ERK-Mediated Grb7 Phosphorylation: A Biomarker and Potential Therapeutic Target in Her2/Grb7 Amplified Cancers

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Technology description

This invention is a new bio-marker for breast and other cancers that have Her2 and Grb7 gene amplifications, thus providing a therapeutic intervention in Her2/Grb7 amplified cancers.
Background
40% of breast cancers, as well as several other cancer types, display increased activation of tyrosine kinases from the ErbB family, with Her2 found amplified in more than half of these breast cancers. Her2 amplification is associated with poor survival and poor response to therapy. Grb7 was found to localize to the same amplicon as Her2 and most Her2-amplified breast cancers display co-overexpression of Grb7 and Her2. Antibodies developed against the ERK-mediated Grb7 phosphorylation could provide a simplified biomarker pointing to Her2 amplification and serve as a useful tool for evaluating/ confirming Her2/Grb7 status.
Technology
This invention identifies a new biomarker for breast and other cancers that carry certain gene amplifications. The biomarker could also be useful for diagnosing a patient’ s responsiveness to certain cancer therapies and on its own be a possible target for therapeutic intervention in certain cancers. This biomarker can be easily detected/measured using reagents developed by the WSU inventors.

Application area

- Diagnosis and treatment considerations for various types of cancers
- Use in clinical settings to determine the states of Her2/Grb7 amplifications in breast as well as other cancer types susceptible for Her2 amplifications
- Potential to develop a more specific antibody for ERK-phosphorylated Grb7, which could offer an improved biomarker potential
- Biomarker could be used to determine responsiveness of Her2-targeted therapies in patients with Her2/Grb7 amplified cancers

Advantages

Our technology could provide a simplified biomarker pointing to Her2 amplification.

Institution

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