Effect of GTx-024, a selective androgen receptor modulator (SARM), on physical function in non-small cell lung cancer (NSCLC) patients with muscle wasting

Background
Cancer cachexia causes muscle wasting and leads to decline in physical function. NSCLC patients with weight loss at diagnosis are less able to tolerate chemotherapy, have worse outcomes and shorter survival. This wasting and decline in function may have detrimental consequences early in the course of a patient’s malignancy, underscoring the importance of diagnosing and treating this condition at an early stage. Published data has shown that a 10% improvement in physical function is a substantial clinically meaningful benefit. We conducted a randomized, double-blind, placebo-controlled multi center study to evaluate the effect of GTx-024 on muscle wasting and physical function in patients with cancer cachexia.

Methods
Subjects (n=159) were randomized to oral GTx-024 (1 or 3 mg) or placebo (pbo) daily for 16 weeks. Subjects were males >45 y and postmenopausal females, with ≥2% weight loss in the 6 months prior to randomization and diagnosed with either NSCLC, colorectal cancer, non-Hodgkin's lymphoma, chronic lymphocytic leukemia or breast cancer. The primary endpoint was change in lean body mass. Secondary endpoints included QOL and physical function with clinical benefit defined as 10% improvement in physical function assessed by stair climb power (responder analysis).

Results
103 subjects in the MITT population had stair climb power assessed at baseline and week 16. GTx-024 treated subjects demonstrated clinical benefit compared to pbo (P=0.03). Among NSCLC subjects, 28 were included in the physical function analysis. Seventy-eight percent treated with GTx-024 responded compared to 30% treated with pbo (P=0.02). Physical function was positively correlated with QOL as assessed by the FAACT questionnaire further substantiating clinical benefit (Spearman correlation coefficient = 0.60, P=0.001).

Conclusions
GTx-024 was well tolerated and showed a statistically significant and clinically relevant improvement in physical function in NSCLC subjects. These data provide evidence that GTx-024 may play an important role in the management of patients with NSCLC. Further research is needed to assess the effect of GTx-024 on overall survival.