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SH2-Binding Motif

National Cancer Institute

Source

National Cancer Institute. *SH2-Binding Motif*. NCI Thesaurus. Code C14108.

Typically found in signaling proteins, the SH2-Binding Motif mediates regulated high-affinity physical interaction (binding) with the target SH2 (SRC Homology 2) domain. SH2 domains of ~100 amino acids bind to specific phosphotyrosine (pY)-containing motifs with dissociation constants of ~50-500 nM. A conserved pocket of SH2 domains recognizes the pY, and a more variable pocket binds residues C-terminal to pY that confer specificity. SH2 domains balance high affinity for pY and recognition of adjacent residues to allow specific discrimination. The SH2 domain, an anti-parallel b-sheet between a-helices, provides a positively charged b-sheet pocket for binding of pY moieties, and an extended b-sheet surface for binding residues C-terminal to pY. B-sheet surface differences have significant effects on ligand-specificity. (NCI)