

# WORLD CONGRESS ON RHEUMATIC HEART DISEASE

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**Title:** Circulating serum levels of Group A Streptococcal antibodies in RHD

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**Background & Aims:** Group A Streptococcus (GAS) infections may result in post-sequelae diseases, including acute rheumatic fever (ARF) and rheumatic heart disease (RHD), through autoimmune mechanisms. Given the putative causal link between immune responses to GAS and more severe disease states, we sought to evaluate levels of GAS antibodies within sera from RHD patients, especially following the demonstration of highly variable immune response profiles to GAS antigens in asymptomatic adolescent participants (Salie et al., 2023).

**Methods:** This research is part of the ongoing biomarker project emanating from the RHDGen Study. We employed ELISA assays, comprising a panel of ten GAS-antigens, to evaluate circulatory antibody levels in participants with RHD (n=60) against those in controls (n=60). We determined the antibody concentration (presented in arbitrary ELISA units EU) for seven GAS-antigens to date.

**Results:** Differential antibody titres were observed between RHD cases and controls for two antigens (SpyAD,  $p < 0.001$  and SpyCEP,  $p = 0.01185$ ). Of interest, despite its regular use in ARF diagnosis, SLO demonstrated a non-significant 1.15 average fold-increase ( $p = 0.1043$ ). (We are in the process of completing DNase B antibody assessments).

**Conclusions:** Significantly different levels of SpyAD and SpyCEP antibodies are present in sera of RHD patients in comparison to controls, thus presenting the potential of incorporating GAS-specific antibodies in RHD assessment. This work may serve to guide further investigations into characterising diagnostic assessment criteria for ARF and RHD, and contribute to an understanding of the pathogenesis of disease progression.