HC administration, and reached the maximal value (19.2 pg/ml) at the end of 24 hours considerably exceeding that in the control group (3 pg/ml). Therefore, after immunization with HC, leukocytes produced Th1, Th2 and Th17 cytokines, which play the different role in the immune response regulation. The obtained data explain the predominant production, in mice immunized with HC, of IgG1 and IgG2a subisotypes to the capsular polysaccharide of S. pneumoniae type 14, which are connected with IL-5 and IFN-γ production respectively. IL-17 produced by CD4+IL17+ stimulates the protection from extracellular bacteria including S. pneumoniae that was proved by challenging immunized mice with a lethal dose of S. pneumoniae type 14. As a result, all immunized mice survived as compared with 10% survival in the control group.

Conclusion: The ability of the hexasaccharide conjugate to stimulate production of Th1, Th2 and Th17 cytokines with the following production of IgG antibodies to the capsular polysaccharide explains its protective activity in mice after challenge with S. pneumoniae type 14.

http://dx.doi.org/10.1016/j.ijid.2014.03.1327

Type: Poster Presentation

Final Abstract Number: 63.023
Session: Vaccines and Vaccine Development
Date: Saturday, April 5, 2014
Time: 12:45-14:15
Room: Ballroom

Comparison of immunogenicity elicited by two prime-boost strategies against tuberculosis

M. Lu*, L. Bao

West China Center of Medical sciences, Sichuan University, Chengdu, China

Background: Tuberculosis remains a major health problem worldwide, and the efficacy of the only available vaccine Bacille Calmette-Guérin (BCG) varies from 0% to 80%. It is extremely urgent to find new vaccine candidates and develop novel vaccine approaches. The disease is caused by Mycobacterium tuberculosis whose preferred habitat is the host macrophage, and cellular immune responses are important in against intracellular bacterial infection. An efficacious tuberculosis (TB) vaccine will probably need to induce both CD4+ and CD8+ T-cell responses specific to a protective Mycobacterium tuberculosis antigen(s). The gene Rv1769 has been lost from BCG-Pasteur173 in vitro subculture, and some studies have demonstrated that it is excellent T cell antigen. To evaluate its immunogenicity, we used the prime-boost strategy to immunize BALB/c mice and detected its cellular immune response.

Methods & Materials: In our research, we immunized 4-5 week old pathogen-free BALB/c male mice by DNA/DNA and DNA/protein prime-boost vaccination strategies. Mice were killed 4, 8, 12, 16 weeks after the last boost, and we detected antibody titers in the serum, the proliferation rate of splenocytes, percentage of CD4+ and CD8+ T cells in the splenocytes and the IFN-γ and IL-4 levels in special antigen-stimulated splenocyte cultures to measure its immunogenicity. Measurement of these data are expressed as the mean ± standard errors (S.E.). Differences among the groups were analyzed by one-way ANOVA and differences between two groups were analyzed by Post Hoc Test and the differences were considered statistically significant for P < 0.05.

Results: Our data suggests that our novel DNA/DNA using Rv1769 vaccine could elicit the most long-lasting and strongest Th1 type cellular immune responses involving CD4+ and CD8+ T cells. This response is characterized by a strong antibody response, the proliferation rate of splenocytes, a high percentage of CD4+ and CD8+ T cells and high levels of IFN-γ in antigen-stimulated splenocyte cultures.

Conclusion: Our results provide evidence that the gene Rv1769 is a potential antigen or subunit vaccine to TB for further study, and in the future, we would consider build an in vivo challenge model to extend our findings to an infection/disease protection system.

http://dx.doi.org/10.1016/j.ijid.2014.03.1328

Type: Poster Presentation

Final Abstract Number: 63.024
Session: Vaccines and Vaccine Development
Date: Saturday, April 5, 2014
Time: 12:45-14:15
Room: Ballroom

Optimal approaches for the use of DTP-HepB-Hib vaccines in Uniject™ in resource-poor settings

E. Guillermet1,∗, H.M. Dicko 2, M. Le Thi Phuong 3, F. Hane 4, P. Jaillard 2, B.D. Gessner 1, A. Colombini 1

1 Agence de Médecine Préventive (AMP), Ferney-Voltaire, France
2 Agence de Médecine Préventive (AMP), Cotonou, Benin
3 National Institute of Hygiene and Epidemiology, Hanoi, Viet Nam
4 Université de Ziguinchor, Ziguinchor, Senegal

Background: We evaluated the feasibility and acceptability of a new presentation of liquid DTP-HepB-Hib vaccine in a Uniject™ device in Senegal and Vietnam.

Methods & Materials: We conducted 306 interviews, nine focus group sessions, observations of immunization sessions (using injection into an orange), and a desk review of national programmatic documents. Interviews were conducted with health workers, professional representatives, and caretakers. We assessed the logistical impact of Uniject™ with the WHO-developed immunization logistics planning tool.

Results: Interviewees emphasized efficacy and safety as key factors for acceptability of a new device and most perceived that the Uniject™ device represented an improvement over existing vaccine presentations. Compared to current presentations, Uniject™ reduced vaccine waste weight and volume, including the number of empty vials (from 51% in Vietnam to 68% in Senegal). By bundling needles and syringes, UnijectTM reduced the potential for stock-outs of one or the other. Time per vaccinated child decreased by 27%-61% depending on the setting. Each country used more than one DTP-HepB-Hib vaccine presentation, and Uniject™ decreased overall cold chain requirements for most but not all of these presentations. Informants reported that Uniject™ relatively light weight compared to traditional auto-disabled syringes should facilitate both outreach and mobile strategies. Challenges also were identified. As a novel injection device, some stakeholders may require reassurance that Uniject™ represents contextually appropriate technology. Vaccinator training will be required to address several technical issues (e.g., activating the device and the motion required for vaccine delivery) and perceptions (e.g., that the plastic reservoir might freeze more easily and be difficult to handle). A key concern was that the Uniject™ device was used already in Senegal for con-