Illustrations
Fig 8: Pattern of protein secretion during logarithmic growth of *M. habana*.
Fig 9: Average weekly body weights of vaccinated and control mice after infectious challenge with *M. tuberculosis* H$_{37}$Rv.
Fig. 10: Lung section of mouse vaccinated with secretory proteins (SP, 100 ug/mouse) of M. habana after 28 days of infectious challenge with M. tuberculosis H37Rv (1 x 10⁹ AFB/mouse) showing 50-60 AFB/oil immersion field (Fite's method, 1000X)

Fig 11 : Lung section of mouse vaccinated with secretory proteins (100ug/mouse) of M. habana after 28 days of challenge with M. tuberculosis H₃⁷RV (1X10⁹ AFB /mouse ) showing partial clearance of acute inflammatory reaction with appearance of small air spaces in alveoli (Haemotoxylin Eosin method,200X).
Fig. 12: Lung section of mouse vaccinated with secretory proteins + FIA (100 ug/mouse) of *M. habana* after 28 days of infectious challenge with *M. tuberculosis* H37Rv (1 x 10⁹ AFB/mouse) showing 40-55 AFB/oil immersion field (Fite's method, 1000X).

Fig. 13: Lung section of mouse vaccinated with secretory proteins + FIA (100 ug/mouse) of *M. habana* after 28 days of challenge with *M. tuberculosis* H37RV (1X10⁹ AFB/mouse) showing mildly to moderate inflammatory reaction with appearance of small air spaces in alveoli (Haemotoxylin Eosin method, 200X).
Fig. 14: Lung section of mouse vaccinated with *M. habana* vaccine (6.27x10⁹ AFB/mouse) after 28 days of infectious challenge with *M. tuberculosis* H₃⁷,Rv (1 x 10⁹ AFB/mouse) showing 20-30 AFB/oil immersion field (Fite's method, 1000X)

Fig. 15: Lung section of mouse vaccinated with *M. habana* vaccine (6.27x10⁹ AFB/mouse) after 28 days of challenge with *M. tuberculosis* (1x10⁹ AFB/mouse showing restoration of normal morphology of alveolar septa with complete disappearance of inflammatory reaction (Haemotoxylin Eosin method, 200x).
Fig 16: Lung section of control mouse after challenge with *M. tuberculosis* H₃₇Rv (1x10⁹ AFB/mouse) showing large number of acid fast bacilli (AFB) in groups and clusters/oil immersion field (Fite's method, 1000x).

Fig 17: Lung section of control mouse after 28 days of challenge with *M. tuberculosis* H₃₇Rv (1x10⁹ AFB/mouse) showing acute inflammatory reaction (Bronchopneumonia) (Haematoxylin Eosin method, 200x).
Fig 18: Colony forming unit (CFU)/gm of Lung tissues of vaccinated and control mice after 28 days of infectious challenge with *M. tuberculosis* H$_{37}$Rv.

Fig 19: Colony forming unit (CFU)/gm of spleen tissues of vaccinated and control mice after 28 days of infectious challenge with *M. tuberculosis* H$_{37}$Rv.
Fig 20: Percent survivors of vaccinated and control mice after infectious challenge with *M. tuberculosis* H₃₇Rv.

Fig 21: Mean survival time (MST) of vaccinated and control mice on day 60 after infectious challenge with *M. tuberculosis* H₃₇Rv.
Fig 22: Lymphoproliferative response in spleen lymphocytes (SPLC) of sensitized and control guinea pigs with eliciting antigens, Secretory proteins (SP, 50 μg/ml) of M. habana, PPD (1 μg/ml).

LPI: Lymphoproliferative index
Fig 23: Delayed type hypersensitivity response in sensitized and control guinea pigs with eliciting antigen secretory proteins (SP) of *M. habana* (100ug/animal).

Fig 24: Delayed type hypersensitivity response in sensitized and control guinea pigs with eliciting antigen PPD(5 T.U./animal).
Fig 25: Ouchterlony: wells I and II are of secretory proteins (SP) of *M. habana* (10th day growth, 20μg/well). wells 'a' to 'h' are of antisera raised against SP in rabbit (20 μl/well).
Fig 26: SDS-PAGE and silver staining of secretory proteins (SP) of 10 day growth of *M. habana*.

Lane 1: Molecular weight markers.
Lane 2\&3: SP precipitated by 20% TCA.
Lane 4: Concentrated SP.
Lane 5: SP precipitated by 80% ammonium sulphate.
Lane 6: SP precipitated by 1:3 acetone.
**Fig 27:** SDS-PAGE and coomassie blue staining.
Lane 1. Molecular weight markers
Lane 2. Concentrated secretory proteins (SP).
Lane 3. SP precipitated by 80% ammonium sulphate.
Lane 4. SP precipitated by 20% TCA
Lane 5. SP precipitated by 1:3 Acetone.
Fig 28:  Western blots of secretory proteins (SP) of *M. habana* (10 days growth) with panel of antibodies (Abs)
Lane 0 & 01. Molecular weight markers
Lane 1. anti *M. habana* (sonicate ) serum
Lane 2. anti BCG serum
Lane 3. anti *M. tuberculosis* H₃₇Ra serum
Fig 29: Western blots of secretory proteins (SP) of *M. habana* (of 10th day growth) with panel of antibodies.

Lane 0: Molecular weight markers.
Lane 1: Pooled tuberculosis patient's serum
Lane 3: anti SP serum.
Fig 30: Western blots of *M. habana* antigen with panel of antibodies (Abs)
Lane 0. Molecular weight markers
Lane 1. Pooled tuberculosis patient's serum
Lane 2. anti SP serum
Fig 31: Western blots of *M. tuberculosis* H₃₇Rv antigen with panel of antibodies (Abs).
Lane 0. Molecular weight markers
Lane 1. Pooled tuberculosis patient's serum.
Lane 2. anti SP serum.