Technology Overview

Notch signaling inhibitors are being actively pursued in the clinic for the treatment of cancers and other malignancies. However, success in the clinic has not been realized due to on-target, off-tissue toxicities. Fred Hutch researchers have developed a bispecific platform technology that combines an antigen-specific targeting domain and a Notch binding domain. Proof of concept experiments targeting CD33 on leukemic cells have demonstrated robust and specific inhibition of Notch signaling as compared to Notch inhibitors without the targeting domain in mixed cell populations. In addition, this bispecific molecule can be used to drive development and differentiation of targeted cell populations ex vivo for autologous cell therapy.

Applications

- Novel therapeutic for solid and liquid tumors
- Differentiation of specific cell populations ex vivo for cell therapy manufacturing

Advantages

- Avoids toxicities and other adverse events associated with systemic Notch inhibition
- Platform can be customized to target antigen or cancer of interest

Market Overview

The global market for cancer drugs has hit $100 billion in annual sales and could reach $147 billion by 2018. There are currently 17 pharmaceutical and biotech companies pursuing Notch inhibition to treat a variety of solid and liquid tumors.

Investigator Overview

Irwin Bernstein, MD, Clinical Research Division