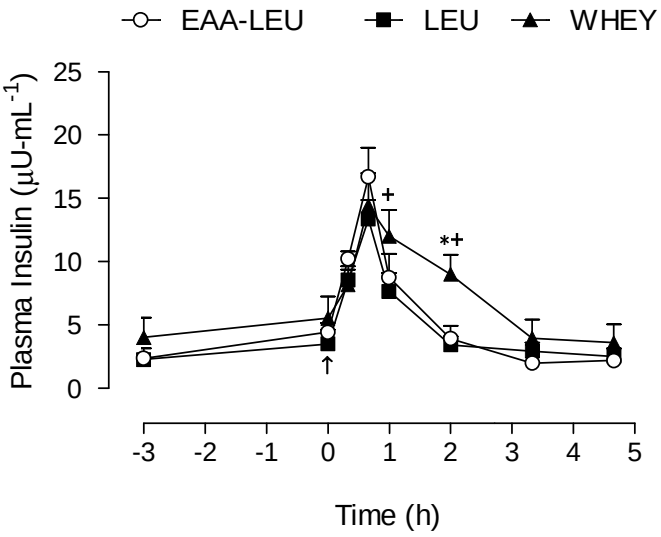
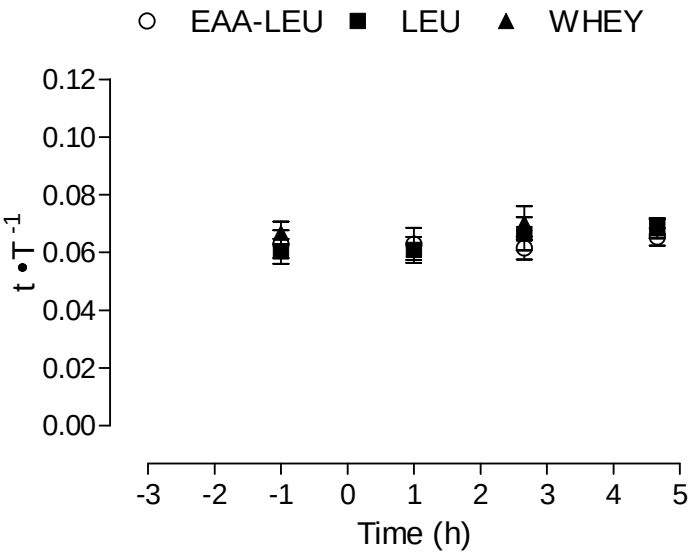
Online Supplemental Material Figure 1.



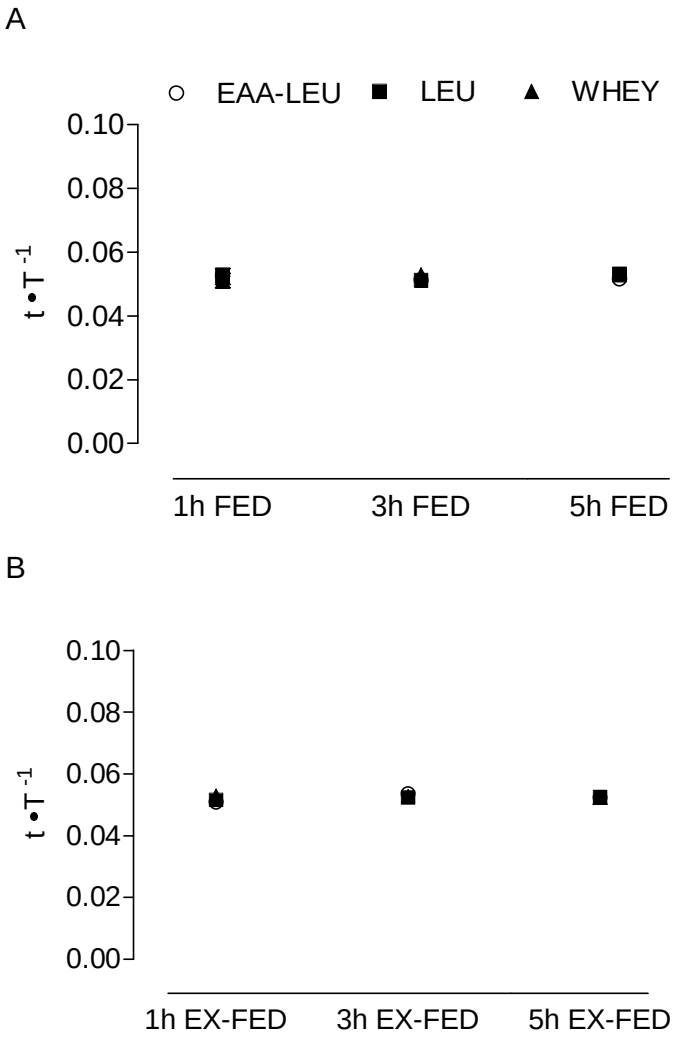
Supplemental Figure 1. Mean (±SEM) plasma insulin concentration (µU-mL^{-1}) following EAA-LEU, LEU, and WHEY treatments. Upward arrow indicates time of treatment administration. *****Significantly greater than EAA-LEU ($P < 0.05$); **+**Significantly greater than LEU ($P < 0.05$).

