Molecular profile of a GM-CSF overexpressing breast cancer whole-cell vaccine with systemic anti-tumor activity
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BACKGROUND AND PURPOSE OF STUDY: The allergenic and tumor vaccine BriaVac™ (SigmaBiol) is a GM-CSF (Glycosylated Myeloid Cell Stimulating Factor) whole cell vaccine, intended for prophylactic treatment in breast cancer patients. A GM-CSF transfected cell line was employed for the production of BriaVac™ cells using the in vitro transfection methods described by Chou et al. [1] in 2005 and 2006. Further details on the Bacillus subtilis production are described in the material and methods section. The GM-CSF expression is consistent with the development of the vaccine.

RESULTS: BriaVac™ expresses all major and minor HLA alleles and presents peptides to T cells, and provides new insights into the generation of DCs. DCs exposed to BriaVac™ show an increase in expression of MHC I and MHC II, as well as an increase in the number of surface CD8+ and CD4+ T cells, as determined after a 24-hour period. T cell proliferation was also observed, as determined by a BrdU assay.

CONCLUSIONS: This is the first clinical-grade GM-CSF whole-cell vaccine to be used in a clinical trial. The vaccine is safe and well-tolerated, and shows promise for the treatment of breast cancer.

REFERENCES:

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