IRTA, ANIMAL AND BSL3 LABORATORIES FACILITIES

(ES)

Research topics:	The IRTA-CReSA BSL3 animal facility is dedicated to animal experimentation with pathogens of veterinary importance and public health relevance. Establishment of animal models for studies on pathogenesis, vaccine trials and immune monitoring are the main core research activities. Below are some recent publications describing animal experimentations conducted in the IRTA-CRESA BSL3 animal facilities: -Oliveira Cavalcanti M, Vaughn E, Capua I, Cattoli G, Terregino C, Harder T, Grund C, Vega C, Robles F, Franco J, Darji A, Arafa AS, Mundt E. A genetically engineered H5 protein expressed in insect cells confers protection against different clades of H5N1 highly pathogenic avian influenza viruses in chickens. Avian Pathol. 2017; 46:224-233. -Vergara-Alert J, van den Brand JM, Widagdo W, Muñoz M 5th, Raj S, Schipper D, Solanes D, Cordón I, Bensaid A, Haagmans BL, Segalés J. Livestock Susceptibility to Infection with Middle East Respiratory Syndrome Coronavirus. Emerg Infect Dis. 2017; 23:232-240. -Vidaña B, Martínez J, Martorell J, Montoya M, Córdoba L, Pérez M, Majó N. Involvement of the different lung compartments in the pathogenesis of pH1N1 influenza virus infection in ferrets. Vet Res. 2016; 47:113. -Muñoz-González S, Pérez-Simó M, Colom-Cadena A, Cabezón O, Bohórquez JA, Rosell R, Pérez LJ, Marco I, Lavín S, Domingo M, Ganges L. Classical Swine Fever Virus vs. Classical Swine Fever Virus: The Superinfection Exclusion Phenomenon in Experimentally Infected Wild Boar. PLoS One. 2016; 11:e0149469. -Haagmans BL, van den Brand JM, Raj VS, Volz A, Wohlsein P, Smits SL, Schipper D, Bestebroer TM,

	Okba N, Fux R, Bensaid A, Solanes Foz D, Kuiken T, Baumgärtner W, Segalés J, Sutter G, Osterhaus AD. An orthopoxvirus-based vaccine reduces virus excretion after MERS-CoV infection in dromedary camels. Science. 2016; 351:77-81. -Lacasta A, Monteagudo PL, Jiménez-Marín Á, Accensi F, Ballester M, Argilaguet J, Galindo-Cardiel I, Segalés J, Salas ML, Domínguez J, Moreno Á, Garrido JJ, Rodríguez F. Live attenuated African swine fever viruses as ideal tools to dissect the mechanisms involved in viral pathogenesis and immune protection. Vet Res. 2015; 46:135.
Activities and services currently offered by the infrastructure/installation:	Animal facilities comprise 1150 m2 for animal experimentation. The high containment animal experimental facility is an enhanced (plus) BSL-3 facility (BSL-3+) operating with double filtration of exhaust air, compulsory shower out, waterproof walls and ceilings with easy cleaning, capability of sealing for gas- or vapor-phase decontamination, and redundancy of critical equipment. There are 8 boxes for large animals (i.e. pigs, ruminants) and two for poultry, with seven isolators. Two more rooms are dedicated to rodents, guinea pigs and rabbits. A necropsy room is adjacent to the boxes. There are two more working spaces inside the Bio containment Unit, 1500 m2 for air filtration (HEPA filtration) and 1500 m2 for the effluents treatment. This latter area includes 35 m2 for entomological BSL-3 studies. Such level of biocontainment allows working on a number of exotic infectious diseases that threaten the Spanish territory. All activities are carried out under GLP and GCP conditions and animal welfare regulations following European guidelines. The animal units are constructed as multi-purpose facilities and can house various species from mouse to pig or cattle and wild animal species as well. IRTA-CReSA offers animal facilities to external users (academic researchers, pharmaceutical companies, biotech industry, agri-business industry). The extensive expertise on fundamental and applied research on bacterial and viral diseases in target species makes it an attractive

