Enhanced Activity of Second-Generation MAGE-A4 SPEAR T-Cells Through Co-Expression of a CD8α Homodimer

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Introduction

- MAGE-A4-specific T-cells have shown promise in the clinic against cancer, but existing products have limitations. This study aimed to address these limitations by expressing a CD8α homodimer on MAGE-A4-specific T-cells.

Results

- The frequency of CD8α+ cells was higher in co-expressing CD8α homodimer T-cells compared to controls.
- These T-cells showed improved cytokine production and increased T-cell activation.
- In vitro co-culture studies demonstrated enhanced T-cell activity against MAGE-A4-expressing target cells.

Conclusions

- Second-generation MAGE-A4 CD8α homodimer T-cells show promise for improving T-cell efficacy in cancer immunotherapy.

Acknowledgements

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References


Figures:

- Figure 1: Diagram illustrating the concept of co-expression of a CD8α homodimer on MAGE-A4-specific T-cells.
- Figure 2: Bar graph showing the proportion of CD8α+ cells in different T-cell populations.
- Figure 3: Example of cytokine production in a co-culture assay using MAGE-A4-expressing cells and ADP-A2M4CD8 T-cells.
- Figure 4: Heat map of T-cell activation markers in different conditions.
- Figure 5: Flow cytometry dot plot illustrating the CD8α expression levels in T-cells from different donors.

Table:

<table>
<thead>
<tr>
<th>Condition</th>
<th>CD8α+ Cells (%)</th>
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<tbody>
<tr>
<td>Control</td>
<td>35</td>
</tr>
<tr>
<td>CD8α</td>
<td>65</td>
</tr>
<tr>
<td>CD8α+CD8α</td>
<td>80</td>
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Abbreviations

- T-cell: T lymphocyte; MAGE-A: melanoma antigen family A; SPEAR: specific targeting of epitope antigens and receptors.