

Publications PFIE 2019

Articles dans Périodiques à comité de lecture

Bernelin-Cottet, C., Urien, C., Fretaud, M., Langevin, C., Trus, I., Jouneau, L., Blanc, F., Leplat, J. J., **Barc, C., Boulesteix, O., Riou, M.**, Dysart, M., Mahé, S., Studsrub, E., Nauwynck, H., Bertho, N., Bourry, O., Schwartz-Cornil, I. (2019). A DNA prime immuno-potentiates a modified live vaccine against the porcine reproductive and respiratory syndrome virus but does not improve heterologous protection. *Viruses*, 11 (6), article 576, 19p.

Bernelin-Cottet, C., Urien, C., McCaffrey, J., Collins, D., Donadei, A., McDaid, D., Jakob, V., Barnier-Quer, C., Collin, N., Bouguyon, E., Bordet, E., **Barc, C., Boulesteix, O.**, Leplat, J.J., Blanc, F., Contreras, V., Bertho, N., Moore, A.C., Schwartz-Cornil, I. (2019). Electroporation of a nanoparticle-associated DNA vaccine induces higher inflammation and immunity compared to its delivery with microneedle patches in pigs. *Journal of Control Release*, 308, 14-28.

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Bordet, E., Fretaud, M., Crisci, E., Bouguyon, E., Rault, S., **Pezant, J., Pléau, A.**, Renson, P., Giuffra, E., Larcher, T., Bourge, M., Bourry, O., **Boulesteix, O.**, Langevin, C., Schwartz-Cornil, I., Bertho, N. (2019). Macrophage-B cell interactions in the inverted porcine lymph node and their response to porcine reproductive and respiratory syndrome virus. *Frontiers in Immunology*, 10, article 953, 15p.

Caballero, I., **Riou, M.**, Hacquin, O., Chevaleyre, C., **Barc, C., Pezant, J., Pinard, A.**, Fassy, J., Rezzonico, Mari, Heuzé-Vourc'h, N., Pitard, Vassaux, G. (2019). Tetrafunctional block copolymers promote lung gene transfer in newborn piglets. *Molecular Therapy - Nucleic Acids*, 16, 186-193.

Garreau, H., Lantier, F., **Guitton, E.**, Helies, V., Helloin, E., Le Cren, D., Lenoir, G., Maupin, M., Robert, R., Gunia, M. (2019). Relations entre la résistance à la pasteurellose après infection expérimentale et les caractères de croissance et de reproduction mesurés en élevage commercial. *Cuniculture magazine*, 46, 81-4.

Guillon, A., Darrouzain, F., Heuze-Vourc'h, N., Petitcollin, A., **Barc, C.**, Vecellio, L., Cormier, B., Lanotte, P., **Sarradin, P.**, Dequin, P.F., Paintaud, G., Ehrmann, S. (2019). Intra-tracheal amikacin spray delivery in healthy mechanically ventilated piglets. *Pulmonary Pharmacology and Therapeutics*, 57, article 101807, 7p.

Gunia, M., Lantier, F., Balmisse, E., **Guitton, E.**, Helloin, E., Le Cren, D., Lenoir, G., Maupin, M., Robert, R., **Riou, M.**, Garreau, H. (2019). Projet RELAPA (génomique pour la résistance génétique des lapins à la Pasteurellose) : statut hématologique de lapins sensibles et résistants. *Cuniculture magazine*, 46, 73-6.

Kraimi, N., Calandreau, L., Zemb, O., Germain, K., Dupont, C., Velge, P., **Guitton, E., Lavillatte, S.**, Parias, C., Leterrier, C. (2019). Effects of a gut microbiota transfer on emotional reactivity in Japanese quails (*Coturnix japonica*). *Journal of Experimental Biology*, 16, 222 (10), article jeb202879, 9p.

Ponsart, C., Garin-Bastuji, B., **Riou, M.**, Locatelli, Y., Fadeau, A., Jaÿ, M., Jacques, I., Simon, R., Perrot, L., **Breton, S., Chaumeil, T.**, Blanc, B., Ortiz, K., Rioult, D., Quemere, E., **Sarradin, P.**, Chollet, J.Y., Rossi, S.

