We thank ***Pierre Sarradin*** *and* ***Edouard Guitton****, directors of Experimental Infectiology Platform (Nouzilly, France), and the zootechnical staff, in particular* ***Maud Renouard****,* ***Olivier Boulesteix****, and* ***Thierry Chaumeil*** *for expert and dedicated help with the sheep experiments]*

Kempf F, Menanteau P, Rychlik I, Kubasová T, Trotereau J, Virlogeux-Payant I, Schaeffer S, Schouler C, Drumo R, ***Guitton E****, Velge P. Gut microbiota composition before infection determines the Salmonella super‐ and low‐shedder phenotypes in chicken. Microbial Biotechnology, (2020), 13 (5), pp. 1611-1630.*
[We thank the personnel from the INRAE experimental unit ***PFIE*** *(Plateforme d'Infectiologie Experimentale, Centre INRAE Val de Loire, Nouzilly, France) for providing birds and technical support in the animal experiments and especially* ***Patrice Cousin****,* ***Olivier Dubes****,* ***Sebastien Lavillatte*** *and* ***Laurence Merat****.]*

Peyny M, Jarrier-Gaillard P, Boulanger L, Daniel N, ***Lavillatte S****, Cadoret V, Papillier P, Monniaux D, Peynot N, Duranthon V, Jolivet G, Dalbiès-Tran R. Investigating the role of BCAR4 in ovarian physiology and female fertility by genome editing in rabbit. Scientific Reports, (2020), 10 (1), art 4992, 11 p.*
[We thank ***Edouard Guitton*** *and the staf of the Plateforme d'Infectiologie Expérimentale […] for animal care.]*

Riffault S, Hägglund S, Guzman E, Näslund K, Jouneau L, Dubuquoy C, Pietralunga V, Laubreton D, ***Boulesteix O****,* ***Gauthier D****, Remot A, Boukaridi A, Falk A, Shevchenko G, Lind SB, Vargmar K, Zhang B, Kwong PD , Rodriguez MJ, Duran MG, Schwartz-Cornil I, Eléouët JF, Taylor G, Valarcher JF. A single shot pre-fusion-stabilized bovine RSV F vaccine is safe and effective in newborn calves with maternally derived antibodies. Vaccines, (2020), 8(2), art 231, 21 p. ⟨10.3390/vaccines8020231⟩. ⟨hal-02677111⟩*
[We thank the experimental farm INRAE Le Pin … and INRAE ***PFIE*** *(https://www6.val-de-loire.inrae.fr/pfie_eng/) for housing the vaccine trial]*

Riou M*, Guégnard F, Le Vern Y, Grasseau I, Koch C, Blesbois E, Kerboeuf D. Effects of cholesterol content on activity of P-glycoproteins and membrane physical state, and consequences for anthelmintic resistance in the nematode Haemonchus contortus. Parasite, (2020), 27, article 3, 13 p.*
[We also thank […] the research staff and the management of the PFIE, in particular ***Thierry Chaumeil*** *and* ***Maud Renouard*** *for the careful maintenance of animals]*

Shrestha M, Garreau H, Balmisse E, Bed'hom B, David I, ***Guitton E****, Helloin E, Lenoir G, Maupin M, Robert R, Lantier F, Gunia M. Genetic parameters of resistance to Pasteurellosis using novel response traits in rabbits. Genetics Selection Evolution, (2020), 52, art 34, 14 p. ⟨10.1186/s12711-020-00552-8⟩. ⟨hal-02883281⟩*
[We also acknowledge all the participants in this project for the quality of their work, especially the teams at the Pôle d'expérimentation cunicole toulousain (PECTOUL), Plateforme d'Infectiologie Expérimentale (PFIE) and the Eurolap, Hycole and Hypharm breeding companies]

Citations dans le matériel et méthodes
En italique les articles où la PFIE est co-auteur

Bryson K J, Garrido D, Esposito M, McLachlan G, Digard P, Schouler C, Guabiraba R, Trapp S, Vervelde L. (2020). Precision cut lung slices: a novel versatile tool to examine host-pathogen interaction in the chicken lung. Veterinary Research, 51, article 2, 16p.
[*PA12 birds were hatched and reared under SPF conditions at INRAE (Plate-Forme d'Infectiologie Expérimentale,* ***PFIE****, Nouzilly, France) in full compliance with the requirements of the French regional ethics committee number 19 (Comité d'Ethique en Expérimentation Animale Val de Loire)*].

