In Silico Identification and Biochemical Characterization of a Novel, Putative CrkL-SH2 Binding Partner.

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Abstract:
Cellular signaling pathways commonly involve transmembrane receptors, scaffolding proteins, and adaptor proteins. However, how these pathways assemble inside the cell is only partially understood. Crk (CT10 Regulator of Kinase) and CrkL (Crk-Like) are important adaptor proteins in several signaling pathways, connecting transmembrane proteins or scaffolding proteins to downstream effectors. Crk and CrkL are best known for their roles in regulating cell proliferation and cell migration. While several Crk/CrkL-binding transmembrane receptors and scaffolding proteins have already been characterized, a bioinformatic analysis suggests several remain to be identified. DCBLD1 is a novel CrkL-SH2 (Src Homology 2) binding partner. Hydrogen peroxide, a tyrosine phosphatase inhibitor, stimulated DCBLD1 to bind to the CrkL-SH2 domain, and binding was also induced by Src Family Kinases (SFKs).