Microarrays of Cells Expressing Defined cDNAs

Ziauddin, J. and Sabatini, D.M. (2001) *Nature* **411**, 107.

This article describes a microarray-driven gene expression system. Mammalian cells are cultured on a glass slide onto which a series of cDNAs have been printed. Cells that grow on the printed area are transfected with the DNA, creating localized patches of cells transfected with a particular cDNA. The slides can be screened to identify drug targets or to discover gene products involved in particular cell functions or pathways.

Transfected cell microarrays were used to screen a collection of 192 epitope-tagged cDNAs cloned in expression vectors and enriched for cell signalling molecules. HEK293T cells were transfected and screened with phosphospecific antibodies in order to detect increased phosphotyrosine or activated, phosphorylated forms of the MAPK family. The authors used Promega's Anti-ACTIVE® p38 pAb and Anti-ACTIVE® JNK pAb in the screening. Five of six phosphotyrosine positive cell clusters expressed known typrosine kinases. Two of the clusters were positive for phosphorylated p38 and JNK (Table 1).

Table 1. Phenotypes Induced for cDNAs Expressed in Transfected Cell Microarray.

Grid: Coordinate	Phenotype	Gene Name
1:A2	P-Tyr	TrkC
1:C7	P-Tyr, p-JNK, p-p38	Syk
1:C9	P-Tyr	unnamed
1:C11	P-Tyr	Syn
1:E3	P-Tyr	Lck
1:F6	P-Tyr, p-JNK, p-p38	Blk
1:C2	cytoskeleton changes	β-PDGF receptor
2:E8	apoptosis	TRAIL receptor 2
2:D10	cell adhesion	NK receptor
2:F7	cell adhesion	CD36

P-Tyr, p-JNK and p-p38 indicates that the cluster had staining of phosphotyrosine, phospho-JNK, and phospho-p38, respectively, above background. Reprinted with permission of the author and *Nature* from Ziauddin, J. and Sabatini, D.M. (2001) *Nature* **411**, 107–110.

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