



## Transferrin Receptor and Ferritin Expression in Primary Lung Lesions of Tuberculosis

Researchers at Colorado State University's Department of Microbiology, Immunology, and Pathology have improved the body of knowledge on TB pathogenesis. By better understanding its pathogenesis, researchers can improve the efficacy of the existing vaccine called BCG (*Mycobacterium bovis*), disease staging, and TB assay accuracy.

Using the guinea pig model of tuberculosis, the CSU researchers show extra-cellular ferric iron accumulates within the necrosis in primary lesions and coincides with the development of dystrophic calcification. The accumulation of iron within primary lesions was preceded by the expression of transferrin receptors and H ferritin by macrophages.

BCG vaccination ameliorated extra-cellular ferric iron accumulation as well as necrosis, and dystrophic calcification. These data demonstrate that BCG vaccination ameliorates necrosis and dystrophic mineralization as well as iron accumulation in part by down-regulating the expression of macrophage transferrin receptors and H ferritin *in vivo*.

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### Inventor Information

Dr. Randall Basaraba

Dr. Helle Bielefeld-Ohmann

### Features and Benefits

- The discovery that microphage transferring and ferritin expression precedes iron accumulation presents a better understanding of TB pathogenesis, which can lead to improved vaccine(s) staging, and assay accuracy.

### Contact Information:

Todd Headley

Phone: 970.491.5000

Email: [todd@microrx.org](mailto:todd@microrx.org)

[www.MicroRx.org](http://www.MicroRx.org)