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Immunology

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We are trying to investigate the molecular basis of susceptibility and resistance in murine models of tuberculosis. It is well known that helper T (Th) cell subsets play a central role in the outcome of TB pathogenesis. While Th1 cells confer resistance, Th2 and T regulatory cells enhance disease progression. However, the precise activity of these subsets of Th cells during the progression of infection has not been well studied. We are investigating the activity of different Th subsets in reporter knock-in and knock-out animals and their co-relation with disease progression and trying to design vaccine.

CURRENT RESEARCH

Topic	Methodology	Application
Improvements of vaccine efficacy of Bacillus Calmette Guerin (BCG) with simultaneous inhibition of T helper 2 and induced T regulatory cells by therapeutic compounds	CFU, T cell isolation, Proliferation of T cells, FACS sorting of specific T cells, Cytokine profiling by Luminex Technologies,	Treatment of immunomodulators with BCG induce more protection in mouse and produce better antigen specific memory cells

Past Researches

1. Anamika Ghosh, Sultan Tousif, **Debapriya Bhattacharya**, Sachin K. Samuchiwal, Kuhulika Bhalla, Megha Tharad, Sushil Kumar, Prem Prakash, Purnima Kumar, Gobardhan Das, Anand Ranganathan (2013). Expression of the ARPC4 Subunit of Human Arp2/3 Severely Affects Mycobacterium tuberculosis Growth and Suppresses Immunogenic Response in Murine Macrophages. **PLoS ONE**. e69949
2. Vandana Kaul, **Debapriya Bhattacharya**, Yogesh Singh, Luc Van Kaer, William R Bishai and Gobardhan Das (2012). Important Role of Prostanoid Receptor EP2 in Host Resistance to Mycobacterium tuberculosis Infection in Mice. **Journal of Infectious Disease**.
3. Ved Prakash Dwivedi, **Debapriya Bhattacharya**, Samit Chatterjee, Luc Van Kaer, Debprasad Chattopadhyay, William R. Bishai, and Gobardhan Das. *Mycobacterium tuberculosis* directs T helper 2 cell differentiations by inducing interleukin-1b production in dendritic cells. **J. Biol. Chem**.
4. Ved Prakash Dwivedi, Sultan Tousif, **Debapriya Bhattacharya**, Luc Van Kaer, Jyoti Das, and Gobardhan Das (2011). Transforming growth factor-b inversely regulates the in vivo differentiation of IL-17-producing CD4+ and CD8+ T cells. **J. Biol. Chem**. 287: 2943–2947
5. Ramesh Chandra Rai, **Debapriya Bhattacharya** and Gobardhan Das (2011). "Stem cells in infectious diseases: insight and control of infectious disease in global scenario". **ISBN 979-953- 307-497-8**.
6. Palakkod G. Vathsala, Chaitanya Dende, **Debapriya Bhattacharya**, Gobardhan Das, Pundi N. Rangarajan, Govindarajan Padmanaban (2012). Curcumin-Arteether Combination Therapy of Plasmodium berghei-Infected Mice Prevents Recrudescence through Immunomodulation. **PLoS ONE**. 7: e29442. doi:10.1371
7. Nath. P. Sahu R. Kabita. Sk. **Bhattacharya. D**. Vitellogenesis with special emphasis on Indian fishes. *Fish Physiol Biochem* (2007) 33:359-366
8. Nath P, SK. Kabita, **Bhattacharya D**, Sarkar S. (2007). "Environmental and hormonal control of fish reproduction with special emphasis on vitellogenesis": In: Natural and Anthropogenic Hazards on Fish & Fisheries (ed Umesh C. Goswami) **Narendra Publishing House**. Delhi. India.

Future Interests

Immunology of tuberculosis, Vaccine design.

Extra Interests

Reading, Playing outdoor games, listening music