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BriaCell Therapeutics Corp. (BCTX: NASDAQ)

BCTX: Down in San Antone

Research Note

San Antonio Breast Cancer Symposium Poster Presentations

BriaCell Therapeutics Corp. (NASDAQ: BCTX) presented three posters at the 2023 San Antonio Breast Cancer Symposium (SABCS) annual meeting held in San Antonio, Texas. The posters addressed Bria-IMT's successes in turning cold tumors hot, the use of imaging and protein array to evaluate immune response and overall survival for the Phase II study. Below we list the poster abstract titles and follow them with a summary of each.

1. CD8+ Tumor Infiltrating Lymphocytes Turn a Cold Tumor Hot in Metastatic Breast Cancer
2. Analysis of Antibody Response to SV-BR-1-GM Therapeutic Vaccine in Breast Cancer Patients Using Human Protein Microarrays: Potential Correlations with Therapy Response
3. Randomized Phase 2 of Bria-IMT, an Allogenic Human Cell Line with Antigen Presenting Activity, in Heavily Pretreated Metastatic Breast Cancer

Poster 1
The first of the posters, CD8+ Tumor Infiltrating Lymphocytes Turn a Cold Tumor Hot in Metastatic Breast Cancer, was authored by Russ Kuker, MD *et al*. It explores one of the most critical aspects of immuno-oncology – attracting the body's immune fighters to the tumor site. While Bria-IMT was hypothesized to turn tumors hot, researchers lacked evidence to support this mechanism of action. This poster explored this activity using a regimen of both Bria-IMT and an anti-PD-1 checkpoint inhibitor.

ImmunoPET imaging was used to measure CD8+ cells during baseline and follow up scans after three cycles. Uptake of the tracer linked to CD8+ cells increased by 23% to 163% in three patients' tumor tissue. This indicates activation of these cells and their invasion into the tumors potentially leading to destruction of cancer cells. Several tumor markers also demonstrated favorable changes including CEA (carcinoembryonic antigen). CA (cancer antigen) 15-3, Circulating Tumor Cells (CTCs) and Cancer Associated Macrophage Like cells (CAMLs). The study supported the value of using the CD8 ImmunoPET diagnostic to identify lesions that are progressing on treatment versus pseudo progression as well as visualizing intra-patient and intra-lesion heterogeneity.

Poster 2
The second poster entitled Analysis of Antibody Response to SV-BR-1-GM Therapeutic Vaccine in Breast Cancer Patients Using Human Protein Microarrays: Potential Correlations with Therapy Response was developed by Miguel Lopez-Lago, *et al*. The work behind the poster enlisted the use of protein arrays that are able to evaluate a broader range of antigens compared with previous analyses. The goal of the effort was to examine the effect of therapeutic cancer vaccines, particularly Bria-IMT, to determine useful biomarkers and optimize therapy for future trials. Observations from the study noted that changes in antibody profiles were limited to a restricted number of antigens and that the distinguishing factor between clinical responders and non-responders did not hinge on the sheer quantity of antibody responses but rather on their qualitative aspects. Another conclusion is that the vaccine monotherapy and its combination with an anti-PD1 antibody exhibited largely non-overlapping patterns in antibody profiles. In the work, potential correlations between specific antibody responses and patient survival were identified such as higher levels of LGALS1.

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Poster 3
Poster three updated stakeholders on the progress in the Phase II study of Bria-IMT in patients with advanced metastatic breast cancer. Its title is A Randomized Phase 2 of Bria-IMT, an Allogenic Human Cell Line with Antigen Presenting Activity, in Heavily Pretreated Metastatic Breast Cancer authored by Carmen Calfa, MD, *et al*. Bria-IMT, also designated SV-BR-1-GM, expresses various antigens that stimulate the immune system including HER2 and PRAME.[1]

Heavily pre-treated subjects were enrolled in the Phase II trial which generated clinical benefit in 47% of the population. The immunotherapy, in combination with a checkpoint inhibitor, was well tolerated with no toxicity above Grade 3. Bria-IMT has potential efficacy in reversing immune exhaustion among the enrolled population. This suggests that these patients have benefitted from the therapy, achieving better outcomes despite failing prior checkpoint therapy. The findings from the Phase II will be used to refine future trials involving Bria-IMT.

New Responder
In a November 30th press release, BriaCell identified a new responder with a tumor behind the eye causing proptosis. This follows a similar response from an earlier patient exhibiting an eye bulging tumor that BriaCell first identified in 2019 that has been shared in several of its investor presentations. The new patient had been treated in seven prior regimens with disease characterized as positive for hormone receptor and HER2. The patient exhibited extensive metastatic disease, including the bones of the spine, pelvis, sternum, the skull, and face, which included proptosis of the right eye, producing blindness in the eye. The patient's last disease progression was recorded in August 2023. She started Bria-IMT combination therapy on October 4, 2023 and had received only 3 cycles of therapy as of the assessment date. The Bria-IMT combination regimen has been well tolerated and the patient remains on treatment.

The impressive results are especially noteworthy as the patient had failed other therapies and still responded to Bria-IMT. The data suggests effectiveness in difficult to reach tumors such as those in the bones and brain. This is good news for metastatic patients that may not have other options.

[1] PRAME (preferentially expressed antigen in melanoma) is a protein that is overexpressed in various types of tumors and cancer cells, making it a promising target for cancer immunotherapy.

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