



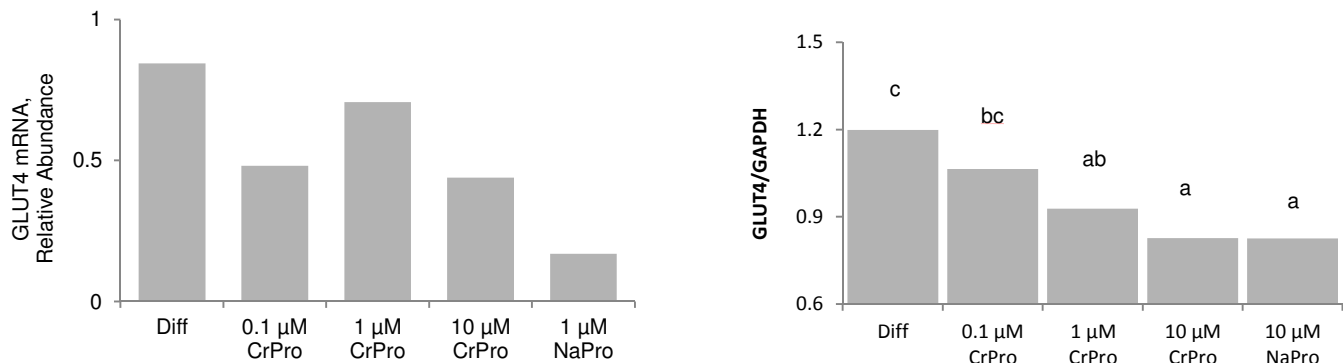
The Effect of Chromium Propionate on Muscle Cells^{1,2}

GAPDH (Glyceraldehyde 3 phosphate dehydrogenase) is an enzyme that catalyzes the sixth step of glycolysis and serves to breakdown glucose for energy and carbon molecules. The ratio of GLUT4/GAPDH is an indication of protein in GLUT4 as compared to protein in GAPDH.

The combination of larger myotubes and the decreased GLUT4/GAPDH protein ratio may suggest that **chromium propionate is causing muscle tissue to be more efficient at glucose uptake**, so the cell actually needs less GLUT4 to take up the same amount of glucose.

Since an increase in myotube number and diameter were still detected, **the glucose transporters may be also more efficient with chromium propionate**. This would explain why mRNA did not change and protein abundance decreased but morphological effects were still observed.

Effect of Chromium Propionate on Bovine Muscle Cells



The data would indicate chromium propionate has a positive effect related to skeletal muscle hypertrophy (size of myotubes) and differentiation (extent and number of myotubes).

References

1. Tokach, R.J., W. Rounds, K.Y. Chung and B.J. Johnson. 2011. The effect of chromium propionate on bovine intramuscular and subcutaneous preadipocytes and muscle satellite cells. J.Anim. Sci. 89 (E-Suppl.):245 (abstr.).
2. Johnson, Bradley, Bernhard, Bryan, Rathmann, Ryan. Chromium affects beef production, health. Feedstuffs, January 21, 2013.