**Value Proposition**

Globally, prostate cancer is the second-leading cause of new cancer cases in men and the sixth-leading cause of cancer-related death in men. Prostate-related health issues are on the rise, and the number of cancer cases is increasing, leading to the need for improved treatments and diagnostic technologies. While 80% of patients with prostate cancer respond favorably to androgen ablation therapy through surgical or medical castration, most patients experience a relapse of the disease within 1-2 years. The use of chemotherapies have improved treatment in these metastatic castration resistant prostate cancers (mCRPCs), but off-target activities of these drugs have necessitated the search for novel and selective drugs for mCRPC. Although copper (Cu) has long been recognized as a factor in cancer cell proliferation, approaches to date do not optimally exploit this aspect for clinical effect. A drug that could manipulate the Cu biology of these cells would be a potent therapeutic for mCRPC and enter a growing global prostate cancer therapeutic market. Furthermore, a drug that is activated only in mCRPC tissue would elude off-target activity and side reactions.

**Technology**

Dr. Katherine Franz and coworkers have demonstrated a method of directing the cytotoxicity of copper dithiocarbamates against prostate cancer cells. In order to accomplish this, the copper-chelating characteristics of an approved drug for alcohol aversion therapy (disulfiram) is repurposed to achieve copper-assisted toxicity. A prochelator-approach leveraging a cancer-specific activation mechanism creates conditions for a selective prostate cancer treatment. This strategy is particularly effective due to the increased copper uptake observed in prostate cancer cells.

**Advantages**

- A new strategy to leverage amplified copper metabolism of prostate cancer
- Potentially minimizes side reactions and off-target pathways that impede disulfiram’s anticancer potential
- This versatile synthetic strategy could be readily modified to target different cancers or diseases
Publications

- Copper signaling axis as a target for prostate cancer therapeutics (Cancer Research, 2014)
- Leveraging γ-Glutamyl Transferase to direct cytotoxicity of copper dithiocarbamates against prostate cancer cells (Angewandte, 2018)