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Ovarian cancer prognostic test for predicting response to chemotherapy and bevacizumab

A prognostic molecular test for predicting ovarian cancer patient response to platinum-based chemotherapy and/or treatment with bevacizumab.

IP Status: US Patent Issued; Application No. 17/290,172; EPO Patent Issued; EPO Issued Patent No. 3874274

Applications

- Prognostic molecular test
- Clinical decision support tool

Key Benefits & Differentiators

- **Personalized treatment:** Response predictions from this test are used to tailor treatment plans based on individual patient's clinical and molecular tumor characteristics.
- **Improved treatment outcomes:** Utilizing gene expression levels and clinical data, this test will potentially improve treatment outcomes by identifying patients who are more likely to benefit from treatment, ultimately increasing their chances of survival.
- **Early recurrence prediction:** This test calculates a patient's risk of recurrence over time, allowing for the early detection of potential disease progression and enabling timely intervention and management.

Technology Overview

Epithelial ovarian cancer (OVCA) presents a significant clinical challenge due to its high mortality rate and resistance to standard treatments in many patients. Often diagnosed in advanced stages, OVCA patients who initially respond to platinum-based chemotherapy often experience recurrence and develop resistance to multiple drugs. Efforts to improve treatment outcomes have led to the investigation of targeted therapies such as bevacizumab, a monoclonal antibody that inhibits vascular endothelial growth factor (VEGF). Clinical trials have shown promising results when bevacizumab is added to platinum-based chemotherapy, leading to its FDA approval for OVCA treatment. Unfortunately, only a subgroup of patients benefit significantly from bevacizumab, whereas most patients benefit moderately or do not benefit at all. Currently, no molecular tests are available in clinical practice for predicting patient responses to platinum-based chemotherapy and/or treatment with bevacizumab. Therefore, personalized treatment approaches are urgently needed to address the variability in OVCA patient responses and to optimize outcomes.

Using clinical and molecular tumor characteristics in patients, researchers at the University of Minnesota have developed a prognostic molecular test for predicting ovarian cancer patient response to platinum-based chemotherapy and/or treatment with bevacizumab. Based on the predicted patient response to platinum-based chemotherapy and/or bevacizumab, this test enables physicians to tailor treatment plans to individual patients, stratifying patients who will

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Category
Life Sciences/Biologics
Life Sciences/Biomarkers
Life Sciences/Biochemicals & Small Molecules
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significantly benefit from treatment from patients who will only suffer from associated toxicities. This test integrates gene expression levels of key biomarkers, including MFAP2 and VEGFA, and clinical data such as FIGO stage, ECOG performance status, and post-removal tumor size to ensure a comprehensive disease state assessment and provide an accurate predicted treatment outcome. Complex predictive modeling, including Cox models and risk scoring, calculates the patient's risk of recurrence and guides treatment plans, including the optimal combination of therapies. By facilitating a comparison of the potential benefits of different treatment plans, this test aims to enhance overall survival rates and improve the quality of life for ovarian cancer patients. With its potential to meet the growing demand for precision medicine, this test holds promise to advance ovarian cancer treatment.

Phase of Development

TRL: 3-4
Initial prognostic models for platinum-based chemotherapy and bevacizumab response have been developed in tumor samples from a phase III clinical trial.

Desired Partnerships

This technology is now available for:

- License
- Sponsored research
- Co-development

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Researchers

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