Positive immunomodulatory effects of NOV-002, an oxidized glutathione mimetic, in a murine model of ovarian cancer

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ABSTRACT

In the absence of associated chemotherapy and in response to tumor lysates in comparison to saline treated animals, NOV-002 increases the infiltration of cells bearing a memory T cell phenotype into ovarian tumors. In addition, this increased infiltration of memory T cells into the tumors is associated with increased IFN-gamma production in NOV-002 treated animals (2131 pg/ml – NOV-002 vs 104 pg/ml – N-saline) with NOV-002 increasing the infiltration of TIL cells into the tumors even in response to tumor lysates. These preliminary data support the view that NOV-002 may have immunomodulatory functions in addition to chemoprotective activity in the context of anti-tumor chemotherapy where the infiltration of T cells into the tumors is an underdeveloped area of investigation. NOV-002 treatment is understudied as an exploration of the potential mechanisms between the increased infiltration of cellular waits and changes in T cell-based immune responses.

METHODS

T-cell subpopulations detection in tumor infiltrating lymphocytes (TIL): NOV-002 versus control (SAL)

RESULTS

Summary

CONCLUSIONS

The active ingredient in NOV-002 is oxidized glutathione. Changes in the ratio of oxidized glutathione and reduced glutathione disturbs cellular redox state and can regulate protein function by the reversible formation of mixed disulfides between protein cysteines and glutathione.

Human glutathionylation by NOV-002 results in phenotypic effects on cell functions including cell signaling pathways, cytoskeletal architecture and cytokine production and is associated with hematopoiesis, immune stimulation and increased chemosensitivity of tumor cells.

NOV-002 is in combination with standard chemotherapy. It is also the subject of an ongoing phase III clinical trial in advanced non-small cell lung cancer and an exploratory Phase 1 trials for non-small treatment of breast cancer.