

## Differential protein expression by *Mycobacterium tuberculosis* strains

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The Beijing strain family has often been associated with tuberculosis outbreaks and drug resistance worldwide (1). In this study we have compared the protein expression and antigen recognition profiles of a local Beijing strain, with a less prevalent clinical isolate and the laboratory strain *Mycobacterium tuberculosis* H37Rv. Using two-dimensional electrophoresis, mass spectrometry and Western blot analysis we have identified several proteins as quantitatively increased or decreased in both clinical strains compared to H37Rv. Remarkably, the Beijing strain showed increased expression of alpha-crystallin and decreased expression of Hsp65, PstS1, and the 47 kDa protein compared to the other clinical strain and H37Rv. One-dimensional and two-dimensional Western blot analysis of antigens expressed by the three strains using plasma from TB patients showed differential antigen expression by strains and patient-to-patient variation in humoral immunity. These observed differences could relate to the success of the Beijing strain family, measured by prevalence and global dissemination, compared to other *M. tuberculosis* strains. Furthermore, variability in pathogen protein expression as well as in the host humoral response may complicate the development of serodiagnostic reagents for TB (2).

<sup>1</sup>Bifani, P. J., Mathema, B., Kurepina, N. E. and Kreiswirth, B. N. (2002). Global dissemination of the *Mycobacterium tuberculosis* W-Beijing family strains. *Trends Microbiol* 10, 45-52.

<sup>2</sup>Lyashchenko, K., Colangeli, R., Houde, M., Al Jahdali, H., Menzies, D. and Gennaro, M. L. (1998). Heterogeneous antibody responses in tuberculosis. *Infect Immun* 66, 3936-3940.