

**WBVR, WAGENINGEN BIOVETERINARY RESEARCH BSL3 (VETERINARY 4)  
LABORATORY AND ANIMAL FACILITIES**

**(NL)**

<b>Research topics:</b>	<p>List of the main research areas dealt with by the infrastructure/installation:</p> <ul style="list-style-type: none"><li>• African Swine Fever</li><li>• Rift-Valley-Fever virus</li><li>• Classical Swine Fever</li><li>• Food-and-Mouth Disease</li><li>• BRSV</li><li>• Influenza/ avian influenza</li><li>• <i>Coxiella</i></li><li>• <i>Streptococci</i></li><li>• TB</li></ul> <p>List of publications:</p> <p>Bruffaerts, N., L. E. Pedersen, G. Vandermeulen, V. Preat, N. Stockhofe-Zurwieden, K. Huygen and M. Romano (2015). "Increased B and T Cell Responses in M. bovis Bacille Calmette-Guerin Vaccinated Pigs Co-Immunized with Plasmid DNA Encoding a Prototype Tuberculosis Antigen." <u>PLoS One</u> <b>10</b>(7): e0132288.</p> <p>Cortjens, B., O. J. de Boer, R. de Jong, A. F. Antonis, Y. S. Sabogal Pineros, R. Lutter, J. B. van Woensel and R. A. Bem (2016). "Neutrophil extracellular traps cause airway obstruction during respiratory syncytial virus disease." <u>J Pathol</u> <b>238</b>(3): 401-411.</p> <p>de Greeff, A., S. van Selm, H. Buys, J. F. Harders-Westerveen, R. N. Tunjungputri, Q. de Mast, A. J. van der Ven, N. Stockhofe-Zurwieden, M. I. de Jonge and H. E. Smith (2016). "Pneumococcal colonization and invasive disease studied in a porcine model." <u>BMC Microbiol</u> <b>16</b>: 102.</p> <p>de Jong, R. M., N. Stockhofe-Zurwieden, E. S. Verheij, E. A. de Boer-Luijtze, S. J. Ruiter, O. S. de Leeuw and L. A. Cornelissen (2013). "Rapid emergence of a virulent PB2 E627K variant during adaptation of highly pathogenic avian influenza</p>
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H7N7 virus to mice." *Virology* **10**: 276.

Dekker, A., P. Eble, N. Stockhofe and G. Chenard (2014). "Intratypic heterologous vaccination of calves can induce an antibody response in presence of maternal antibodies against foot-and-mouth disease virus." *BMC Vet Res* **10**: 127.

Eble, P. L., K. Orsel, F. van Hemert-Kluitenberg and A. Dekker (2015). "Transmission characteristics and optimal diagnostic samples to detect an FMDV infection in vaccinated and non-vaccinated sheep." *Vet Microbiol* **177**(1-2): 69-77.

Ferrando, M. L., A. de Greeff, W. J. van Rooijen, N. Stockhofe-Zurwieden, J. Nielsen, P. J. Wichgers Schreur, Y. Pannekoek, A. Heuvelink, A. van der Ende, H. Smith and C. Schultsz (2015). "Host-pathogen Interaction at the Intestinal Mucosa Correlates With Zoonotic Potential of *Streptococcus suis*." *J Infect Dis* **212**(1): 95-105.

Kortekaas, J., N. Oreshkova, L. van Keulen, J. Kant, B. J. Bosch, M. Bouloy, V. Moulin, D. Goovaerts and R. J. Moormann (2014). "Comparative efficacy of two next-generation Rift Valley fever vaccines." *Vaccine* **32**(39): 4901-4908.

Peeters, B., W. F. Tonnis, S. Murugappan, P. Rottier, G. Koch, H. W. Frijlink, A. Huckriede and W. L. Hinrichs (2014). "Pulmonary immunization of chickens using non-adjuvanted spray-freeze dried whole inactivated virus vaccine completely protects against highly pathogenic H5N1 avian influenza virus." *Vaccine* **32**(48): 6445-6450.

Poetri, O. N., M. Van Boven, G. Koch, A. Stegeman, I. Claassen, I. Wayan Wisaksana and A. Bouma (2017). "Different cross protection scopes of two avian influenza H5N1 vaccines against infection of layer chickens with a heterologous highly pathogenic virus." *Res Vet Sci* **114**: 143-152.

Tunjungputri, R. N., M. I. de Jonge, A. de Greeff, S. van Selm, H. Buys, J. F. Harders-Westerveen, N. Stockhofe-Zurwieden, R. T. Urbanus, P. G. de Groot, H. E. Smith, A. J. van der Ven and Q. de Mast (2016). "Invasive pneumococcal disease leads to activation and hyperreactivity of platelets." *Thromb Res* **144**: 123-126.

