ABSTRACT

The UAB Neuroscience Core Facilities are designed to facilitate basic and clinical neuroscience research by NINDS-supported investigators.

• Core C - The Protein Interaction Core offers expertise in both prokaryotic and eukaryotic expression systems, molecular biology, yeast two hybrid analyses, and lentivirus production for gene expression and shRNA.

Yeast Two Hybrid Analyses

• Yeast two hybrid screens are performed to identify protein-protein interactions.
• Placing proteins into a network of interacting proteins assists in defining the function of proteins.
• Full length proteins or regions of interest can be used for the screens.

Virus Production

Lentivirus are pseudotyped with VSVg (glycoprotein) to facilitate infection of a broad range of cell types. Lentiviruses can infect non-dividing cells. Serotypes of adeno-associated viruses (AAV) facilitate infection of neuronal cells and other cell types.

USES:

• Optogenetic Probes
• Gene expression
• shRNA expression
• Inducible (dox) systems
• Reporter Proteins
• Promoter reporters

Molecular Biology Applications

• Prokaryotic protein expression systems
• Eukaryotic protein expression systems
• Viral expression systems
• CRISPR mediated gene regulation
• Optogenetic probes

Fig 1. Network of Protein Interactions. Yeast Two Hybrid Screens define protein-protein interaction networks.

Fig 2. Lentivirus Infected Neuronal Cells. Rat Hippocampal Neuronal Culture Infected with GFP expressing Lentivirus (green, left panel) and stained with antibodies for microtubule associated protein (red, right panel).

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