T CELL GENE THERAPY TO ERADICATE DISSEMINATED BREAST CANCERS

RP Junghans, B Rathore, Q Ma, A Bais, E Gomes, R Rathore, R Davies, R Harvey, P Davol.
Departments of Surgery and Medicine, Boston University School of Medicine and Roger Williams Medical Center, Providence, RI 02908

FUNDING: US Army/DOD BCRP IMPACT Award W81XWH-09-1-0039

ABSTRACT (P1-27)

**DESIGNER T CELL (dTC) BASICS**

IgTCR = Fusion of Antibody and TCR Zeta

Signalizing Chain

Also: CAR = Chimeric Antigen Receptor

**CLINICAL TRIAL DESIGN**

Phase Ib/Pilot Trial of 2nd Generation Anti-CEA Designer T Cells in Metastatic Breast Cancer; BB-IND 10791*

**PRELIMINARY DATA**

1. IMPROVED PROLIFERATION

**1st Gen**

2. IMPROVED TUMOR CELL KILLING

**3rd Gen**

4. IN VIVO ASSAYS

SHOW TUMOR CURES

**HYPOTHESES**

1. Failure to sustain initial tumor response with prolonged tumor destruction can be attributed to signal deficiency of 1st gen dTC

2. Incorporation of CD28 into the CAR will avoid AICD, promote dTC proliferation on contact with tumor, and lead to sustained anti-tumor responses.

**CONCLUSIONS**

1 pt treated with encouraging features

3 doses prepared or in preparation; Pt #3 (new Pt #2 replacement) dose currently being prepared.

4. IN VIVO ASSAYS

**SUMMARY**

1. Phase Ib/Pilot tests value of dTC with 1st gen dTC 3 doses prepared or in preparation: Pt #1 treated with encouraging features

2. Continue patient enrollments

3. Lab studies to improve IL2 independence

4. Future trials to test improvements

**FUTURE DIRECTIONS**

**HYPOTHESES**

**CLINICAL TRIAL DESIGN**

Phase Ib/Pilot Trial of 2nd Generation Anti-CEA Designer T Cells in Metastatic Breast Cancer; BB-IND 10791*

**PRELIMINARY DATA**

1. IMPROVED PROLIFERATION

**1st Gen**

2. IMPROVED TUMOR CELL KILLING

**3rd Gen**

4. IN VIVO ASSAYS

SHOW TUMOR CURES

**HYPOTHESES**

1. Failure to sustain initial tumor response with prolonged tumor destruction can be attributed to signal deficiency of 1st gen dTC

2. Incorporation of CD28 into the CAR will avoid AICD, promote dTC proliferation on contact with tumor, and lead to sustained anti-tumor responses.