

## **Adjustable locks and flexible keys: plasticity in immune recognition**

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Among the fundamental issues critical for body's defense is the maintenance of self-nonself discrimination. How does the immune system handle a limitless antigenic space and efficiently discriminate within a biological energy 'budget'? Is there a unique antibody for every new antigen that is encountered? Are there strategies built into the immune system to cope with the pathogenic intelligence? Crystallographic studies on antibody diversity have given newer insights into the mechanism of repertoire amplification at the germline stage offering interesting physiological perspectives on primary immune response. Structural data pertaining to the interactions between germline antibodies and their corresponding antigens redefine antigen recognition within the established norms of structural chemistry bringing out intriguingly new aspects of antigen recognition in humoral antibody response. It was discovered that while conservation of conformational repertoire is a key characteristic of mature antibodies achieved through affinity maturation, the germline antibodies, at the initial stages of antigen encounter, maintain substantial plasticity, accommodating a broad specificity repertoire. Indeed, the versatility of antigen-antibody interaction is a physiological requirement.