An Engineered, Allogeneic, Artificial Antigen-Presenting Red Cell Therapeutic, RTX-321, for HPV 16+Associated Cancers Promotes Antigen-Specific T Cell Activation & Expansion

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INTRODUCTION

Red Cell Therapeutics™ (RCTs) are engineered to mimic human immunobiology and induce a tumor-specific immune response by expanding tumor-specific T cells against a target antigen in vivo. RUBUS Therapeutics™/Rubius artificial antigen-presenting off-the-shelf candidate RTX-321, is in the potential treatment of HPV 16+ positive cancer (HPV 16+ BCC).

OBJECTIVES

To demonstrate that RTX-321 induces activation of HPV antigen-specific primary CD8+ T cells.

To demonstrate that RTX-321 selectively engages HPV antigen-specific CD8+ T cells.

To demonstrate that RTX-321 induces memory formation and effector molecule expression of HPV antigen-specific primary CD8+ T cells.

RESULTS AND METHODS CONT'D

Figure 3: Expression Profile of RTX-321 and Cognate HPV E7 TCR T Cells

Figure 6: RTX-321 Expands HPV-Specific T Cells

Figure 7: RTX-321 Leads to the Accumulation of Central and Effector Memory Cells

CONCLUSIONS AND FUTURE PLANS

- RTX-321 induces activation determined by upregulation of 4-1BB, CD30, and FoxP3 expression in vivo.
- 4-1BB signals including antigen-specific signal I are required for robust expansion, effector memory phenotype, and effective molecule production of HPV antigen-specific cells.

DISCLOSURES

All authors have employment with and equity ownership in Rubius Therapeutics.