

International Veterinary Vaccinology ERA-Net Co-fund

Vaccines are one of the most cost-effective strategies for controlling and eliminating life-threatening infectious diseases of humans and animals while reducing the need for antimicrobials, including anti-parasite agents. An international ERA-Net Co-fund would provide the necessary structure required to address the challenges in addressing the current unmet vaccine needs while providing significant leverage by the European funding.

Scope of Proposed International ERA-NET Co-Fund

To pool resources and expertise to develop solutions for the cross-cutting challenges impeding the generation of new and improved vaccines for a range of animal diseases and to test their application for a number of these diseases.

Background

Despite recent successes there are still diseases for which there are either no vaccines or where current vaccines lack optimal efficacy. New and improved vaccines have been identified as an important component in strategies to reduce reliance on antimicrobials. A workshop organised by OIE in 2013 identified a range of diseases where new or improved vaccines would have greatest impact in reducing the use of antibiotics. In most cases the lack of vaccines is because classical methods of generating vaccines have failed or the current market situation wouldn't justify the cost of their development. Replicating organisms, mimicking natural infection, usually give the best responses but residual virulence in attenuated vaccines can cause safety concerns while recombination of live vaccine viruses with field isolates can contribute to pathogen evolution. However, subunit vaccines, although potentially safer, often fail to generate the desired immune responses, especially cellular immune responses. While the induction of immunological memory is fundamental to vaccines we still do not have a clear understanding of how best to design vaccines that drive long-lasting and protective memory responses. It is also possible that technological advances would make the development of vaccines economically viable in situations where, for market reasons, vaccines are not currently available.

Addressing these challenges will require international collaboration which can best be organised through an ERA-Net with wider international and industrial engagement where non-European partners cover their own costs fully. The EMIDA and ANIHW ERA-NETs organised five common calls in the wider animal health area, funding 58 transnational projects with a total value of €75 Million. On at least one of these calls more than 10% of the funding came from industry. The proposed ERA-NET will build on these achievements and complement the activities of the SusAn ERA-Net while supporting the partners of the International Research Consortium on animal health in achieving their objectives.

A global Veterinary Vaccinology survey conducted under the auspices of STAR-IDAZ to map current research activities and ascertain gaps and future needs emphasised Veterinary Vaccinology research should give increased emphasis to developing and exploiting new tools and technologies to develop novel and/or improved vaccines. A potential call topic was developed with considerable interest expressed by STAR-IDAZ IRC partners, including those from outside Europe, which they would now like to take forward. Some of the major challenges in vaccinology were also discussed at a Grand Challenges Workshop held in conjunction with the International Veterinary Immunology Symposium in Australia in 2016.

The focus of the proposed joint international call developed by STAR-IDAZ is to support multidisciplinary research to develop novel tools and generic technology platforms for producing

novel and/or improved vaccines that are applicable to specific livestock sectors and/or diseases. Area of particular interest included vaccine delivery systems and thermo-stabilisation.

Expected Benefits of the ERA-NET Co-Fund

Member States currently invest significant amounts in the development of new or improved vaccines for a range of diseases. These efforts would be greatly facilitated by a coordinated international effort to address some of the cross-cutting challenges related to vaccine technology which are currently holding back development. It would also contribute to the objectives of the STAR-IDAZ International Research Consortium. New and improved vaccines would reduce the reliance on antimicrobials and contribute to improved animal health and welfare.