

only method for follow-up analysis of patients with TB in many settings.

Short Summary of recent Bacterial Biomarkers

To cope with the above-mentioned problems relating to culture examination, several biomarkers have recently been developed. Alere Determine TB LAM Ag (Abbott, US), a diagnostic method using urine specimens, is already endorsed by WHO and in clinical use for the diagnosis of TB in PLHIV patients with less than 200/ μ L CD4 cells,

Citation: Mitarai S (2020) Tuberculosis: Culture-Free Technology for Diagnosis and Follow-Up of Patient. *Diagn Pathol Open* 5: 165.

10. Chikamatsu K, Aono A, Yamada H, Sugamoto T, Kato T, et al. (2014) Comparative evaluation of three immunochromatographic identification tests for culture confirmation of *Mycobacterium tuberculosis* complex. *BMC Infect Dis* 14: 54.