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## CALL FOR IDEAS

### PROMOTING INNOVATIVE APPROACHES TO VACCINES DEVELOPMENT AGAINST INFECTIOUS DISEASES

Deadline: January 30, 2009

#### Background

One century after the introduction of the first mass vaccination programs which followed Pasteur's discoveries, average life expectancy in developed countries has reached eighty years. This achievement was largely made possible thanks to the introduction of immunization programs and improved sanitation which led to the eradication of most infectious diseases responsible for infant mortality.

Immunization is the most efficacious and cost-effective way to prevent infectious disease. In terms of public health benefits, only widespread access to clean water has been as much effective.

Vaccines act by stimulating the immune response, the production of antibodies and the creation of immunological memory, thus delivering long-term effective protection against infections and related complications to vaccinated individuals. In addition, when a large portion of the population is vaccinated it is less likely that a susceptible person will come into contact with an infected individual, so, by breaking the chain of infection, immunization programs indirectly protect the whole population (herd immunity). This clearly explains the social importance of vaccines.

In spite of all these achievements, infectious diseases still kill over 17 million people every year in the world (WHO data), primarily in developing countries. The emergence of new pathogens complicates the picture.

The traditional approach to vaccine development based on Pasteur's discoveries ("isolating, inactivating and injecting" the causative microorganism), even when integrated by biotechnologies, is not effective to prevent certain infectious diseases, which thus need new strategies to be prevented. Therefore it is necessary to develop new strategies able to combine genomics with improved understanding of the human immune system.

In the past few decades, the strategies developed to fight infectious disease have evolved. Existing vaccines were developed largely against pathogens that show no or limited antigenic variation and can be controlled by serum antibodies. Conversely, the fight against pathogens showing higher antigenic variation and/or requiring T-Cell immunity remains elusive due to the gaps in our knowledge.

#### Objectives

Fondazione Cariplo is well aware that the huge capital expenditure and the complexity of vaccine development and production can be sustained only by the industrial sector. Yet being willing to give its contribution to progress in this area, the Foundation has decided to focus its support on basic research projects which, although not involving directly an industrial partner, can show the industry the development potential of vaccines as products, thus triggering a process which can be set in motion after the Foundation's support.

The call for ideas aims to support basic research projects able to bridge the gaps in our knowledge of the immune system and the biology of pathogens and take innovative approaches to the development of new vaccines against infectious diseases<sup>1</sup>.

Innovative approach means leaving behind traditional strategies in favour of a method which combines knowledge and competences in different research fields, e.g. immunology, epidemiology, biology, physics, computational science.

Special attention will be devoted to projects focused on the development of vaccines against diseases which largely or exclusively afflict developing countries.

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<sup>1</sup> For the classification of infectious diseases refer to the document *International Classification of Diseases (ICD)* by WHO.

## Guidelines

### Eligible participants

The call for ideas is open to project partnerships among different research organizations. The leading organization has to be located in Lombardy or in the provinces of Novara and Verbania. Both Italian and foreign partners are welcome.

The partnership shall include organizations that meet the Foundation's grant eligibility criteria. For information, please refer to the "Guidance on submission of proposals".

To participate to the call organizations do not need to enter into a formal partnership agreement.

### Eligible projects

Based on the assessment by a peer review committee, the Foundation will select projects that:

- adopt innovative approaches for the development of vaccines against infectious diseases,
- adopt multidisciplinary approaches,
- adopt a basic research approach,
- have new costs related only to research (e.g. no staff costs) and no more than 10% overheads. The new costs will be covered by Fondazione Cariplo.

### Selection criteria

In addition to the overall scientific quality, the following aspects shall be the main focus during the assessment of the proposed projects:

- the innovation degree ,
- the originality of the approach,
- the prospects for future transfer of project's results to industry,
- the integration of operational units and the added value of each partner in the implementation of the project,
- the significance of the infectious disease, also considering the needs of developing countries.

### Ineligible projects

The following projects shall be judged ineligible:

- infectious disease research projects which lack in a novel approach to vaccine development,
- projects aimed at the development of vaccines against diseases other than infectious diseases,
- projects which feature a traditional approach to vaccine research & development,
- projects under which a for-profit organization might benefit from the Foundation's grant either directly or indirectly,
- projects dealing with the management of the ordinary activities of research centers,
- projects dealing with the creation of new research centers/laboratories

Submission of the ideas (pre-proposals) shall not be considered a formal grant request to Fondazione Cariplo. The pre-proposals will be examined by an International Scientific Committee and by the Foundation. Those organizations whose projects will pass preliminary screening shall be asked to submit a detailed proposal and a formal grant request . In the preliminary screening stage the Foundation may contact applicants to get further information which may be necessary to assess the pre-proposals.

The Foundation intends to make sure that the knowledge generated by the funded projects will be promptly and widely disseminated within the scientific community. For information on the protection of project inventions which may be patented please refer to Fondazione Cariplo's "Policy on intellectual property rights".