Background: Schistosomiasis is one of the most prevalent parasitic diseases worldwide: affecting around 250 million people, with 90% of cases occurring in sub-Saharan Africa. Elimination as a public health problem (PHP) is ambitious given the current lack of sensitive and specific diagnostics. There is urgent need for the development of point-of-care tools which are rapid, affordable, and easy to use. The current study evaluates and characterises the reactivity of *Schistosoma* linear B-cell peptide epitopes via serological assays to assess their potential as diagnostic biomarkers.

Methodology: In silico analyses was carried out to identify protein family, sequence conservation and potential cross reactivity of five selected peptides (4,5,9,11,15). The peptides were subsequently evaluated for immunoreactivity via indirect enzyme-linked immunosorbent assays (ELISAs). IgM and IgG responses were measured in serum samples from an endemic population in Zimbabwe with known infection status determined by microscopy. Sensitivity and specificity were assessed by comparing serological outcomes with microscopy as the reference standard.

Principle Findings: Peptides 4,5,9, and 11 are localised to the parasite tegument and 4,5, and 15 are observable in all parasite life cycle stages. Accessibility and continual expression make peptides accessible to the host immune response. All were relatively conserved across *Schistosoma* species and exhibited little cross-reactivity outside the genus.

ELISA results: (to be edited before thesis submission when downstream analyses have been completed). Overall, IgG reactivity towards peptides was lower compared to that of IgM.

Conclusion: Due to their immunogenic and sequence profiles, these peptides remain promising candidates for *Schistosoma* specific antibody detection. Future studies should prioritise assay repetition, expanded sample size to improve assay validation and optimisation. Overall, the creation and improvement of diagnostic methods is an urgent step towards the elimination of schistosomiasis of as a PHP.