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DH Domain

National Cancer Institute

Source

National Cancer Institute. *DH Domain*. NCI Thesaurus. Code C14076.

The Dbl homology (DH) or RhoGEF domain consists of a 150 amino acid region that induces Rho family GTPases to displace GDP. This effectively activates the Rho GTPase by allowing binding to GTP, which is in excess over GDP in the cell. The DH domain is invariably preceded by a pleckstrin homology (PH) domain. While not absolutely required for catalysis of nucleotide exchange, the PH domain appears to greatly increase catalytic efficiency in many cases. Rho proteins control actin dynamics, gene expression, membrane trafficking, growth factor signaling, and cellular transformation. Proteins encoding DH domains (RhoGEFs) also play a role in these events as they function as the primary activators of Rho GTPases. In fact, many RhoGEFs were identified based on their transforming activity, which was abrogated upon disruption of their DH domain. (Pawson Lab, SLRI, Mount Sinai Hospital, 2003)