Affinity Capture Probe

A Protein Capture Probe with High Sensitivity, Low Noise and Easy Release of the Target Protein

Background

Identification of proteins within a cellular context that bind a specific ligand is still a challenge. Probes must bind to the target protein with sufficient affinity and selectivity that the protein can be isolated, and the capture process cannot cause damage to the molecular structure of the protein. If a protein is of low abundance, the challenge is further increased. A typical strategy is to prepare a bifunctional probe. One end of the probe molecule contains the ligand. The other end of the ligand molecule contains a moiety which enables capture and isolation of the ligand-protein complex. However, modification of the ligand with the capture reagent can dramatically alter binding affinity and specificity. Therefore, a better approach is to incorporate a small chemical "handle" onto the ligand to which the capture reagent can be covalently attached after binding to the receptor is complete.

Technology

This technology, developed by Dr. Nicole Sampson, Professor and Chair of the Chemistry Department at Stony Brook University provides a capture probe with a cleavable linker that can be used with any ligand that has been modified with a small alkynyl group. The capture reagent can be attached to the ligand once bound to the target protein using a simple chemical reaction, which then enables the capture reagent to be used to isolate a protein-ligand complex from a cellular mixture. Once cleaved/released, the purified protein can be identified by standard mass spectrometric methods known in the art.

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- US Patent Pending 14/212,477

Advantages

- **Selectively removal of only the desired protein from the matrix**
- **Increased stability and Stable in many biological fluids.**

Applications

- **Research tool: compound identification, protein-protein interaction**

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