THE ANTAGONISTIC FUNCTION OF COMPLEMENT RECEPTORS CR1 (CD35) AND CR2 (CD21) ON HUMAN B CELLS IN HEALTH AND AUTOIMMUNITY

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As shown earlier, CR1 (CD35) on human B cells mediates inhibition of various BCR-induced functions (Józsi et al, JI, 2002) - in contrast to the stimulatory role of CR2 (CD21). The reduced expression of CD35 and CD21 on the B cells of RA patients is known for long, however their exact role in B cell tolerance and autoimmunity is not fully understood. To analyze the possible mechanisms we studied the expression and function of CR1 and CR2 on various B cell subsets of healthy donors and RA patients at various stages of the disease. We found, that $CD19^{+}CD27^{-}$ naive B cells up-regulate the expression of the inhibitory CR1 during differentiation to $CD19^{+}CD27^{+}$ memory B cells both in healthy donors and in RA patients, while the expression of the activatory CR2 is down-regulated. We found that the inhibitory function of CD35 is maintained in RA patients, despite its significantly reduced expression compared to healthy individuals. Besides blocking BCR-induced proliferation, CR1 inhibits the differentiation of B cells to plasmablasts and Ig-production.

Our data show that the expression of CD35 and CD21, these two antagonistic complement receptors is regulated differentially during the development of human B cells, a phenomenon which may influence the maintenance of peripheral B cell tolerance and might be involved in the pathogenesis of autoimmune processes.