Abstract

Signalling through antigen specific receptors BCR and TCR is crucial for the development and the function of T cells and B cells. Although much is known about their signalling pathways a number of observations still remain to be clarified. In my thesis, I focused on the roles of Src-family kinases (SFKs) in the initiation of BCR- and TCR-mediated signalling. Several studies have suggested that in contrast to TCR signalling, BCR signal transduction could be initiated independently of SFKs or with only a minimal activity of these kinases. We used genetic approach to study the differences between TCR and BCR signalling apparatuses combined with inhibition of SFKs by pharmacological approach. Using this experimental set up, we show that the differences in the roles of SFKs and in the activities of SFKs needed for the initiation of BCR and TCR signalling are likely based on different composition or architecture of BCR and TCR. We further show that the SFK activity required for the initiation of TCR signalling is lower if ZAP-70 kinase is substituted with Syk kinase, which most likely reflects the different molecular mechanisms of Syk and ZAP-70 kinase activation.

Key words: Src-family kinases, BCR receptor, TCR receptor, PP2, B cells, T cells, BCR signalling, TCR signalling.