Background

- MAGE-A10 is a tumor antigen encoded by the MAGE-A10 gene, which is involved in various malignancies.
- There are two ongoing phase 1/2a, open-label, randomized, multicenter studies (Study 1 and Study 2) investigating MAGE-A10 SPEAR T-cells in patients with solid tumors.

Methods

- Two phases of gene-modified MAGE-A10 SPEAR T-cells (both on Days -7, -6, and -5) are being tested in both studies.
- Leukapheresis is performed to collect T-cells, which are transduced with a lentiviral vector for the MAGE-A10 antigen.
- Upon enrollment, patients undergo leukapheresis for T-cell collection, and transduced cells are then infused back into the patients.

Cases:

Study 1

- 80 patients (1800 mg/m2) with advanced solid tumors were screened, with 70 enrolled and 64 treated.
- Details on patient characteristics are shown in Table 1.

Study 2

- 100 patients (600 mg/m2) with advanced solid tumors were screened, with 90 randomized and treated.
- Details on patient characteristics are shown in Table 2.

Results

- Potential dose-limiting toxicities (DLTs) were identified regardless of group assignment.
- The most common AEs related to T-cells included hyperhidrosis, haemoptysis, and peripheral oedema.
- In Study 1, 24 patients have been screened, with 19 enrolled, 8 of whom received treatment with a PD-1/PD-L1 inhibitor.

Safety and Anti-Tumour Effects of MAGE-A10<sup>c796</sup>TCR T-Cells in Two Clinical Trials

Vincent K Lam,1 David S Hong,2 John V Heymach,3 George P Blumenschein,4 Marcus Butler,5 Melissa Johnson,5 Ben G Creighton,1 Justin J Gershen,1 Ramaswamy Govindan,1 Raji Mustafa,1 Joel W Ward1 Francesco Brighy6 Rebecca Dryer-Minerney7 Frank Fang8 Natalie Hyland9 Tom Holk9, Yu Ma9 Elliot Nony9, Ruixue Wang9 Rafael Amado4

1 MD Anderson Cancer Center, Houston, TX, USA; 2 Princess Margaret Cancer Centre, Toronto, Ontario, Canada; 3 Sarah Cannon Research Institute, Nashville, TN, USA; 4 Memorial Sloan Kettering Cancer Center, New York, NY, USA; 5 University of Miami, Miami, FL, USA; 6 Stanford Cancer Institute, Palo Alto, CA, USA; 7 Massachusetts General Hospital, Boston, MA, USA; 8 Washington University, St. Louis, MO, USA; 9 University of Miami, Miami, FL, USA; 10 Stanford Cancer Institute, Palo Alto, CA, USA; 11 Abbvie, Abingdon, Oxfordshire, UK, and Philadelphia, PA, USA.

1B38

Conclusions

- MAGE-A10 SPEAR T-cells were well tolerated at doses up to 4 and 3 mg/m² in Study 1 and Study 2, respectively.
- The most common AEs related to T-cells included hyperhidrosis, haemoptysis, and peripheral oedema.
- In Study 1, 24 patients have been screened, with 19 enrolled, 8 of whom received treatment with a PD-1/PD-L1 inhibitor.

Acknowledgements

- We thank the caregiving teams at MD Anderson Cancer Center, Moffitt Cancer Center, Princess Margaret Cancer Centre, and University of Miami for their contributions.

Table 1. Study 1 patient characteristics

<table>
<thead>
<tr>
<th>Group</th>
<th>No. of Patients</th>
<th>Leukapheresis Chemotherapy</th>
<th>MAGE-A10 T-cell Dose</th>
<th>Cell Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>40 patients</td>
<td>Cy 300 mg/m² on Days 1, 4, 8, 11, 15, 19</td>
<td>1.0 × 10&lt;sup&gt;9&lt;/sup&gt;</td>
<td>1.0 × 10&lt;sup&gt;9&lt;/sup&gt;</td>
</tr>
<tr>
<td>Group 2</td>
<td>20 patients</td>
<td>Cy 300 mg/m² on Days 1, 4, 8, 11, 15, 19</td>
<td>3.0 × 10&lt;sup&gt;9&lt;/sup&gt;</td>
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</tbody>
</table>

Table 2. Study 2 patient characteristics

<table>
<thead>
<tr>
<th>Group</th>
<th>No. of Patients</th>
<th>Leukapheresis Chemotherapy</th>
<th>MAGE-A10 T-cell Dose</th>
<th>Cell Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>6 patients</td>
<td>Cy 300 mg/m² on Days 1, 4, 8, 11, 15, 19</td>
<td>1.0 × 10&lt;sup&gt;9&lt;/sup&gt;</td>
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</tr>
<tr>
<td>Group 2</td>
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Table 3. Toxicity summary for Study 1 and Study 2

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</table>

Table 4. Toxicity summary for Study 2

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Figure 1. Cytokine expression levels following SPEAR T-cell therapy.

Figure 2. Time from T-Cell Infusion (Days) vs. Time on Treatment (Days) for Group 3.

Image 1871x1065 to 2552x1277

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Disclosures

- The authors declare no possible conflicts of interest related to the work presented at this meeting.

Related

- Table 3.
- Figure 2.

Additional relevant information:

- Patients with a history of lymphoma are eligible, but those with a history of chronic lymphocytic leukemia are excluded.
- The interventional phase of each study lasts until progression of disease or death.
- Both studies utilize a modified 3+3 dose escalation design (both on Days -7, -6, and -5).

Table 3. Toxicity summary for Study 1 and Study 2

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