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(71) Applicant: **PFIZER INC.** [US/US]; 235 East 42nd Street,  
New York, New York 10017 (US).

(72) Inventors: **GRUBER, Joshua James**; c/o The Board of  
Trustees of the Leland Stanford Junior University, Of-  
fice of the General Counsel, Building 170, Third Floor,  
Main Squad, Stanford, California 94305-2038 (US). **TEL-**  
**LI, Melinda**; c/o The Board of Trustees of the Leland  
Stanford Junior University, Office of the General Counsel,  
Building 170, Third Floor, Main Squad, Stanford, Califor-  
nia 94305-2038 (US).

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(54) Title: METHODS OF IDENTIFYING A TUMOR THAT IS SENSITIVE TO TREATMENT WITH TALAZOPARIB AND METHODS OF TREATMENT THEREOF

(57) Abstract: The present invention relates to a method of identifying a metastatic tumor determined to have a mutation in homologous recombination pathway genes, that is sensitive to treatment with talazoparib, or a pharmaceutically acceptable salt thereof, and methods of treatment thereof, comprising a) determining a homologous recombination deficiency score from a biopsy of the metastatic tumor; and b) administering talazoparib, or a pharmaceutically acceptable salt thereof, if the homologous recombination deficiency score is at least 33%, wherein the mutation is not germline BRCA1 or germline BRCA2. The present invention also relates to a method of selecting a subject determined to have a metastatic tumor with a mutation in homologous recombination pathway genes, for treatment with talazoparib, or a pharmaceutically acceptable salt thereof.