

P023 The PI3K p110 δ is required for PIP3 accumulation at the immune synapse

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The accumulation of PIP3, generated by phosphoinositide 3-kinases (PI3Ks), at the plasma membrane is among the earliest biochemical signals observed upon the formation of the immune synapse. We have analyzed the signaling events in CD4⁺ T cells from mice in which the PI3K p110 δ subunit has been genetically or pharmacologically inactivated.

Using fluorescent-specific probe, we showed that constant kinase activity of p110 δ , but not p110 γ , is essential for PIP3 accumulation at the immune synapse. In contrast, p110 γ , but not p110 δ , contributes to chemokine-induced PIP3 recruitment to the membrane. In p110 δ -deficient T cells, the antigen-induced accumulation of the TCR, but not PKC θ , at the immune synapse is reduced. Moreover, the frequency of conjugate formation between T cells and APCs is impaired. The co-stimulator molecule CD28 contributes to, but is not essential for, antigen-induced PI3K activation. Surprisingly, the YNMN PI3K-binding motif of CD28 does not seem to be required for CD28 contribution to PI3K activation. CD28 may in part contribute to PIP3 accumulation by stabilizing the synapse. Our results demonstrate at the single-cell level that p110 δ is the main PI3K isoform required for the accumulation of PIP3 at the immune synapse.