CD93 interacts with the PDZ domain-containing adaptor protein GIPC

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2005 JUN 8 - (NewsRx.com) -- CD93 interacts with the PDZ domain-containing adaptor protein GIPC.

According to recent research from the United States, "CD93 was originally identified as a myeloid cell-surface marker and subsequently associated with an ability to modulate phagocytosis of suboptimally opsonized immunoglobulin G and complement particles in vitro.

"Recent studies using mice deficient in CD93 have demonstrated that this molecule modulates phagocytosis of apoptotic cells in vivo. To investigate signal transduction mechanisms mediated by CD93, CD93 cytoplasmic tail (CYTO)-binding proteins were identified in a yeast two-hybrid screen.".

"Fifteen of 34 positive clones contained a splice variant or a partial cDNA encoding GIPC, a PSD-95/Dlg/ZO-l (PDZ) domain-containing protein, shown previously to regulate cytoskeletal dynamics. A single clone of the N-terminal kinase-like protein p105 and an uncharacterized stem cell transcript also showed specificity for binding to the CYTO by yeast two-hybrid," said the authors.

"Using the yeast two-hybrid system and an in vitro glutathione S-transferase fusion protein-binding assay," wrote S.S. Bohlson and coworkers at the University of California, Irvine, "the binding of GIPC to the CYTO was shown to involve a newly identified class I PDZ-binding domain in the CD93 carboxyl terminus.

"Four positively charged amino acids in the juxtamembrane domain of CD93 were shown to be critical in stabilizing these interactions.".

Bohlson continued, "Treatment of human monocytes with a cell-permeable peptide encoding the C-terminal 11 amino acids of CD93 resulted in an enhancement of phagocytosis, supporting the hypothesis that this protein-protein interaction domain is involved in the modulation of phagocytosis.".

"These protein interactions may participate as molecular switches in modulating cellular phagocytic activity," concluded scientists.

Bohlson and colleagues published their study in the Journal of Leukocyte Biology (CD93 interacts with the PDZ domain-containing adaptor protein GIPC: implications in the modulation of phagocytosis. J Leukocyte Biol, 2005;77(1):80-89).

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