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# DIAGNOSTIC, PROGNOSTIC, AND THERAPEUTIC BIOMARKER FOR EWING'S SARCOMA

## DIAGNOSTICS

Test for determining drug sensitivity and resistance in Ewing's Sarcoma patients. GSTM4 inhibitor for treatment of drug-resistant Ewing's Sarcoma.

### TECHNOLOGY TYPE

Biomarkers  
Therapeutics  
Oncology  
Ewing's Sarcoma

### STAGE OF DEVELOPMENT

- Inhibition studies demonstrated disruption of GSTM4 decreases chemoresistance.
- Ongoing preclinical testing.

### IP PROTECTION

#### U.S. Utility Patent Issued

Diagnosis and Treatment of Drug-Resistant Ewing's Sarcoma  
US8557532B2

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Reference Number: U-4744

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### TECHNOLOGY SUMMARY

Ewing's Sarcoma is an aggressive and highly metastatic bone or soft tissue associated tumor in children and young adults. These tumors frequently progress undetected until they metastasize, whereupon the mortality of the disease greatly increases. Many tumors develop resistance to current first-line treatments, yet no tool exists that distinguishes prior to treatment between resistant and sensitive tumors.

Glutathione-S-transferase M4 (GSTM4) has been identified as a major contributor to tumorigenesis and drug resistance in Ewing's Sarcoma. Patients with higher levels of GSTM4 typically have worse treatment outcomes, meaning determination of GSTM4 expression levels should enable earlier diagnosis and serve as a predictor for patient outcomes. Furthermore, reduction of GSTM4 levels increases sensitivity of Ewing's Sarcoma cells to chemotherapeutic agents and reduces oncogenic transformation.

### FEATURES AND BENEFITS

- Facilitates earlier and more accurate diagnosis and patient prognosis predictions for Ewing's Sarcoma.
- Identifies patients who will show first-line drug resistance.
- Provides a novel therapeutic target for second-line treatments.

### RECENT PUBLICATIONS

Zhuo, R., Kosak, K., Sankar, S., Wiles, E.T., Sun, Y., Zhang, J., Ayello, J., Prestwich, G.D., Shami, P.J., Cairo, M.S., Lessnick, S.L., Luo, W. (2014). Targeting glutathione S-transferase M4 in Ewing sarcoma. *Frontier in Pediatrics*. 2:83. doi: [10.3389/fped.2014.00083](https://doi.org/10.3389/fped.2014.00083).

### INVENTOR PROFILE

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