



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



**TEDCO/NIH/NCI Technology Showcase**

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### *Technology*

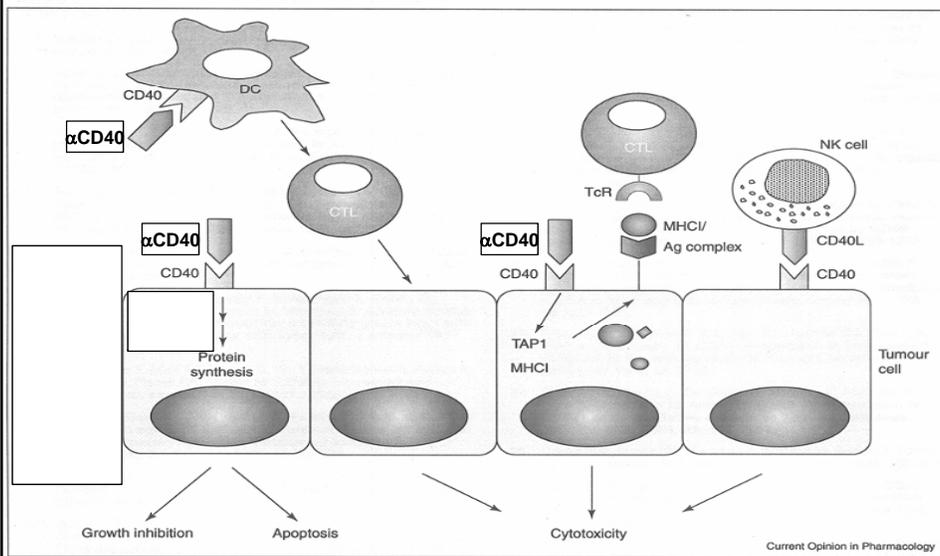


- A principal goal of immunotherapy is to enhance the host immune response against tumors.
- CD40 is a molecule on the surface of immune cells, such as Natural Killer cells, T cells, B cells, and Dendritic Cells.
- The ligation of CD40 on these cells enhances immunological responses, such as cell proliferation,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

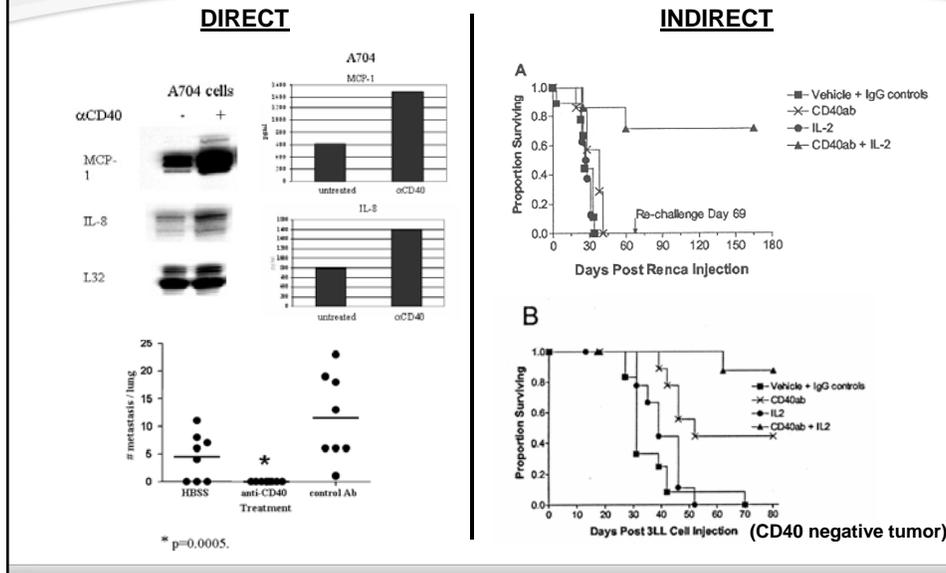
## Technology Applications

- **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<sup>+</sup> tumors
- Promote **synergy** in immune cell activation by combining the administration of  $\alpha$ CD40 antibody with Interleukin 2 or other immunomodulatory cytokines.

## *Commercial Applications/ Collaboration Opportunities*



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

## *Contact Information*



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