(2018) (paru en 2019). Vaccination anti-brucellique du bouquetin des Alpes (*Capra Ibex*), une option pour l'assainissement du massif du Bargy ? Comparaison du niveau d'innocuité conjonctivale du vaccin Rev.1 chez le bouquetin des Alpes et la chèvre domestique (*Capra hircus*). *Épidémiologie et Santé Animale*, 74, 25-42.

Ponsart, C., **Riou, M.**, Locatelli, Y., Jacques, I., Fadeau, A., Jay, M., Simon, R., Perrot, L., Freddi, L., **Breton, S.**, **Chaumeil, T.**, Blanc, B., Ortiz, K., Vion, C., Rioult, D., Quéméré, E., **Sarradin, P.**, Chollet, J.Y., Garin-Bastuji, B., Rossi, S. (2019). *Brucella melitensis* Rev.1 vaccination generates a higher shedding risk of the vaccine strain in Alpine ibex (*Capra ibex*) compared to the domestic goat (*Capra hircus*). *Veterinary Research*, 50 (1), article 100, 13p.

Potts, N.D., Bichet, C., **Merat, L.**, **Guitton, E.**, Krupa, A.P., Burke, T.A., Kennedy, L.J., Sorci, G., Kaufman, J. (2019). Development and optimization of a hybridization technique to type the classical class I and class II B genes of the chicken MHC. *Immunogenetics*, 71, 647-663.

Salem, E., Hägglund, S., Cassard, H., Corre, T., Näslund, K., Foret, C., **Gauthier, D.**, **Pinard, A.**, Delverdier, M., Zohari, S., Valarcher, J.F., Ducatez, M., Meyer, G. (2019). Pathogenesis, host innate immune response and aerosol transmission of Influenza D virus in cattle. *Journal of Virology*, 93 (7), article e01853-18, 17p.

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. (2019). Projet RELAPA (génomique pour la Résistance génétique des lapins à la pasteurellose) : paramètres génétiques. *Cuniculture magazine*, 46, 77-80.

Articles de lecture restreint ou vulgarisé

Riou, M., C. Beaugé. (2019). Etude de l'impact et choix de l'enrichissement du milieu sur l'élevage de lignées de souris transgéniques exemptes d'organismes pathogènes spécifiques (EOPS). *Confluence*, 20, p.8.

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Beaugé C. (2019). 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). In Book of Abstracts : *Origine et devenir de l'animal de laboratoire, AFSTAL 2019* (p. 39). Presented at 45. Colloque de l'Association Française des Sciences et Techniques de l'Animal de Laboratoire (AFSTAL), La Rochelle, FRA (2019-10-02 – 2019-10-04).

Fleurot, I., **Riou, M.**, Chevaleyre, C., Melo, S., Olivier, M., Rossignol, C., **Barc, C.**, **Pezant, J.**, **Pleau, A.**, **Deslis, A.**, Klymiuk, N., Sirard, J.-C., Caballero, I. Novel approaches boosting innate immunity against *Pseudomonas aeruginosa*. In Book of Abstracts : *Microbes, SFM Paris 2019* (p.94). Presented at 15. Congrès de la Société Française de Microbiologie (SFM), Paris, FRA (2019-09-30 – 2019-10-02).

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Gunia, M., Lantier, F., Balmisse, E., **Guittou, E.**, Helloin, E., Le Cren, D., Lenoir, G., Maupin, M., Robert, R., **Riou, M.**, Garreau, H. (2019). Projet RELAPA (génomique pour la résistance génétique des lapins à la Pasteurellose) : statut hématologique de lapins sensibles et résistants. Presented at 18. Journées de la Recherche Cunicole, Nantes, FRA (2019-05-27 – 2019-05-28).

Riou, M. (2019). Développement d'un modèle porcin d'ostéomyélite à *Staphylococcus aureus* suite à la pose chirurgicale d'implants en titane. In Book of Abstracts: *Microbes, SFM Paris 2019* (p.147). Presented at 15. Congrès National de la Société Française de Microbiologie (SFM), Paris, FRA (2019-09-30 -2019-10-02).

