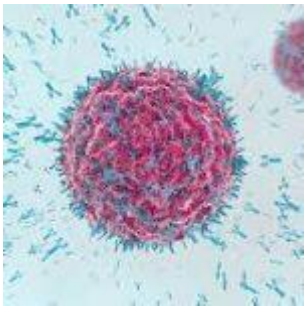
B cell signalling deficiencies – new insights into treatments



In a recent paper, researchers have identified a key protein which is involved in B cell signalling. Akatsu, et al., identified CD22, a molecule which is key for the B cell signalling process, which can switch from inhibition to activation when B cell receptor (BCR) signalling fails due to an underlying immune disorder.

When BCRs are activated by foreign molecules, it promotes the production of antibodies by B cells. CD22 regulates the production of antibodies by B cells through inhibition. Activation of BCR signalling is regulated by CD45 whereby genetic defects in CD45 have been linked to immunodeficiency syndrome.

The researchers sought out to investigate the relationship between CD22 and BCR signalling in the absence of CD45 to look for mechanisms describing the restoration of BCR signalling.

In this present study they found that by inhibiting the binding between CD22 and its ligands had no effect on BCR signalling in terms of restoration in B cells lacking CD45. The findings of this study may lay the foundations for developing/improving therapies to treat individuals with immune disorders involving B cell signalling deficiencies.

Journal article: Akatsu, C., et al., 2022. The inhibitory

coreceptor CD22 restores B cell signaling by developmentally regulating Cd45−/− immunodeficient B cells. ***Science Signaling.***

Summary by Stefan Botha