Crisci et al. For the in vivo experiment, PRRSV-1 FL13 infection was performed at PFIE (INRAE, Nouzilly, France). The animal experiment was authorized by the French Ministry for Research (authorization no. 2015051418327338), and protocols were approved by the national ethics committee (APAFIS#413).

Guitton et al. *The experimental facility "Infectiology of Farm, Model and Wild Animals" (PFIE, UE-1277, Centre INRAE Val de Loire, Nouzilly, France, https://doi.org/10.15454/1.5572352821559333e12) is part of the French National Infrastructure Network EMERG'IN (https://www.emergin.fr/). PFIE has mastered the production of germ-free chickens to perform various experimental studies for more than 40 years7,8,9,10,11. These animals were produced from specific pathogen-free (SPF) eggs from a white leghorn laying line raised in closed breeding since the 1970's. Mainly used for microbiological studies7,8,9, germ-free birds are experiencing a resurgence of interest with questions such as the contribution of the gut microbiota to behavior13, nutrient utilization14, immune development15 and endocrine activity. Even if some studies have been published using germ-free broiler lines16, these studies remain underrepresented compared to studies using experimental layer lines. The evolution of scientific questions towards the crosstalk between the microbiota and its host in poultry health and welfare has led us to adapt our historical protocol to produce germ-free broilers of the Ross PM3 line, the world's most utilized broiler chicken line.*

Jouneau et al. The animal experiment was approved by the Comité d'Éthique en Expérimentation Animale Val de Loire (CEEA VdL, committee no. 19) under the number APAFIS#3198-2015121515515154 v3 and was conducted at the "Plate-Forme d'Infectiologie Expérimentale" (PFIE, INRA, Nouzilly, France, 10.15454/1.5535888072272498e12).

Kempf et al. For this experiment, white leghorn chicks (PA12 lineage) were used. They originated from the specific-pathogen-free (SPF) flock of the PFIE (INRAE, Val de Loire, France), a core facility specialized in experimental animal infections.

Guesdon W, Pezier T, Menard S, Nicolosi A, Le Vern Y, Silvestre A, Diana J, Laurent F, Lacroix-Lamandé S. (2020). Cryptosporidium parvum subverts antimicrobial activity of CRAMP by reducing its expression in neonatal mice. Microorganisms, 8 (11), ⟨10.3390/microorganisms8111635⟩.
[*Wild-Type (WT) mice were raised and maintained in* ***PFIE*** *facilities (INRAE-Tours)]*

Riffault et al. Eighteen Prim Holstein male calves born at INRAE Le Pin Research Farm (Gouffern En Auge, France) (29 December 2015–26 January 2016) were moved to the Platform of Experimental Infectiology (PFIE) INRAE Val de Loire (Nouzilly, France) at the age of 7–10 days.

Riou *et al. All experiments were conducted in accordance with EU guidelines and French regulations (Directive 2010/63/EU, 2010; Rural Code, 2018; Decree No. 2013-118, 2013). All experimental procedures were evaluated and approved by the Ministry of Higher Education and Research (APAFIS# 00219.02 Notification-1). Procedures involving sheep were evaluated by the ethics committee of the Val de Loire (CEEA VdL, committee number 19) and took place at the INRAE Experimental Infection Platform PFIE (UE-1277 PFIE, INRAE Centre de Recherche Val de Loire, Nouzilly, France, https://doi.org/10.15454/1.5535888072272498e12).*

Shrestha et al. The 1030 rabbits were transported in cages (5 rabbits per transport cage) to the Plateforme d'Infectiologie Expérimentale (INRAE PFIE) at 36 days of age, 1 day after weaning. At PFIE, they were all housed in cages identical to each other (with the same 5 rabbits per cage as during transport) in two separate rooms.

Sutton et al. All experiments were conducted in accordance with the guidelines of the Directive 2010/63/EU of the European Parliament and of the Council, in the facilities of the EU-1277 Plateforme d'Infectiologie Expérimentale (PFIE, Infectiology of Farm, Model and Wild Animals facility, [44], INRAE, 2018, Centre Val de Loire, Nouzilly, France). All experimental procedures were approved by the Loire Valley ethical review board (CEEA VdL, committee number 19).

Autre valorisation/citation

Citation en remerciement dans un cours de Rodrigo Guabiraba : Precision cut lung slices : a novel versatile tool to examine host-pathogen interactions in the chicken lung. Le Studium, 24 septembre 2020.
Remerciés : **Patrice Cousin**, **Maude Renouard.** https://www.canal-u.tv/video/le_studium/dr_rodrigo_guabiraba_precision_cut_lung_slices_a_novel_versatile_tool_to_examine_host_pathogen_interactions_in_the_chicken_lung.57537