Shrestha, M., Garreau, H., Balmisse, E., Bed'hom, B., David, I., **Guittou, E.**, Helloin, E., Lenoir, G., Maupin, M., Robert, R., Lantier, F., Gunia, M. (2019). Projet RELAPA (génomique pour la Résistance génétique des lapins à la pasteurellose) : paramètres génétiques. Presented at 18. Journées de la Recherche Cunicole, Nantes, FRA (2019-05-27 – 2019-05-28).

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Lalmanach, A.-C. (2019). Chicken defensins in the fight against pathogenic enterobacteria. Presented at Symposium Tuniso-Canadien sur la résistance aux antibiotiques et les alternatives en production avicole, Tunis, TUN (2019-09-03 - 2019-09-05). 39 diapositives. [Acknowledgements : Plateforme PFIE : **P. Cousin, B. Campone, E. Guittou, M. Chahnamian, C. Beaugé, P. Sarradin**]

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Baillou, A., Pézier, T., Gnahoui-David, A., **Chaumeil, T.**, Le Vern, Y., Sausset, A., Julien, C., Auclair, E., Lacroix-Lamandé, S., Laurent, F. (2019). Importance of the intestinal cDC1 dendritic cells in the control of cryptosporidiosis in the murine and lamb models. In Book of Abstracts : *One Health - De l'animal à l'homme en parasitologie-mycologie* (p. 88). Presented at Congrès SFP-SFMM 2019, Tours, FRA (2019-05-22 - 2019-05-24).

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Gaboriaud, P., **Guittou, E.**, Fort, G., Niepceron, A., Guabiraba-Brito, R., Silvestre, A., Lacroix-Lamandé, S., Lallier, N., Schouler, C., Laurent, F., Bussière, F. (2019). Effet du microbiote sur le développement du parasite *Eimeria tenella*. In Book of Abstracts : *One Health - De l'animal à l'homme en parasitologie-mycologie* (p. 115). Presented at Congrès SFP-SFMM 2019, Tours, FRA (2019-05-22 - 2019-05-24).

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Gunia, M., Shrestha, M., Bed'Hom, B., David, I., **Guillon, E.**, Helies, V., Helloin, E., Herve, C., Maupin, M., Lantier, F., Garreau, H. (2019). Genetics of pasteurellosis resistance in rabbits. Presented at 2. Animal Genetics and Diseases, Hinxton, GBR (2019-05-08 - 2019-05-10).

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Bernelin-Cottet, C., Urien, C., Fretaud, M., Langevin, C., Trus, I., Jouneau, L., Blanc, F., Leplat, J. J., **Barc, C.**, **Boulesteix, O.**, **Riou, M.**, Dysart, M., Mahé, S., Studsrub, E., Nauwynck, H., Bertho, N., Bourry, O., Schwartz-Cornil, I. (2019). A DNA prime immuno-potentiates a modified live vaccine against the porcine reproductive and respiratory syndrome virus but does not improve heterologous protection. *Viruses*, 11 (6), article 576, 19p. [We thank **Pierre Sarradin** and **Edouard Guillon**, directors of Experimental Infectiology Platform (Nouzilly, France), to the zootechnical staff of the PFIE, and particularly to **Jérémy Pezant** and **Alexis Pléau** for expert and dedicated help with the pig experiments]

Bernelin-Cottet, C., Urien, C., Studsrub, E., Jakob, V., Bouguyon, E., Bordet, E., **Barc, C.**, **Boulesteix, O.**, Contreras, V., Barnier-Quer, Collin, Trus, I., Nauwynck, Bertho, N., Schwartz, I. (2019). A DNA-modified

live vaccine prime–boost strategy broadens the T-cell response and enhances the antibody response against the porcine reproductive and respiratory syndrome virus. *Viruses*, 11 (6), article 551, 19p. [We are very grateful to all animal technicians involved in the pig experiment at the Plateforme d'Infectiologie Expérimentale PFIE-Nouzilly, France and we thank them for their high level of professionalism and dedication to animal experimentation and welfare. In particular, we thank **Pierre Sarradin** and **Edouard Guitton**, directors, and **Jérémy Pezant** and **Alexis Pléau** for expert and dedicated work. We are grateful to **Michael Riou** for help in the ethical committee application]