Weesendorp, E., N. Stockhofe-Zurwieden, H. J.

	<p>Nauwynck, D. J. Popma-De Graaf and J. M. Rebel (2016). "Characterization of immune responses following homologous reinfection of pigs with European subtype 1 and 3 porcine reproductive and respiratory syndrome virus strains that differ in virulence." <i>Vet Microbiol</i> <b>182</b>: 64-74.</p> <p>Weesendorp, E., N. Stockhofe-Zurwieden, D. J. Popma-De Graaf, H. Fijten and J. M. Rebel (2013). "Phenotypic modulation and cytokine profiles of antigen presenting cells by European subtype 1 and 3 porcine reproductive and respiratory syndrome virus strains in vitro and in vivo." <i>Vet Microbiol</i> <b>167</b>(3-4): 638-650.</p> <p>Wichgers Schreur, P. J., L. van Keulen, J. Kant and J. Kortekaas (2017). "Four-segmented Rift Valley fever virus-based vaccines can be applied safely in ewes during pregnancy." <i>Vaccine</i> <b>35</b>(23): 3123-3128.</p>
<p><b>Activities and services currently offered by the infrastructure/installation:</b></p>	<p>Wageningen Bioveterinary Research (WBVR) is part of Wageningen University &amp; Research (<a href="http://www.WUR.nl">www.WUR.nl</a>), a Dutch organisation combining academic institutes and research institutes in the field of life sciences. The broad spectrum of university and research institutes enables innovative, multidisciplinary approaches by close collaborations.</p> <p>WBVR contributes to the prevention, eradication and control of animal infectious diseases through research, diagnostics and consultancy. This is essential to guarantee international trade and to preserve the international top position of the Dutch livestock industry. A specific focus of WBVR is research on infection biology, immunology and vaccinology of relevant veterinary and human, current and emerging infectious diseases. About 200 highly-qualified and devoted employees work at WBVR and provide extensive experience for microbiological, immunological and genomic research, including bioinformatics. WBVR has broad experience in co-operation with private partners and EU infrastructure projects by offering facilities and expertise in animal studies with laboratory and large animal models. Expertise concerns vaccine</p>

	<p>immunogenicity, vaccine efficacy and infectious disease pathogenesis. WBVR as part of SWR is equipped with state-of-the-art laboratory and animal facilities for microbiological and immunological testing of vaccines. The animal facilities can accommodate the entire range of species, including farm animals for studies under containment (up to BSL3) and complies with ISO standards (9001:2008, 17025). Vaccine studies are supported by bacteriology and virology expertise and a range of immunological assays for various lab animal (mouse, ferret) and farm animal species (cattle, pig, chicken).</p>
<p><b>Description of the access to be provided under VetBioNet TNA call:</b></p>	<p>WBVR offers its extensive expertise on fundamental and applied research on bacterial and viral diseases and vaccines and the expertise on pig research in the fields of microbiology, immunology, pathology, functional genomics and bioinformatics. Transnational access will be offered for pathogenicity studies, immunological studies and the evaluation of immunogenicity, efficacy and safety of new candidate vaccines and of novel vaccination (administration) strategies in pigs, poultry and cattle.</p> <p>Next to the execution of animal experiments with intensive clinical assessment, we also perform the necessary virological or bacteriological analysis, clinical pathology, gross- and (immuno) histology and can offer immunological analysis. WBVR has also capacities for transcriptomic research and bioinformatic analysis especially in the field of pig and poultry research. These latter services are not included in the TNA and have to be negotiated separately. WBVR will prepare and provide the necessary legal approvals, including the ethical review and a study plan which will be signed off by the user prior to the start of the study. WBVR will perform the in-life phase of the study and clinical and selected immunological or microbiological assays in collaboration with the user. WBVR can, whenever requested, and when compliant to its regulations, provide physical access to its facilities during crucial periods of the running experiments. In prior defined conditions,</p>

	biological samples can be made available to the user for analysis outside WBVR.
<b>Animal species/pathogens that can be worked on in this infrastructure/installation:</b>	<ul style="list-style-type: none"> <li>• Pig</li> <li>• Chicken</li> <li>• Cattle</li> <li>• Ferret</li> <li>• Mouse</li> <li>• Others on request</li> </ul>
<b>Travel and subsistence costs:</b>	On average each user or user group is expected to stay at least two days at the infrastructure. The extent of participation of the user depends on the type of the study and the experience of the user.
<b>Infrastructure/installation ethical rules:</b>	Approval by the Dutch Central Authority for Scientific Procedures on Animals (CCD) and the institute Animal welfare body is requested according to the National and EU regulations.