Association of the High-Affinity Receptor for IgG with the Protein Tyrosine Kinases Hck and Lyn

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Fc receptors link the cellular and humoral limbs of the immune system. Upon cross-linkage by ligand, they activate multiple functions in hematopoietic cells. The high-affinity IgG receptor FcγRI (CD64) is expressed constitutively on monocytes and macrophages, and is inducible on neutrophils. FcγRI has recently been shown to be noncovalently associated with the signal-transducing (γ) subunit of the high-affinity IgE receptor (FcεRIγ). Induction of cytoplasmic protein tyrosine phosphorylation by FcγRI cross-linking is known to be important in mediating FcγRI-coupled effector functions. Recently, Syk has been implicated in this role. We now report that the Src-type kinases Hck and Lyn are physically and functionally associated with FcγRI. Hck and Lyn coimmunoprecipitated with FcγRI from detergent lysates of normal human monocytes and the monocytic line THP-1. Hck and Lyn showed rapidly increased phosphorylation and increased exogenous substrate kinase activity following cross-linking of FcγRI. These results demonstrate both physical and functional association of the FcγRI/ FcεRIγ receptor complex with Hck and Lyn, and suggest a potential signal-transducing role for these kinases in monocyte/macrophage activation.