Online Supplemental Material Figure 2.



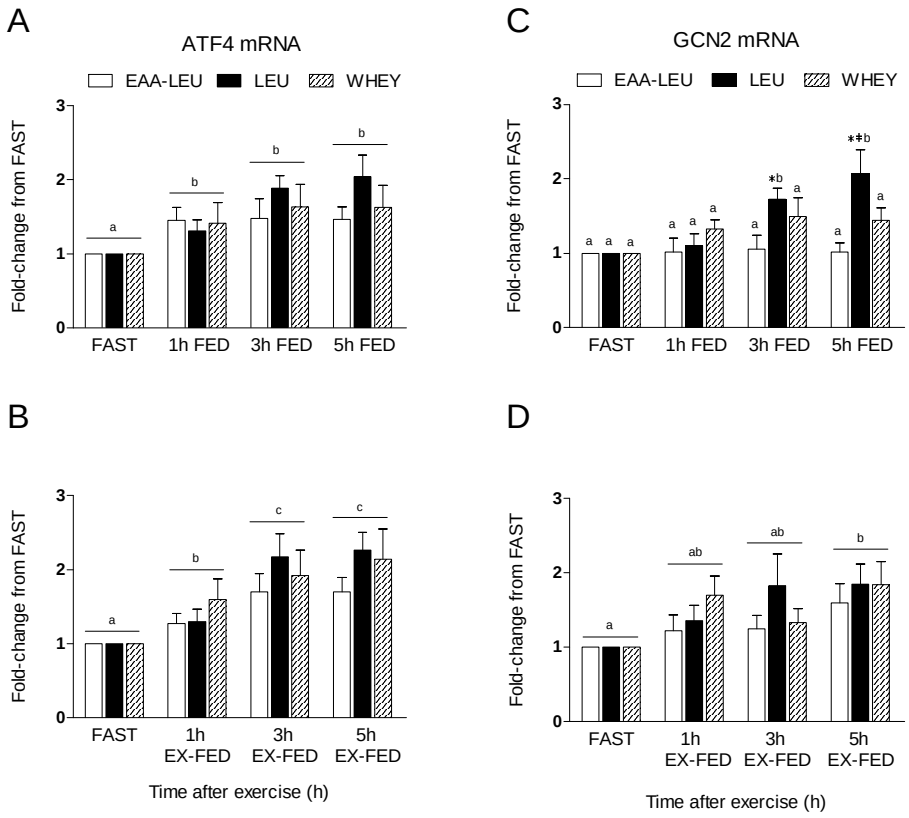
Supplemental Figure 2. Mean (± SEM) plasma free phenylalanine enrichments (tracer-to-tracee ratio $t \bullet T^{-1}$) over time. Data were analyzed using a 2-factor (treatment × time) repeated measures ANOVA and linear regression. There were no differences between treatments (P = 0.66) or across time (P = 0.34). The slope of plasma free phenylalanine enrichment by time was not different from zero for any treatment group (EAA-LEU P = 0.95; LEU P = 0.11; WHEY P = 0.40).

Online Supplemental Material Figure 3.



