Safety and Immunogenicity of ADXS-NEO, a Personalized Neoantigen Vaccine in Cancer Patients

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ABSTRACT

The discovery of neoantigens by whole-exome sequencing has generated renewed interest in neoantigen vaccines as a means to target individual antigens to specific cancer cells. ADXS-NEO, a personalized vaccine platform, was designed to harness neoantigens identified through this technology. This study evaluated the safety and immunogenicity in 4 subjects who were treated with ADXS-NEO at a dose of 1x10^10 CFU during the Part A cohort of a phase 1/2 trial. An enhanced immune response to neoantigens and a lack of dose-limiting toxicities were observed in these patients, with improvements in cytokine and chemokine levels demonstrated in part.

METHODS

This open-label, multicenter, nonrandomized study is being performed in 2 parts. Part A: is the toxicology and initial safety study (n=4). Part B: evaluates the biological effect of an optimized dose of ADXS-NEO. Part C: further evaluates the biological and clinical effect of ADXS-NEO. Recommendation of a dose in Part B for further clinical evaluation is based on a safety review of Part A data. Part A (n=4) is dose-escalating: 1x10^9 CFU, 1x10^10 CFU, 1x10^11 CFU. Part B: dose of 1x10^10 CFU in 3 cohorts: 1x10^9 CFU, 1.5x10^10 CFU, 1x10^11 CFU. Part C: dose of 1x10^11 CFU or higher.

RESULTS

Table 3. Patient characteristics, prior therapies, and outcomes

- Safety: 4 subjects treated in Part A, safety data is presented at dose 1x10^10 CFU. 1 subject was treated at dose 1x10^9 CFU. Adverse events consistent with the known safety profile of over 400 CFU has been safe and well tolerated by subjects 3 and 4.
- Immunogenicity: ADXS-NEO treatment (Subjects 1 and 2) was shown to stimulate a T-cell response using the MINE™ algorithm. This study confirms the successful translation of high-throughput MS analysis of neoantigens identified through whole-exome sequencing into a personalized vaccine construct.

CONCLUSIONS

ADXS-NEO is a personalized neoantigen vaccine that targets neoantigens present in individual cancer patients. ADXS-NEO is safe, tolerable, and immunogenic in patients with advanced and metastatic solid tumors. Further clinical evaluation of ADXS-NEO is warranted.

REFERENCES


DISCLOSURES

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