

New live attenuated TB vaccine is safe and shows a distinct, dose dependent immune response in a Phase1b trial in newborns

NEW DELHI (21th February 2018) - Biofabri, the University of Zaragoza, the South African Tuberculosis Vaccine Initiative (SATVI) and TB Vaccine Initiative (TBVI) announced the results of a Phase 1b trial of the new live attenuated TB-vaccine 'MTBVAC' at the Global TB Vaccine Forum in New Delhi. The trial, which was carried out in healthy, BCG naïve and HIV unexposed newborn infants in South Africa, a country highly endemic for tuberculosis, showed that MTBVAC was well tolerated and appeared safe, and induced a dose-dependent immune response that was distinct from the response induced by BCG. A subsequent Phase 2 trial in newborns to confirm its safety and to determine the final dose will go ahead in the next months.

MTBVAC

MTBVAC is the first live-attenuated tuberculosis vaccine against tuberculosis, generated by genetically attenuating a pathogenic *M.tuberculosis* strain isolated from a TB patient. It is hypothesized that MTBVAC is a more effective vaccine as compared to the currently used BCG vaccine, as it is much more similar to the human pathogen, and carries a much broader repertoire of TB-antigens. We aim to develop MTBVAC as a priming vaccine for new-borns, and as a booster vaccine for adolescents and adults.

Study results

The trial was carried out in three groups of 12 newborns. In groups one and two, nine (9) received either 2.5×10^3 or 2.5×10^4 MTBVAC intradermally and ten received 2.5×10^5 MTBVAC bacteria, respectively. Eight (8) new-borns received 2.5×10^5 BCG (strain SSI) as a comparator (three each in groups one and two and two in group three). The results show that MTBVAC was well tolerated and the safety profile was similar to that of BCG. MTBVAC induced a dose-dependent immune response in new-borns with increasing CD4 T-cell responses at the higher doses. The magnitude of the CD4 T-cell response following an intradermally applied dose of 2.5×10^5 MTBVAC was significantly higher from that induced by intradermal administration of 2.5×10^5 BCG bacteria. Further assessment of vaccine safety will be determined in a larger Phase 2a safety and dose-finding study in new-borns, which will also provide more information about the optimal MTBVAC dose for future trials. This Phase 2a trial will now go ahead in the next months. The Phase 1b study was supported the Norwegian Agency for Development Cooperation (NORAD), and Tuberculosis Vaccine Initiative (TBVI).



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The world's best-positioned live attenuated candidate to prevent TB

“The safety and immunogenicity result confirmed that MTBVAC remains the world’s best-positioned live attenuated candidate in the portfolio of future vaccines against tuberculosis due to its better response than BCG. This fact is a hope as a tool whose use will allow the control of the disease worldwide and within WHO programs.” said **Esteban Rodríguez, Biofabri’s CEO.**

Dr. Carlos Martín, principal coordinator of the University of Zaragoza’s Mycobacteria Genetics Group, has reiterated his hopes for this project. “These results represent a very important step, they encourage us and urge us to conduct future clinical trials of MTBVAC efficacy, and if results show, as we expect, that it is more effective than BCG, MTBVAC could start saving millions of lives soon”

Dr Michele Tameris, the Principal Investigator from the South African Tuberculosis Vaccine Initiative said: “These exciting results demonstrate good tolerability and safety of MTBVAC vaccination of newborn infants from a setting where TB is endemic. Analyses of the MTBVAC-induced immune response shows that the vaccine is highly immunogenic and induces a T cell response with promising functional characteristics”.

Finally, **Dr. Jelle Thole**, representing the European Tuberculosis Vaccine Initiative (TBVI) states that “Fifteen years ago the concept of developing a live attenuated TB vaccine based on the pathogen itself was regarded as virtually impossible. However, the perseverance and unique collaborative spirit between UNIZAR, Biofabri, SATVI, TBVI and the universities of Zaragoza and South Africa, MTBVAC has moved this concept into a concrete vaccine candidate that indeed may turn out to be more effective than BCG”.

About Biofabri

BIOFABRI is a biopharmaceutical company that was created in 2008 with a vision: to research, develop and manufacture human vaccines. BIOFABRI is focused on Human health, with strong technical, development and manufacturing capabilities and a proven track record. Biofabri&CZV group is a 100% Spanish biopharmaceutical business group specializes in development, manufacture and marketing of biotechnology and pharmacy products for humans and animals. Biofabri is also the manufacturer of MTBVAC.

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About the University of Zaragoza

The Public University of Zaragoza (UNIZAR) is involved in teaching and research. UNIZAR has made major contributions in mycobacterial genetic and in recent years has focused in the development of new vaccine candidates against TB. UNIZAR have constructed and characterised MTBVAC in collaboration of Dra. Brigitte Guicquel of the Pasteur Institute in Paris. TB research is carried out in collaboration with CIBERES, the research network on respiratory diseases of the Spanish Ministry of Health (Instituto de Salud Carlos III).

About TBVI

The TuBerculosis Vaccine Initiative (TBVI) is a non-profit foundation that facilitates the discovery and development of new, safe and effective TB vaccines that are accessible and affordable for all people. As a Product Development Partnership (PDP), TBVI integrates, translates and prioritises R&D efforts to discover and develop new TB vaccines and biomarkers for global use. TBVI provides essential services that support the R&D efforts of its consortium partners – 50 partners from academia, research institutes and private industry in the TB vaccine field. TBVI is one of the supporting partners of the Phase 1b study.

www.tbvi.eu

About SATVI

SATVI is a leading TB vaccine clinical research group at the University of Cape Town, with a field site in the town of Worcester. The goal of SATVI is the development of new and effective vaccination strategies against TB through conduct of clinical trials of new vaccine candidates and immunology studies to better understand risk for and protection against TB. SATVI has conducted 24 clinical trials of 9 novel TB vaccine candidates and BCG, involving more than 25,000 infants, children and adults in partnership with the Worcester community. The Phase 1b study was performed by SATVI. www.satvi.uct.ac.za