Introduction

Cancer Anorexia-Cachexia Syndrome (CACS) is highly prevalent in oncology patients but often goes untreated until closer to the end of life. CACS is characterized by many metabolic alterations including insulin resistance and reduced glucose tolerance, common in both cancer and type 2 diabetes. Due to the similarities in metabolic alterations, some FDA approved drugs could be repurposed to treat CACS.

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Methods

- Chronic systemic injections (B.I.D., i.e. twice per day) of 3mg/kg Ex4 (positive control), Cbi-Ex4 (equimolar dose), and saline (negative control) at 0 and 6 hours post dark onset (n=7-8/group).
- Food intake, body weight, and kaolin consumption (established proxy of malaise in rats) were recorded daily.
- Glucose tolerance was assessed using the intraperitoneal glucose tolerance test (IPGTT).
- For tumor-bearing studies, in vitro cultured Morris-7777 hepatoma cells (10^7 cells/animal) were inoculated to induce subcutaneous tumor growth.

Results

- Tumor-bearing rats experience hypophagia, body weight loss, and reduced glucose metabolism.
- Chronic delivery of Cbi-Ex4 improves glucose homeostasis without hypophagia or malaise.

Conclusion & Outlook

- Chronic Cbi-Ex4 delivery successfully mitigated hypophagia and malaise typically induced by native Ex4, while retaining its beneficial glucoregulatory properties.
- Food intake and body weight were significantly higher in the Cbi-Ex4 treated group relative to Ex4.
- In contrast to Ex4, kaolin consumption was absent following chronic delivery of Cbi-Ex4.
- These differences are not a consequence of a general lack of effect because the beneficial effects on glucose homeostasis remained, displayed by IPGTT results.

Current ongoing studies seek to investigate Cbi-Ex4’s efficacy in ameliorating glucose metabolism without negative side effects in a tumor-bearing model. Further implications involve establishing a model that simulates a human model of CACS.