



MID-PROJECT SCIENTIFIC PROGRESS OVERVIEW

The objective of VACCINESURVEY is to develop and validate an **innovative immune assay tool** to monitor the effectiveness and coverage of immunizations programs by assessing the serum reactivity of a target population against a set of vaccine antigens chosen amongst those utilized in the EPI in an African resource poor country (Burkina Faso).

The proposed technical solution is based on a protein micro-array that function as capture substrate for serum antibodies. This assay format integrates multiplex capability and powerful analytical performance that, through the generation of reactivity profiles, allows on one end the monitoring of the immunization status and on the other end discriminating vaccinated versus infected individuals. This is expected to strengthen the current monitoring infrastructure of the vaccine preventable diseases (VPDs) surveillance and immunization programs by enabling the implementation of objective quality control procedures, the identification of clusters of susceptible individuals and mapping the risk of disease outbreaks. The future implementation of the VACCINESURVEY technology will be able to assist in making more programmatic and strategic plans and contribute towards a better use of government and donor-supported funds and the identification on areas of immunization systems that may require additional resources.

The work of this consortium, which includes private and public organizations based in Italy, Slovenia, UK and Burkina Faso, aims to demonstrate the capability, and suitability in field settings, of the multiplex micro-array immunoassay of minimal complexity to detect and quantify serum antibodies against specific diseases, namely Tetanus, Diphtheria, Hepatitis B, Hemophilus, Meningococcus Mumps, Poliomyelitis rotavirus, Rubella, Measles and Yellow fever. In order to move from proof of concept stage to the development of a functional assay the consortium planned its activities around the following technical objectives: i) set system design and specification; ii) develop a unified assay protocol and format for the detection of antibodies to vaccine components; iii) validate analytical and clinical performance; iv) discriminate vaccinated versus infected individuals; v) assess population immunity in the field; vi) develop a data base to store and visualize report based on experimentally assessed population immunity; vii) facilitate technology adoption.

The technical activities carried out over the first half of VACCINESURVEY were predominantly focused on the definition of optimal assay specification, its development and validation and on the design and preparation of a dedicated database. The results obtained are very promising and currently shared with the European Commission and at consortium level only. Alongside research and development objectives VACCINESURVEY promoted mutual transfer of knowledge between academia and industry by implementing a number of staff exchanges between sectors and countries.