Visit ClinicalTrials.gov for a full description of the trial.

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BRAVO Clinical Trial
A research study for pediatric patients with newly diagnosed diffuse brain stem gliomas, or DIPGs.

**Fast Facts**

BRAVO is a Phase I clinical trial evaluating the safety and feasibility of adoptive lymphocyte therapy, or xALT, plus dendritic cell, or DC, vaccine (xALT + DC) in pediatric patients with DIPGs following focal radiotherapy with or without adjuvant dose-intensified temozolomide, or TMZ.

This study includes three distinct parts:

- Tumor biopsy
- Focal radiotherapy with or without concurrent TMZ
- Immunotherapy (xALT + DC) with or without adjuvant dose-intensified TMZ, or DI-TMZ, (4-6 monthly cycles)

Up to 18 patients will be enrolled in the Phase I trial. All subjects will undergo surgical biopsy of tumor for disease confirmation and preparation of tumor RNA.

Subjects will be grouped into cohorts that receive either radiotherapy with concurrent TMZ followed by xALT and DC with DI-TMZ (Group A) or radiotherapy with xALT and DC alone (Group B). Both groups will receive peripheral blood stem cells, or PBSC, prior to xALT infusion to improve efficacy of immunotherapy.

Subjects will undergo mobilized leukapheresis for generation of DC vaccine and collection of PBSC. Following DC vaccine #3, subjects will undergo a second non-mobilized leukapheresis for production of xALT and additional DC vaccines, if required.

All subjects in Group A will receive focal radiation with concurrent TMZ, one cycle of DI-TMZ, biweekly DC vaccines (#1-3), then four more cycles of DI-TMZ, with DC vaccines (#4-7) after each cycle. xALT infusion and DC vaccine (#8) will follow cycle 6 of DI-TMZ. DC vaccines (#9-10) will be given biweekly after cycle 6.

All subjects in Group B will receive focal radiation and biweekly DC vaccines (#1-3) followed by monthly DC vaccine (#4-7). Prior to vaccine #8, subjects will receive lymphodepletive chemotherapy (cyclophosphamide + fludarabine) over 7 days followed by PBSC infusion, xALT and vaccine #8. DC vaccines (#9-10) will be given biweekly thereafter. All subjects will be followed until death due to any cause.

**Subject inclusion criteria**

- Age: 3 to ≤ 21 years old
- Radiologic diagnosis of DIPG
- Patient and/or parent/guardian willing to consent for biopsy of tumor
- Pathological diagnosis of glioma
- Neurologic deficits that are stable for a minimum of 1 week prior to registration
- Performance score > 50 (Lansky or Karnofsky)
- Adequate organ function

**Subject exclusion criteria**

- Patients with severe dysphagia, obtundation or tetraplegia (poor risks for anesthesia and biopsy procedure)
- Absence of tumor on biopsy specimen
- Need for steroids beyond physiologic doses at time of vaccine #1
- Concurrent systemic illness