



T-Cell Expansion and an Inducer of CD40 Stimulation in the Treatment of Cancer



TEDCO/NIH/NCI Technology Showcase
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Technology



- A principal goal of immunotherapy is to enhance the host immune response against tumors.
- CD40 is a molecule on the surface of immune cells, such as Natural Killer cells, T cells, B cells, and Dendritic Cells.
- The ligation of CD40 on these cells enhances immunological responses, such as cell proliferation, cytokine production and tumor cell killing.
- CD40 thus represents an important molecular target for initiating and/or amplifying immune responses against tumors.

Technology Applications

- **Agonistic antibody to CD40:**

- Is an anti-CD40 targeted drug.
- Stimulates and activates host immune cells through binding to CD40 on their cell surface.

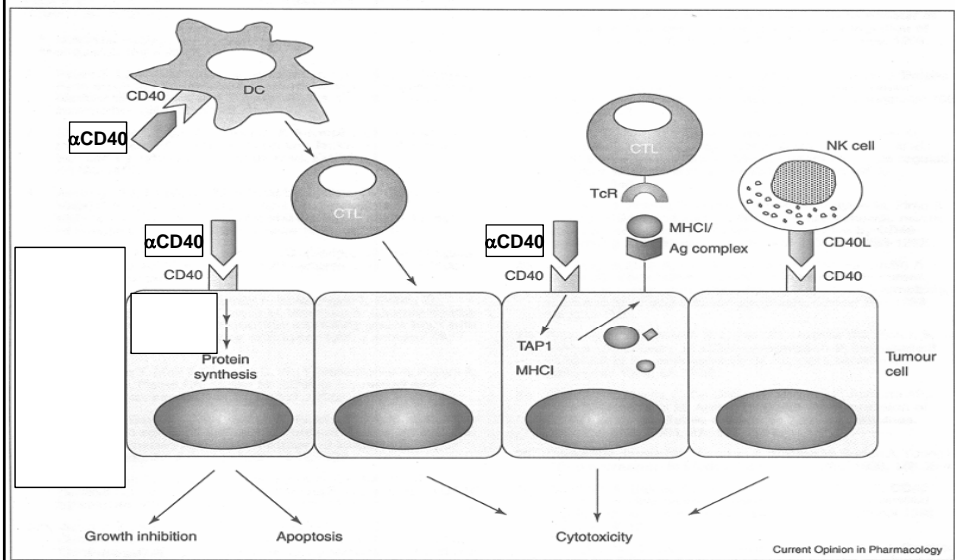
(Indirect anti-tumor effects)

- Targets CD40 expressed by some tumors as well.

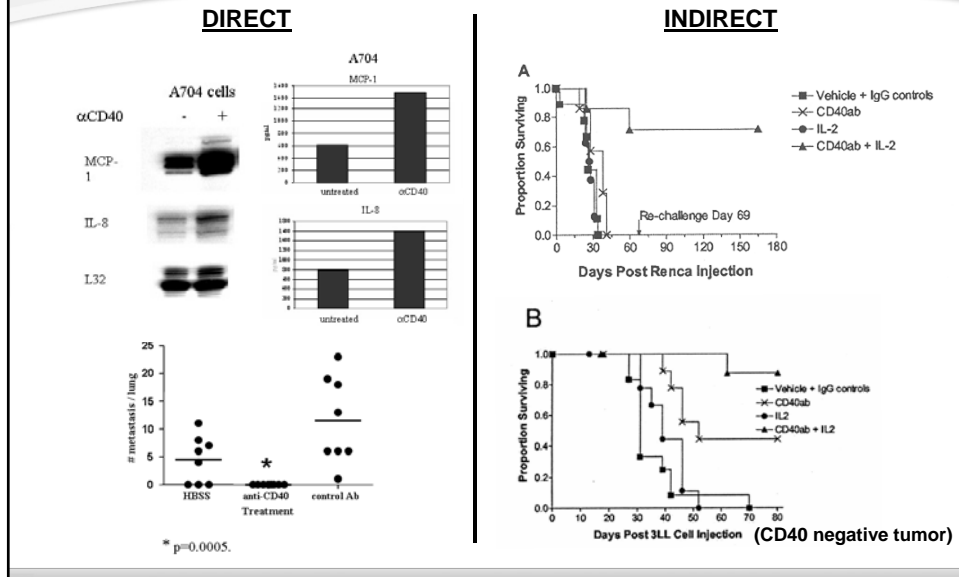
(Direct anti-tumor effects)

- Synergizes with other cytokines, such as Interleukin-2, for more optimal anti-tumor responses in mice.
- May be used in combination with other immunomodulating molecules for improved eradication of metastatic tumors.

The Multiple Anti-Tumor Properties of CD40 Stimulation: Direct and Indirect Effects



Anti CD40 Mediates both Direct and Indirect Anti-Tumor Activities



Commercial Applications



- Single-agent systemic use for direct inhibition of CD40⁺ tumors
- Promote **synergy** in immune cell activation by combining the administration of α CD40 antibody with Interleukin 2 or other immunomodulatory cytokines.

Commercial Applications/ Collaboration Opportunities



- Chiron Corporation/XOMA: HCD122 (formerly CHIR-12.12)
 - **Antagonistic** α CD40 antibody (Chronic lymphocytic leukemia)
 - Blocks CD40L-mediated proliferation of malignant B cells
 - Antibody-induced killing of CD40⁺ tumor cells
- Seattle Genetics: SGN-40
 - **Partially-agonistic** α CD40 antibody (Non-Hodgkin's lymphoma and multiple myeloma)
 - Inhibits tumor cell proliferation
 - Antibody-induced killing of CD40⁺ tumor cells
 - Still capable of stimulating normal B cells
- Pfizer: CP-870893
 - **Agonistic** α CD40 antibody (Solid tumors)
 - Activates immune cells
 - May mediate direct anti-tumor effects as well?

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