Rapamycin Prevents Bronchiolitis Obliterans Through Increasing Regulatory B Cells Infiltration in A Murine Tracheal Transplantation Model

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The following relationships exist related to this presentation:

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Regulatory B Cells/Bregs

- B220+
- Bregs secrete IL-10 and TGF-beta1.
- IgM+ but IgG- B cells.
Potential Functions of Bregs

Mouse Heterotopic Tracheal Transplantation (HTT) Model

Donor: Balb/c (BC), MHC class I
Recipient: C57BL/6 (B6), MHC class II

Allografts: $H-2^d$ $\rightarrow$ $H-2^b$
Experimental Design

1. **Mouse HTT Model:**

<table>
<thead>
<tr>
<th>Experimental Groups (n=6)</th>
<th>Isograft controls</th>
<th>Allograft+DMSO</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Allograft+Rapamycin 5mg/kg/day</td>
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<tr>
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<td>Allograft+Rapamycin 10mg/kg/day</td>
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</tbody>
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* DMSO and Rapamycin was diluted in saline and IP

2. **Luminex Assays of Cytokines and Growth Factors:**

3. **Immunohistochemistry and Densitometric Analysis:**
Effects of Rapamycin on Luminal Obliteration in a mouse HTT Model
Increasing of Cellular Infiltration Post Rapamycin Treatment
Identifying the Infiltrated Cells
Rapamycin Treatment Significantly Increased B Cells Infiltration
IgM+ & IgG-

B220+, IL-10+ & TGF-β1+
IL-10 & TGFβ1
Treatment with Rapamycin Significantly Increased IL-10 and IL-4 Production in Allografts
Treatment with Rapamycin Markedly Increased Foxp3+ Treg Cells in the Allografts
Summary

Rapamycin

Bregs
B220+IL-10+TGFβ1+IgM+IgG-

IL-10/TGFβ1

Tregs
Foxp3+

IL-10

TGFβ1

Bronchiolitis Obliterans
Thank you!