

DUALmembrane System: Literature Overview

Selected Reviews

The post-genomic era of interactive proteomics: Facts and perspectives

Auerbach, D., Thaminy, S., Hottiger, M., and Stagljar, I. (2002) *Proteomics* 2, 611-623

Presents an overview of the different genetic and biochemical methods currently used to identify protein-protein interactions, including their relative strengths and shortcomings and discusses future approaches for high-throughput protein interaction screening.

Utilizing the split-ubiquitin membrane yeast two-hybrid system to identify protein-protein interactions of integral membrane proteins

Iyer *et al.* (2005) *Science STKE* 15(275):p13

A technical overview of the DUALmembrane system and its adaptations for identifying novel protein-protein interactions. Supplies vector and strain data, protocols, as well as hints and troubleshooting sections.

Selected Original Literature

The familial dementia BRI2 gene binds the Alzheimer's gene APP and inhibits Abeta production

Matsuda, S. *et al.* (2005) *JBC* (in press) 10.1074/jbc.C500217200

This research paper describes a DUALmembrane screen of the amyloid precursor protein APP against a human adult brain cDNA library. Previously known interactors such as the adaptor protein Fe65, as well as novel interactors were identified.

Erg28p is a key protein in the yeast sterol biosynthetic enzyme complex

Mo C., Bard, M. (2005) *J Lipid Res* (Epub ahead of print)

The yeast split-ubiquitin system to study chloroplast membrane protein interactions

Pasch, J.C., Nickelsen, J., Schünemann, D. (2005) *Appl Microbiol Biotechnol* / DOI 10.1007/s00253-005-0029-3

Studies of yeast oligosaccharyl transferase subunits using the split-ubiquitin system: topological features and *in vivo* interactions

Yan, A., Wu, E., Lennarz, W.J. (2005) *Proc Natl Acad Sci USA* 102(20):7121-7126

Use of the Split-Ubiquitin Two-Hybrid System to Identify Proteins Interacting With the Alzheimer Proteins APP and LRP

Vitale, R. and Buxbaum, JD. (2004) *Biol Bull.* 207(2):167

This research paper describes a screen of two proteins involved in Alzheimer's disease: the amyloid precursor protein (APP) and LDL receptor related protein (LRP) against a mouse brain cDNA library using the DUALmembrane system. Several interactors were rescued, including previously known proteins such as the adaptor protein Fe65.

The yeast split-ubiquitin membrane protein two-hybrid screen identifies BAP31 as a regulator of the turnover of endoplasmic reticulum-associated protein tyrosine phosphatase-like B

Wang *et al.* (2004) *Mol Cell Biol.* 24(7):2767-78

The Arabidopsis putative G protein-coupled receptor GCR1 interacts with the G protein alpha subunit GPA1 and regulates abscisic acid signaling

Pandey, S. and Assmann, SM. (2004) *Plant Cell* 16(6):1616-32

K⁺ channel interactions detected by a genetic system optimized for systematic studies of membrane protein interactions

Obrdlik *et al.* (2004) *Proc Natl Acad Sci USA.* 101(33):12242-7

Identification of Novel ErbB3-interacting Factors Using the Split-Ubiquitin Membrane Yeast Two-Hybrid System

Thaminy *et al.* (2003) *Genome Research* 13:1744-53

The first research paper describing a cDNA library screen using the DUALmembrane system. The bait was the EGFR family member ErbB3, which was screened against a human brain cDNA library. Several novel interactors were identified and confirmed by independent biochemical methods.

Intra- and intermolecular interactions in sucrose transporters at the plasma membrane detected by the split-ubiquitin system and functional assays

Reinders *et al.* (2002) *Structure* 10, 763-772

A genetic system based on split-ubiquitin for the analysis of interactions between membrane proteins *in vivo*

Stagljar *et al.* (1998) *Proc Natl Acad Sci USA* 95, 5187-5192

Original research paper describing the split-ubiquitin membrane based yeast two-hybrid (DUALmembrane) system.