Caballero, I., **Riou, M.**, Hacquin, O., Chevaleyre, C., **Barc, C.**, **Pezant, J.**, **Pinard, A.**, Fassy, J., Rezzonico, Mari, Heuzé-Vourc'h, N., Pitard, Vassaux, G. (2019). Tetrafunctional block copolymers promote lung gene transfer in newborn piglets. *Molecular Therapy - Nucleic Acids*, 16, 186-193. [Many thanks to the directors of the Experimental Infectiology Platform (**Pierre Sarradin** and **Edouard Guitton**), as well as to the zootechnical staff of the PFIE, in particular the "Zone confinée" team (Nouzilly, France)]

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Garreau, H., Lantier, F., **Guitton, E.**, Helies, V., Helloin, E., Le Cren, D., Lenoir, G., Maupin, M., Robert, R., Gunia, M. (2019). Relations entre la résistance à la pasteurellose après infection expérimentale et les caractères de croissance et de reproduction mesurés en élevage commercial. In : *Cuniculture magazine*, 46 (p. 81-4). Presented at 18. Journées de la Recherche Cunicole, Nantes, FRA (2019-05-27 – 2019-05-28). [Les auteurs remercient l'ensemble des participants au projet RELAPA pour la qualité de leur travail, en particulier les équipes de PECTOUL, de la PFIE et des sélectionneurs partenaires du projet]

Guillon, A., Darrouzain, F., Heuze-Vourc'h, N., Petitcollin, A., **Barc, C.**, Vecellio, L., Cormier, B., Lanotte, P., **Sarradin, P.**, Dequin, P.F., Paintaud, G., Ehrmann, S. (2019). Intra-tracheal amikacin spray delivery in healthy mechanically ventilated piglets. *Pulmonary Pharmacology and Therapeutics*, 57, article 101807, 7p. [The authors sincerely thank all staff members of the animal care facility (INRA Val de Loire, Plateforme d'infectiologie expérimentale, UE 1277, Nouzilly, France) for their help in carrying out this study and particularly **Jérémy Pezant** and **Alexis Pléau** who coordinated animal care for the experiments.]

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Kraimi, N., Calandreau, L., Zemb, O., Germain, K., Dupont, C., Velge, P., **Guitton, E.**, **Lavillatte, S.**, Parias, C., Leterrier, C. (2019). Effects of a gut microbiota transfer on emotional reactivity in Japanese quails (*Coturnix japonica*). *Journal of Experimental Biology*, 16, 222 (10), article jeb202879, 9p. [We thank **Patrice Cousin**, **Olivier Dubes** and **Thierry Chaumeil** (Plate-Forme d'Infectiologie Expérimentale, PFIE, UE-1277, INRA Centre Val de Loire, France) for maintenance of the isolators and animal care.]

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Ponsart, C., Garin-Bastuji, B., **Riou, M.**, Locatelli, Y., Fadeau, A., Jaÿ, M., Jacques, I., Simon, R., Perrot, L., **Breton, S.**, **Chaumeil, T.**, Blanc, B., Ortiz, K., Rioult, D., Quemere, E., **Sarradin, P.**, Chollet, J.Y., Rossi, S. (2019). Vaccination anti-brucellique du bouquetin des Alpes (*Capra ibex*), une option pour l’assainissement du massif du Bargy ? Comparaison du niveau d’innocuité conjonctivale du vaccin Rev.1 chez le bouquetin des Alpes et la chèvre domestique (*Capra hircus*). In : *Épidémiologie et Santé Animale*, 74, 25-42. Presented at Journées scientifiques AEEMA/ONCFS 2018, Maisons-Alfort, FRA (2018-05-30 – 2018-05-31). [*Les auteurs remercient les directeurs de la plate-forme expérimentale d’infectiologie, le centre international des ressources microbiennes : bactéries pathogènes (CIRM-BP) et le personnel zootechnique de la PFIE (Nouzilly, France)*]

Potiron, L., Lacroix-Lamandé, S., Marquis, M., Le Vern, Y., Fort, G., Franceschini, I., Laurent, F. (2019). Batf3-dependent intestinal dendritic cells play a critical role in the control of *Cryptosporidium parvum* infection. *Journal of Infectious Diseases*, 219 (6), 925-35. [*We are grateful to the scientific and animal staff of the Plate-Forme d’Infectiologie Expérimentale: PFIE, UE-1277, INRA Centre Val de Loire, Nouzilly, France. PFIE is part of EMERG’IN, the national infrastructure for the control of animal and zoonotic emerging infectious diseases through in vivo investigation. We are also especially thankful to the animal technicians in charge of rearing the mice (Corinne Beauge and her team) and for their help in the follow-up of the experiments (Edouard Guitton and his team, in particular Fanny Sarce)*]

