Summary

Tuberculosis (TB) continues to be the most devastating global health problem. TB has enormous bearing on human morbidity and mortality. Any test for its early diagnosis will help in timely initiation of the treatment, cure and therefore reduction in the transmission of the disease. Although, many diagnostic tests are available but none of them can be relied for the early diagnosis of the disease, especially in the population living in TB-endemic zones. PhoP is a protein which is widely associated with the virulence of the *Mycobacterium tuberculosis (Mtb)*, the etiological agent of TB. Unfortunately, nothing has been known about its role in the diagnosis of TB. Consequently, for the first time, we employed PhoP to screen its Ab response in the healthy, patients and their contacts to monitor if any discrete pattern existed among the tested groups. Further, we also employed early secretory antigens ESAT-6 and CFP-10, and latency associated antigen Acr-1 to cover the different stages of disease progression. We noticed an unique pattern of Ab response against PhoP but not ESAT-6, CFP-10 and Acr-1 in healthy, patients and close contacts. Excitingly, healthy subjects showed maximum Ab titer against PhoP followed by contacts and least in patients. In addition, distinct increase in the ratio of Acr-1/PhoP was observed among healthy, contacts and patients. Furthermore, we noted that the relapsed and diabetic TB patients exhibited lesser level of anti-PhoP antibodies, compared to patients. This study for the first time demonstrates a novel role of anti-PhoP Abs as a possible marker for the diagnosis of TB and therefore will aptly assist in the early action and management of the disease.