Testing the Addition of an Individualized Vaccine to Durvalumab and Tremelimumab and Chemotherapy in Patients With Metastatic Triple Negative Breast Cancer

Status: RECRUITING

Eligibility Criteria

Age: 18 years and over

This study is NOT accepting healthy

Healthy Volunteers: volunteers

Inclusion Criteria:

* Patients must have a histologically confirmed diagnosis of metastatic invasive triple negative breast cancer. Patients with clinical and/or radiologic suspicion of metastatic TNBC can be consented prior to this confirmation. * Estrogen receptor (ER) and progesterone receptor (PR) less than Allred score of 3 OR less than 1% positive staining cells in the invasive component of the tumor. * HER2 negative by fluorescence in situ hybridization (FISH) or immunohistochemistry (IHC) staining 0 or 1+. * PD-L1 negative by a Clinical Laboratory Improvement Act (CLIA) approved laboratory using compatible assays appropriate for treatment decisions. * Patients may have measurable or evaluable disease. * Patients must be willing to undergo biopsy and have accessible lesions for a new biopsy, or they must have sufficient tissue available from a biopsy performed for standard of care (specifications below). If patient does not have enough archived tissue available, a new biopsy is required. A tumor specimen obtained from relapsed metastatic or locally advanced disease (if applicable) must be submitted. Acceptable samples include core needle biopsies for deep tumor tissue (minimum 4 cores) or excisional, incisional, punch, or forceps biopsies for cutaneous, subcutaneous, or mucosal lesions. Formalin-fixed, paraffin-embedded (FFPE) tumor specimens in paraffin blocks are preferred; FFPE tumor tissue sections on slides may be provided if sufficient material (15 x 10µ- unstained) is available. Fine-needle aspiration, brushing, cell pellet from pleural effusion, bone metastases, and lavage samples are not acceptable. * No prior therapy for metastatic TNBC. Patients who have received taxane-based adjuvant therapy are required to have a disease-free interval of at least 12 months after completion of taxane therapy. * Age \>= 18 years. Because no dosing or adverse event data are currently available on the use of durvalumab (MEDI4736) and tremelimumab in combination with neoantigen vaccine in patients \< 18 years of age, children are excluded from this study, but will be eligible for future pediatric trials * Eastern Cooperative Oncology Group (ECOG) performance status =\< 1 (Karnofsky \>= 60%). * Body weight \> 30 kg. * Must have a life expectancy of at least 12 weeks. * Absolute neutrophil count \>= 1,500/mcL. * Platelets \>= 100,000/mcL. * Hemoglobin \>= 9.0 g/dL. * Serum bilirubin =\< 1.5 x institutional upper limit of normal. * Aspartate aminotransferase (AST) (serum glutamic oxaloacetic transaminase \[SGOT\])/alanine aminotransferase (ALT) (serum glutamic pyruvic transaminase \[SGPT\]) =\< 2.5 x institutional upper limit of normal unless liver metastases are present, in which case it must be =\< 5 x institutional upper limit of normal. * Calculated creatinine clearance \> 40 mL/min by the Cockcroft-Gault formula or by 24-hour urine collection for determination of creatinine clearance. * Evidence of post-menopausal status or negative urinary or serum pregnancy test for female pre-menopausal patients. Women will be considered post-menopausal if they have been amenorrheic for 12 months without an alternative medical cause. The following age-specific requirements apply: * Women \< 50 years of age would be considered post-menopausal if they have been amenorrheic for 12 months or more following cessation of exogenous hormonal treatments and if they have luteinizing hormone and follicle-stimulating hormone levels in the post-menopausal range for the institution or underwent surgical sterilization (bilateral oophorectomy or hysterectomy). * Women \>= 50 years of age would be considered post-menopausal if they have been amenorrheic for 12 months or more following cessation of all exogenous hormonal treatments, had radiation-induced menopause with last menses \> 1 year ago, had chemotherapy-induced menopause with last menses \> 1 year ago, or underwent surgical sterilization (bilateral oophorectomy, bilateral salpingectomy or hysterectomy). * The effects of durvalumab (MEDI4736) and tremelimumab and neoantigen vaccine on the developing human fetus are unknown. For this reason and because these agents may be teratogenic, women of child-bearing potential must agree to use adequate contraception (hormonal or barrier method of birth control; abstinence) prior to study entry, for the duration of study participation, and through 180 days after completion of durvalumab (MEDI4736) and tremelimumab. Should a woman become pregnant or suspect she is pregnant while she or her partner is participating in this study, she should inform her treating physician immediately. * Patient is willing and able to comply with the protocol for the duration of the study including undergoing treatment and scheduled visits and examinations including follow up. * Human immunodeficiency virus (HIV)-positive patients are eligible provided they have a negative viral load, CD4 count \> 250, and are on a stable antiretroviral regimen. * Ability to understand and the willingness to sign a written informed consent document. Patients with impaired decision-making capacity who have a close caregiver or legal guardian are also eligible with the consent of the caregiver/guardian.

