Tata Institute of Fundamental Research
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Seminar

Immune homeostasis by regulatory T cells and circulating immunoglobulins

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Maintenance of immune homeostasis is a worthy cause. This process ensures immune tolerance for the self-antigens to avert autoimmune diseases, prevents detrimental inflammatory responses following encounter with innocuous antigens, clears altered cells and elicits optimal response to clear pathogens. Immune homeostasis is a complex process implicating the cross-talk between various immune cells and their products. Over the last 18 years, research conducted by my team and myself has been focused investigating the mechanisms by which $CD4^+CD25^+FoxP3^+$ regulatory T cells (Tregs), B cells and circulating immunoglobulins maintain immune homeostasis, and exploiting this fundamental knowledge for the translational research. Our research led to unravelling of novel mechanisms by which Tregs, B cells and their products, the immunoglobulins, accomplish immune homeostasis by regulating the dendritic cell and basophil functions, and T cell polarization. These fundamental discoveries were subsequently exploited for translational purposes wherein we provided a "proof of principle" for the efficient targeting of Tregs (without their depletion rather transiently inhibiting their negative influence on the immune system) by small molecule antagonists to CCR4 that exhibited 'adjuvant' like properties to enhance immune response to the vaccines. Further, the ability of therapeutic normal immunoglobulin to reciprocally regulate pathogenic Th17 and Tregs in autoimmune conditions provides translational insight and therapeutic utility of circulating normal immunoglobulins in establishing immune tolerance.

Tuesday, Aug 6th 2019

4:00 PM (Tea/Coffee at 3:30 PM)

Seminar Hall, TIFR-H