T-CELL RESPONSES ASSESSED USING IGRA AND TST
ARE NOT CORRELATED WITH AFB GRADE AND
CHEST RADIOGRAPH IN PULMONARY
TUBERCULOSIS PATIENTS

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Abstract. A definitive marker determining the bacillary load of Mycobacterium
tuberculosis (MTB), the causative agent of tuberculosis (TB), and hence disease
severity, is required for patient monitoring and management. In this study, the
association among T-cell responses based on the interferon-gamma release assay
(IGRA) and the tuberculin skin test (TST), the sputum acid-fast bacilli (AFB) grade
and types of radiological lesions were analyzed in new cases of pulmonary TB
patients (n = 54) at Srinagarind Hospital, Khon Kaen, Thailand between September
1, 2012 and March 31, 2014. It was found that infiltrative and cavitary lesions from
chest radiographs were associated with high sputum AFB grade (p = 0.048). T-cell
responses from both IGRA and TST were not correlated with sputum AFB grade.
Neither IGRA nor TST was correlated with the bacillary load as defined by AFB
grade and chest radiographs. Patients with cavitary lesions on chest radiographs
tended to have high IFN-γ concentrations and large TST indurations. In addition,
TB patients with previous BCG vaccination showed significantly higher IFN-γ
induction compared to the non-vaccinated group (p = 0.001). This study showed
T-cell responses based on both IGRA and TST were not correlated with AFB grade
and chest radiograph. In areas of high rates of BCG vaccination, as in Thailand,
the BCG may affect IGRA and TST interpretations.

Keywords: tuberculosis, bacillary load, Mycobacterium tuberculosis, IGRA, TST