Exclusion Criteria:

* Patients who are not considered to be candidates for carboplatin + gemcitabine for first line therapy of their metastatic triple negative breast cancer are not eligible. * Patients who have had chemotherapy, radiotherapy (to more than 30% of the bone marrow), or biologic therapy within 30 days (42 days for nitrosoureas or mitomycin C) prior to entering the study. * Patients who have received prior immunotherapy for metastatic disease. * Patients who have not recovered from grade \>= 2 adverse events due to prior anti-cancer therapy with the exception of alopecia, vitiligo, and the laboratory values defined in the inclusion criteria. * Patients with grade \>= 2 neuropathy will be evaluated on a case-by-case basis after consultation with the study physician. * Patients with stable endocrinological adverse events (AEs), (e.g., hypothyroidism, adrenal insufficiency, hypopituitarism, or diabetes mellitus), must have been on a stable dose of supplemental therapy for at least 2 weeks before screening to be eligible for this study. * Patients who are receiving any other investigational agents or who have received an investigational agent within the last 30 days. * Receipt of live attenuated vaccination within 6 months prior to study entry or within 30 days of receiving durvalumab (MEDI4736) and tremelimumab. * Note: Patients, if enrolled, should not receive live vaccine whilst receiving study treatment and up to 30 days after the last dose of study treatment. * Major surgical procedure within 28 days prior to the first dose of durvalumab (MEDI4736) and tremelimumab. Local surgery of isolated lesions for palliative intent is acceptable. * Current or prior use of immunosuppressive medication within 14 days before the first dose of durvalumab (MEDI4736) or tremelimumab. The following are exceptions to this criterion: * Intranasal, inhaled, topical steroids or local steroid injections (e.g. intra-articular injection) * Systemic corticosteroids at physiological doses which are not to exceed 10 mg/day of prednisone or an equivalent corticosteroid * Steroids as premedication for hypersensitivity reactions (e.g. CT scan premedication). * Known central nervous system (CNS) disease, except for treated asymptomatic CNS metastases. Patients with known brain metastases should be excluded from this clinical trial because of their poor prognosis and because they often develop progressive neurologic dysfunction that would confound the evaluation of neurologic and other adverse events. * History of allergic reactions attributed to compounds of similar chemical or biologic composition to durvalumab (MEDI4736) and tremelimumab. Known allergy, or history of serious adverse reaction to vaccines, such as anaphylaxis, hives or respiratory difficulty. * Mean QT interval corrected for heart rate using Fridericia's formula (QTcF) \>= 470 ms calculated from 3 electrocardiograms (ECGs) (within 15 minutes at 5 minutes apart). * Uncontrolled intercurrent illness including, but not limited to, ongoing or active infection, symptomatic congestive heart failure, uncontrolled hypertension, unstable angina pectoris, cardiac arrhythmia, interstitial lung disease, serious chronic gastrointestinal conditions associated with diarrhea, evidence of any acute or chronic viral illness or disease, or psychiatric illness/social situations that would limit compliance with study requirements. * Pregnant women are excluded from this study because durvalumab (MEDI4736) and tremelimumab has the potential for teratogenic or abortifacient effects. Because there is an unknown but potential risk for adverse events in nursing infants secondary to treatment of the mother with durvalumab (MEDI4736) and tremelimumab, breastfeeding should be discontinued if the mother is treated with durvalumab (MEDI4736) and tremelimumab. These potential risks may also apply to other agents used in this study. A negative serum pregnancy test is required no more than 7 days before study entry. * Active autoimmune disease that has required systemic treatment in the past 2 years (i.e. with use of disease modifying agents, corticosteroids, or immunosuppressive drugs). Replacement therapy (e.g. thyroxine, insulin, or physiologic corticosteroid replacement therapy for adrenal or pituitary insufficiency, etc.) is not considered a form of systemic treatment. * History of

pneumonitis or interstitial lung disease. * History of active primary immunodeficiency. * Active infection including tuberculosis (clinical evaluation that includes clinical history, physical examination, and radiographic findings, and tuberculosis \[TB\] testing in line with local practice), hepatitis B (known positive hepatitis B virus \[HBV\] surface antigen \[HBsAg\] result), or hepatitis C. Patients with a past or resolved HBV infection (defined as the presence of hepatitis B core antibody \[anti-HBc\] and absence of HBsAg) are eligible. Patients positive for hepatitis C (HCV) antibody are eligible only if polymerase chain reaction is negative for HCV ribonucleic acid (RNA). * The patient with a previous history of non-breast malignancy is eligible for this study only if the patient meets the following criteria for a cancer survivor. A cancer survivor is eligible provided the following criteria are met: * Patient has undergone potentially curative therapy for all prior malignancies. * Patients have been considered disease free for at least 1 year (with the exception of basal cell or squamous cell carcinoma of the skin or carcinoma-in-situ of the cervix). * Patients with a strong likelihood of non-adherence (such as difficulties in adhering to follow-up schedule due to geographic distance from the treatment facility) should not be knowingly registered. * History of allogeneic organ transplantation.

Conditions & Interventions

Interventions:
PROCEDURE: Biopsy Procedure, PROCEDURE: Biospecimen Collection, DRUG: Carboplatin, PROCEDURE: Computed Tomography, BIOLOGICAL: Durvalumab, DRUG: Gemcitabine Hydrochloride, PROCEDURE: Magnetic Resonance Imaging, DRUG: Nab-paclitaxel, BIOLOGICAL: Personalized Synthetic Long Peptide Vaccine, DRUG: Poly ICLC, BIOLOGICAL: Sacituzumab Govitecan, BIOLOGICAL: Tremelimumab
Conditions:
Anatomic Stage IV Breast Cancer AJCC v8, Invasive Breast Carcinoma, Metastatic Triple-Negative Breast Carcinoma

More Information

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