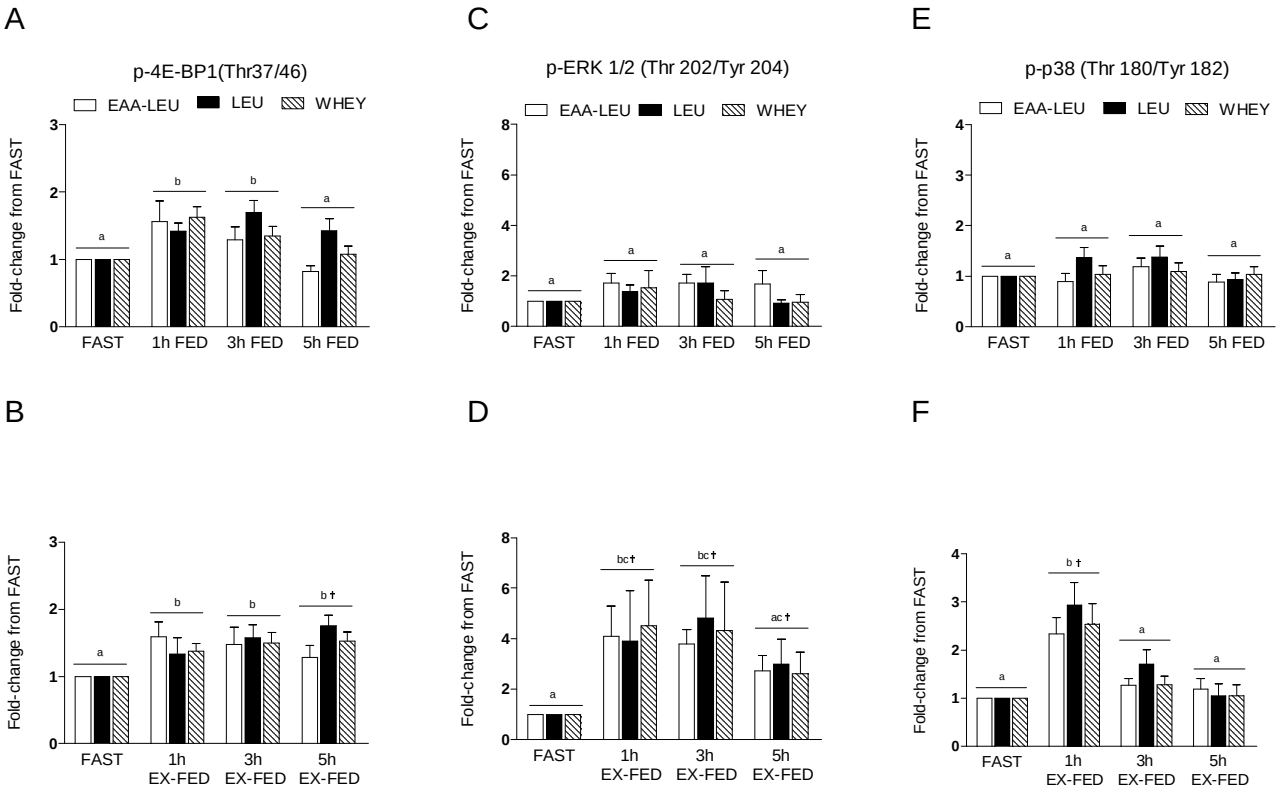
Supplemental Figure 3. Mean (± SEM) intracellular free phenylalanine enrichments (tracer-to-tracee ratio – $t \bullet T^{-1}$) in both FED (A) and EX-FED (B) conditions. Conditions (i.e. FED and EX-FED) were analyzed separately using a 2-factor (treatment × time) repeated measures ANOVA (FED: time $P = 0.92$; treatment, $P = 0.90$. EX-FED: time $P = 0.30$; treatment $P = 0.88$). Condition effects were analyzed separately at 1 ($P = 0.90$), 3 ($P = 0.42$), and 5h ($P = 0.98$) post-exercise recovery using a 2-factor (treatment × condition) ANOVA. Data were also analyzed using linear regression for the difference of the linear regression slope from zero (EAA-LEU FED $P = 0.77$, EX-FED $P = 0.41$; LEU FED $P = 0.84$, EX-FED $P = 0.68$; WHEY FED $P = 0.56$, EX-FED $P = 0.84$).

Online Supplemental Material Figure 4.



Supplemental Figure 4. Mean (± SEM) mRNA expression of ATF4 (A and B) and GCN2 (C and D) (expressed as fold-difference from FAST) at 1, 3, and 5 post-exercise recovery in both FED and EX-FED conditions following EAA-LEU, LEU, and WHEY treatments. Times with different letters are significantly different from each other within that treatment and condition. *****Significantly greater than EAA-LEU within that time and condition ($P < 0.05$); ‡Significantly greater than WHEY within that time and condition ($P < 0.05$).

Online Supplemental Material Figure 5



Supplemental Figure 5. Mean (± SEM) phosphorylation status of 4E-BP1$^{\text{Thr 37/46}}$ (A and B), ERK 1/2$^{\text{Thr202/Tyr204}}$ (C and D) and p38$^{\text{Thr180/Tyr182}}$ (E and F) (expressed as fold-difference from FAST) at 1, 3, and 5 post-exercise recovery in both FED and EX-FED conditions following EAA-LEU, LEU, and WHEY treatments. Times with different letters are significantly different from eachother within that treatment and condition. †Significantly greater than EX-FED condition at that time-point; all $P < 0.05$.

Online Supplemental Material Figure 6

Supplemental Figure 6. Representative blot images for p-Akt ^{Ser473}, p-mTOR^{Ser2448}, p-p70S6k^{Thr389}, p-4E-BP1$^{Thr\ 37/46}$, p-ERK 1/2$^{Thr202/Tyr204}$, p-p38$^{Thr180/Tyr182}$, and α-tubulin at FAST, 1h EX-FED, 1h FED, 3h EX-FED; 3h FED, 5h EX-FED, and 5h FED following EAA-LEU, LEU, and WHEY treatments. Image contrast adjusted to improve clarity.