Potts, N.D., Bichet, C., **Merat, L.**, **Guitton, E.**, Krupa, A.P., Burke, T.A., Kennedy, L.J., Sorci, G., Kaufman, J. (2019). Development and optimization of a hybridization technique to type the classical class I and class II B genes of the chicken MHC. *Immunogenetics*, 71, 647-663. [*The authors are grateful to the scientific and animal staff of the Plate-Forme d’Infectiologie Expérimentale (in particular, Thierry Chaumeil and Sébastien Lavillatte) for access to and collection of the samples of experimental lines from Nouzilly*]

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Swale, C., Bougdour, A., Gnahoui-David, A., Tottey, J., Georgeault, S., Laurent, F., Palencia, A., Hakimi, M.A. (2019). Metal-captured inhibition of pre-mRNA processing activity by CPSF3 controls *Cryptosporidium* infection. *Science Translational Medicine*, 11, article eaax7161, 11p. [*We also acknowledge the Experimental Infectiology Platform: PFIE, UE-1277, INRA Centre Val de Loire, Nouzilly, France. We are very thankful to C. Beauge’s team for rearing the mice, and G. Fort for the technical support. We thank the teams of E. Guitton and T. Chaumeil, particularly F. Sarce-Faurie, for following up on the mice, and veterinarians J. Cognie and N. Kasal-Hoc for animal surgery*]

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Citations in “Materials and Methods”

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Bernelin-Cottet, C., Urien, C., McCaffrey, J., Collins, D., Donadei, A., McDaid, D., Jakob, V., Barnier-Quer, C., Collin, N., Bouguyon, E., Bordet, E., **Barc, C., Boulesteix, O.**, Leplat, J.J., Blanc, F., Contreras, V., Bertho, N., Moore, A.C., Schwartz-Cornil, I. (2019). Electroporation of a nanoparticle-associated DNA vaccine induces higher inflammation and immunity compared to its delivery with microneedle patches in pigs. *Journal of Control Release*, 308, 14-28. [The immunization experiments with PRRS-AG encoding plasmids were done at the Plate-forme d'Infectiologie Expérimentale PFIE-INRA, Nouzilly, France (<https://doi.org/10.15454/1.5535888072272498e12>) under the accreditation number for animal experimentation C37-1753 in a A-BSL1 containment. A first experiment was conducted on 6 pigs at PFIE-INRA, under the 15,051,418,327,338 v10 authorization]

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Salem, E., Hägglund, S., Cassard, H., Corre, T., Näslund, K., Foret, C., **Gauthier, D., Pinard, A.**, Delverdier, M., Zohari, S., Valarcher, J.F., Ducatez, M., Meyer, G. (2019). Pathogenesis, host innate immune

response and aerosol transmission of Influenza D virus in cattle. *Journal of Virology*, 93 (7), article e01853-18, 17p. [*Animal experimentation was performed in biosafety level 3 facilities at the Research Platform for Infectious Disease (PFIE, National Institute for Agronomic Research [INRA], Nouzilly, France)*] [*Fourteen Normand and Holstein calves, born in a bovine herpesvirus 1 (BoHV-1) and bovine viral diarrhoea virus (BVDV) free experimental station of INRA, were colostrum deprived and transferred to PFIE between 3 to 7 days of age*]

Swale, C., Bougdour, A., Gnahoui-David, A., Tottey, J., Georgeault, S., Laurent, F., Palencia, A., Hakimi, M.A. (2019). Metal-captured inhibition of pre-mRNA processing activity by CPSF3 controls *Cryptosporidium* infection. *Science Translational Medicine*, 11, article eaax7161, 11p. [*Mice were maintained in animal facilities at the Plateforme d'Infectiologie Experimentale de Tours (PFIE). All experiments were conducted in accordance with the guidelines of the Council in the facilities of the PFIE (UE-1277, INRA Centre Val de Loire, Nouzilly, France)*]