



# Evaluation of Group B Streptococcus capsular polysaccharide protein conjugate vaccines in Balb/c mice

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## Introduction

- A Group B *Streptococcus* vaccine designed specifically for low-resource countries could drastically reduce the high incidence of invasive GBS disease in young infants in low-middle income countries.
- The Biovac Institute (Cape Town), in collaboration with Vaccines and Infectious Diseases Analytics Research Unit (VIDA) is working towards the development of a multivalent GBS polysaccharide-protein conjugate vaccine.
- This study evaluated immunogenicity of different formulations of GBS capsular polysaccharide (CPS) tetanus toxoid conjugates in mice

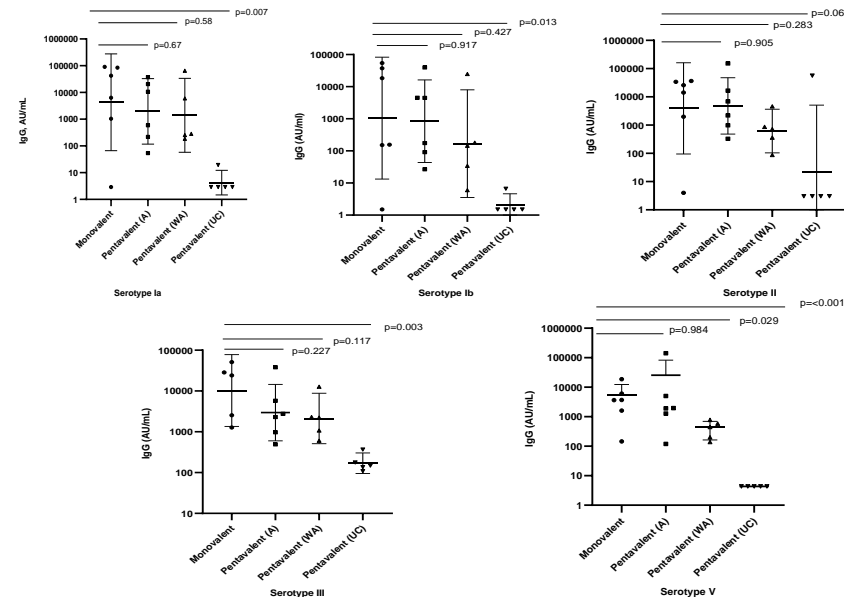
## Method

- Vaccine formulations included monovalent vaccines with Adjuvant, pentavalent (Ia, Ib, II, III and V) conjugate vaccine with Adjuvant (A), pentavalent conjugate vaccine without adjuvant (WA), and pentavalent polysaccharide only with Adjuvant (UC).
- Total amount of serotype specific CPS per dose was 1ug for the both monovalent and pentavalent formulations. The adjuvant used in the formulation was Aluminium Phosphate (AlPO4).
- Immune responses (IgG) in Balb/c mice were measured by bead-based assay on a multiplex Luminex platform.
- The functional activity of serum IgG was determined by opsonophagocytic activity (OPA) assays.

## Acknowledgement

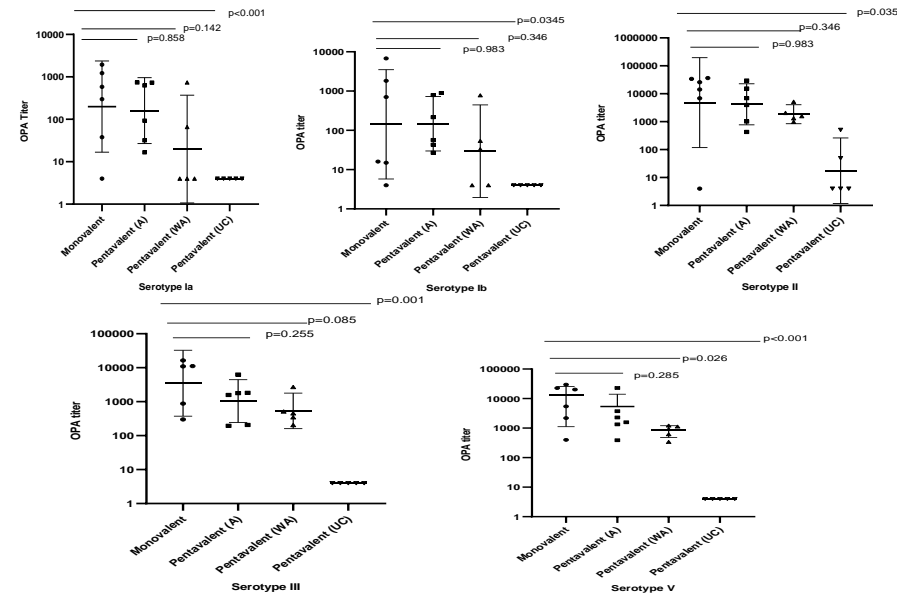
Staff of Central Animal Facility, Wits University

## Results



Comparison of IgG titers (GMC AU/ml) at day 42 for monovalent conjugate with adjuvant, pentavalent conjugate with Adjuvant (A), pentavalent conjugate without Adjuvant (WA) and pentavalent polysaccharide only with adjuvant (UC). Geometric means are shown as bars with 95% confidence intervals.

## Results



Comparison of OPA titers (GMC AU/ml) at day 42 for monovalent conjugate with adjuvant, pentavalent conjugate with Adjuvant (A), pentavalent conjugate without Adjuvant (WA) and pentavalent polysaccharide only with adjuvant (UC). Geometric means are shown as bars with 95% confidence intervals.

## Discussion and Conclusion

- Both *in vitro* and *ex vivo* assays demonstrated non-significant differences between monovalent conjugate vaccine formulations with adjuvant (considered as ideal vaccine formulation) and pentavalent conjugate vaccine with adjuvant (for all serotypes) or without adjuvant (for all serotypes, except serotype V).
- The study findings support further clinical evaluation of GBS pentavalent conjugate vaccine with or without adjuvant as potential vaccine formulations for pregnant women to protect their young infants against invasive GBS diseases.