	partner for academic and industry collaborations. Dedicated teams of animal keepers, veterinarians, pathologists, biosafety officer, scientists and technicians provide services and advice from the design of experimental reproduction of diseases to sampling, necropsy, sampling conditioning and shipment. Users, when qualified, will fully participate in the activities under the closed supervision of the ad-hoc IRTA staff.
Description of the access to be provided under VetBioNet TNA call:	IRTA scientific and animal facilities teams will get in touch with the selected users in order to establish the dates of availability of the infrastructure. Protocols are revised and detailed in order to comply with internal regulations and provide the necessary legal approvals, including the ethical review and a study plan, which will be signed by the user prior starting the study. Animals will be booked and/or purchased (if not done at a previous stage). IRTA can, whenever requested and when compliant to its regulations, provide physical access to the users to its facilities during crucial periods of the running experiments. At least 48 h prior to the access to BSL3 facilities, users are given training on the use of facilities. Users are at any time closely supervised by the adequate IRTA staff. Nonetheless, if qualified, users will participate actively in all stages of the experimentation (i.e., immunizations, preparation of samples, necropsies, etc.). Duration of work: Out of a 1 month average TNA, each user or user group is expected to stay 15 to 21 days at the infrastructure. This includes familiarization with the infrastructures and training. The unit of access is defined as two animal experimental boxes of use for 1 month. One typical access consists of 1 to 2 units of access. The support offered by IRTA comprises scientific advice on the experimental design and methodology and a summarizing reporting, including documentation of results after the study. Besides the cost of the personnel involved in performing the study, it also includes the purchase of animals, housing and animal care, technical expertise and basic consumables for sampling.

	Request for official permissions (import/export of pathogens, animal ethics documentation, etc.) will be also included in the service provided. Preparation of the boxes to accommodate the animal species and decontaminations are also provided. Specimens can be decontaminated if not shipped to another BSL3 facility. Price of shipment of specimens is included. Prior the starting of the experiment, a meeting is organized to revise the protocol and the intervention of staff. If qualified, users receive the appropriate training on the regulations of the infrastructure used and biosafety protection devices. Users will be advised constantly on the design of the experiment. They will be trained, receive interpretation of results from the IRTA team and support for further publications. In prior defined conditions, biological samples can be made available to the user for analysis outside IRTA. Alternatively, samples can be analyzed at IRTA under request of a TNA for BSL3/2 laboratories.
Animal species/pathogens that can be worked on in this infrastructure/installation:	Animal species that can be worked on in these facilities: mice, rats, rabbits, guinea pigs, ferrets, all ruminants (not exceeding 250 kg), pigs (including caesarean-derived, colostrum-deprived piglets), poultry and other wildlife avian species (falcon, partridge, quail...), wild boar, chamois, camelids such as alpaca and llamas, and dromedaries not exceeding 250 kg or 6 months of age. -Pathogens that can be worked on in these facilities: All veterinary BSL2/3 pathogens with the exception of FMDV. Below is a non-exhaustive list of pathogens currently experimented at CReSA: CSFV, ASFV, SBV, HPAI, BTV, RVFV, MERS-CoV, endemic virus such as PRRSV, PCV2, TTV, HEV, PEDV, IBV and IBDV and bacteria (*Mycobacterium* spp., *Mycoplasma hyopneumoniae, Haemophilus parasuis, Streptococcus suis, Actinobacillus pleuropneumoniae, etc.*)
Travel and subsistence costs:	Users are preferentially housed in the Hotel Campus (http://www.hotelcampusuab.com/ES/hotel.html)

	situated at a 10 minutes' walk from the IRTA-CReSA facilities. Accommodation will be booked by the users, the bill will be paid and addressed to IRTA after departure. Tickets travel will be purchased by IRTA. Meals will be reimbursed to the users upon presentation of tickets and according to diet fees practiced by IRTA. Users will receive the necessary information before arrival to IRTA-CReSA facilities.
Infrastructure/installation ethical rules:	A document with IRTA-CReSA internal rules will be provided to the user days before arrival to the facilities. Another document explaining the precautions and mandatory rules in terms of biosafety will be given to read and signed before starting the experimentations (see description of the access).