Title: T cell and B cell immunological responses by tuberculous antigens in Japanese populations with different bacterial antigen expressions

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Body: [Background] Although IFN-γ releasing assay is replacing conventional tuberculin skin test, the immunological responses to various tuberculous antigens were not precisely investigated. [Objective] To examine T cell and B cell responses elicited by active and dormant antigens. To find promising markers of re-activation and/or keeping dormancy through the following of the clinical evaluation of individuals with active, past and latent TB infection (LTBI) [Method] Study populations were 10 active, 20 past, 30 LTBI and 20 healthy controls. We used recombinant proteins of active antigens like CFP-10, ESAT-6, TB7.7 and dormant antigens like Acr, HrpA, MDP-1, and HBHA. Overlapping peptides of active antigens were prepared for epitope mapping. B cell responses were assayed by ELISA and T cell responses by IFN-γ ELISPOT. [Result] Approximately 55% possess HLA A*2402 and 25% HLA DRB1*0901. Duration from the last treatment was 69.7±5.6 months (past TB patients) and from the assay 35.4±0.5 months. T cell response to CFP-10 and/or ESAT-6 was positive in most cases while only one patient was positive for TB7.7. Antigenic regions of active antigens were detected. Some patients revealed positive ELISPOT to dormant antigens, especially Acr and MDP-1. There is a discrepancy between the B cell and T cell response elicited by dormant antigen. Auto-antibody to IFN-γ was negative in all patients. [Conclusion] While there was similar tendency in active TB patients, the immune response to tuberculous antigen was variable among past TB and LTBI patients. The response frequency, antigen variability, molecular features of antigen, and association with HLA will be discussed.