# Growth response and expression of muscle growth-related candidate genes in adult zebrafish fed plant and fishmeal protein-based diets

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The main objective of this study was to examine the effects of a plant protein- vs. fishmeal-based diet on growth response in a population of 24 families, as well as expression of growth-related genes in the muscle of adult zebrafish (Danio rerio). Each family was split to create two fish populations with similar genetic backgrounds, and the fish were fed either fishmeal (FM diet) or plant protein (PP diet) as the unique protein source in their diets from 35 to 98 days postfertilization (dpf). To understand the effect of the PP diet on gene expression, individuals from three families, representative of the mean weight in both populations, were selected. To understand the effect of familiar variation on gene expression, the same families were evaluated separately. At 98 dpf, growth-related genes Igf1a, Igf2a, mTOR, Pld1a, Mrf4, Myod, Myogenin, and Myostatin1b were evaluated. In males, Myogenin, Mrf4, and Igf2a showed changes attributable to the PP diet. In females, the effect of the PP