Therapeutic for Systemic Sclerosis


C10orf128

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Systemic Sclerosis (SSc)

Terrible chronic autoimmune disease in which affected individuals slowly but progressively scar:

- **Skin (Scleroderma)**
- **Viscera: Lungs, GI tract, kidneys**
- **CDC statistics: 50,000 Americans live with SSc**
- no effective treatment
- frequently fatal

Tamiko R. Katsumoto, Michael L. Whitfield, Matthew Connolly Published in Annual review of pathology 2011 DOI:10.1146

IL-13 + TNFα = TGFβ (progressive scarring)!
Recovery of *Chlamydia*-specific CD8 T cells from immune mice is dependent on:

I. Antigen-presenting cell: immune splenocytes (antibody)

II. Specific subset of chlamydia antigens (soluble)

* Likely part of the T cell receptor signaling complex
Purified human CD8 T cells sorted on the C10orf128
- **C10orf128**: Yes/no biomarker found on 5-10% circulating T cells (CD8>CD4)
- 8 monoclonal antibodies; six IgG, two IgM
Small Animal Preclinical Model
(rat anti-mouse C10orf128)

IgM

IL-13 / IFN-γ ratio

[anti-CD3]
The Package:

1) **Humanize mAb first and ask questions later:**
   - **CD8γ13 T cells drive SSc pathogenesis**
   - ~**Humira™** for SSc (and other scarring inflammatory diseases)
   - **SSc US Market** $50,000 x $36,000/yr = $1.8 billion
     - (not going to treat everyone, still a lot of money)

2) **Develop small animal preclinical model**

3) **Investigate drugable targets for small molecule therapeutics** (the blurry things in the table)

**Blavatnik funds:** $100k (humanize mAb) + $150k (develop small animal model)

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