In Vivo Efficacy and Pharmacodynamic Analysis of RTX-321, an Engineered Allogeneic Artificial Antigen Presenting Red Cell Therapy

**INTRODUCTION**

The development of allogeneic, artificial antigen-presenting red cell therapy (aAPCs) is emerging as a potential treatment for a variety of cancer indications. The RTX-321 product candidate is a genetically engineered red blood cell (RBC) that expresses MHC class I molecules. This allows it to present antigens to T cells, potentially leading to an anti-tumor immune response. The artificial RBC surface proteins are designed to enhance T cell activation and elicit robust anti-tumor immune responses.

**METHODS**

The study was designed to evaluate the in vivo efficacy and pharmacodynamic analysis of RTX-321. Mice were infected with a tumor cell line, and treatment groups received various doses of RTX-321. The response was monitored through tumor growth inhibition, tumor burden reduction, and T cell activation markers.

**RESULTS**

- **Administration of RTX-321 in vivo** resulted in a significant reduction in tumor volume compared to control groups, indicating the product's potential efficacy in vivo.
- **Pharmacodynamic analysis** showed increased T cell activation and IFN-γ secretion, indicating a robust immune response.

**CONCLUSIONS**

Overall, mRBC-321 and RTX-321 can selectively engage and activate antigen-specific T cells, allowing for robust expansion and differentiation into effector and long-lasting anti-tumor memory cells.

**ACKNOWLEDGMENTS & DISCLOSURES**

**Authors:** Melissa J. Nixon*, Xuqing Zhang*, Shamael Dastagir, Albert Lee, Mengyu Luo, Anh-Khainh Nguyen, Andrea Schmidt, Douglas C. McLaughlin, Viral Amin, Chris Moore, Nathan B. Gold, Laurence Tuika, Thomas J. Wickham, and Tiffany F. Chen

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This is a modified version of the original abstract. The original abstract is detailed below.

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