



Synthetic affinity reagent to cancer biomarker Growth Factor Receptor-Bound Protein 2 (Grb2) and applications

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Inventors

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Invention Description

Growth Factor Receptor-Bound Protein 2 (Grb2) is a pivotal activator of cell-cycle control and motility pathways and is involved in oncogenic signaling in a wide variety of human tumors. Grb2 overexpression has been reported in human breast, bladder and prostate cancer cell lines. Antibodies to Grb2 are available from animal sources and hold promise as a cancer assay, but have the traditional issues of limited stability, high cost, suboptimal specificity, and animal care issues.

Researchers at the Biodesign Institute of Arizona State University have developed a synthetic antibody to Grb2 composed of chemical polymers that are extremely stable in most environments. Immobilization of the synthetic antibody will not disrupt its function, unlike a traditional antibody. This allowed the Biodesign researchers to design prototype ELISA and immunoprecipitation assays for Grb2.

Assays developed using this synthetic antibody have the potential to make an impact on cancer early detection, without the limitations and expense of assays using traditional antibodies.

Potential Applications

- Early detection of cancers, potentially including breast, bladder and prostate

Intellectual Property

Status:

Patent Pending

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Benefits and Advantages

- Greater stability than traditional antibodies
- Specificity can be optimized for particular application/assay
- No loss of function when the antibody is bound to a solid support
- Lower cost than traditional antibodies, with no issues of animal care
- Amenable to ELISA and immunoprecipitation assays
- For ELISA, an anti-Grb2 antibody can be engineered and synthesized with a fluorescent tag, eliminating the complexity and cost of the second and third antibodies for traditional ELISA