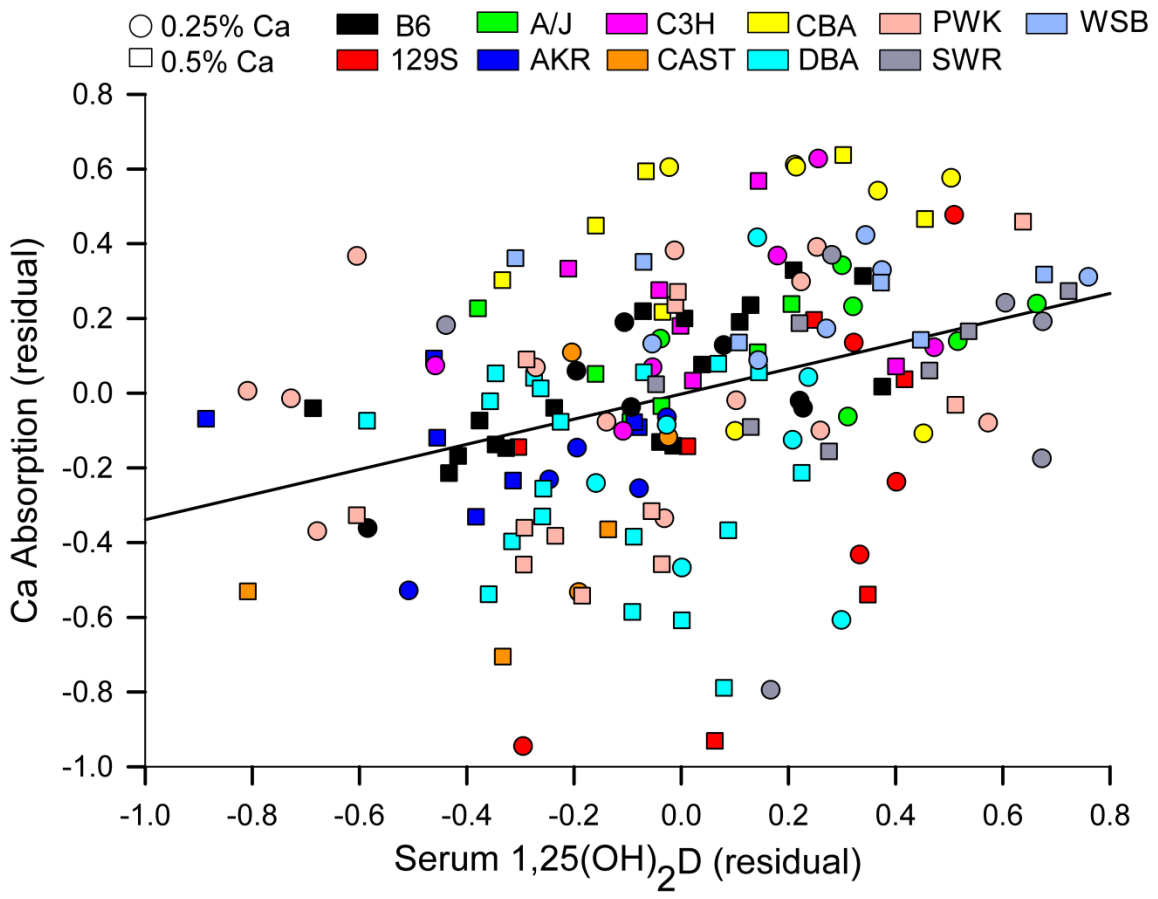
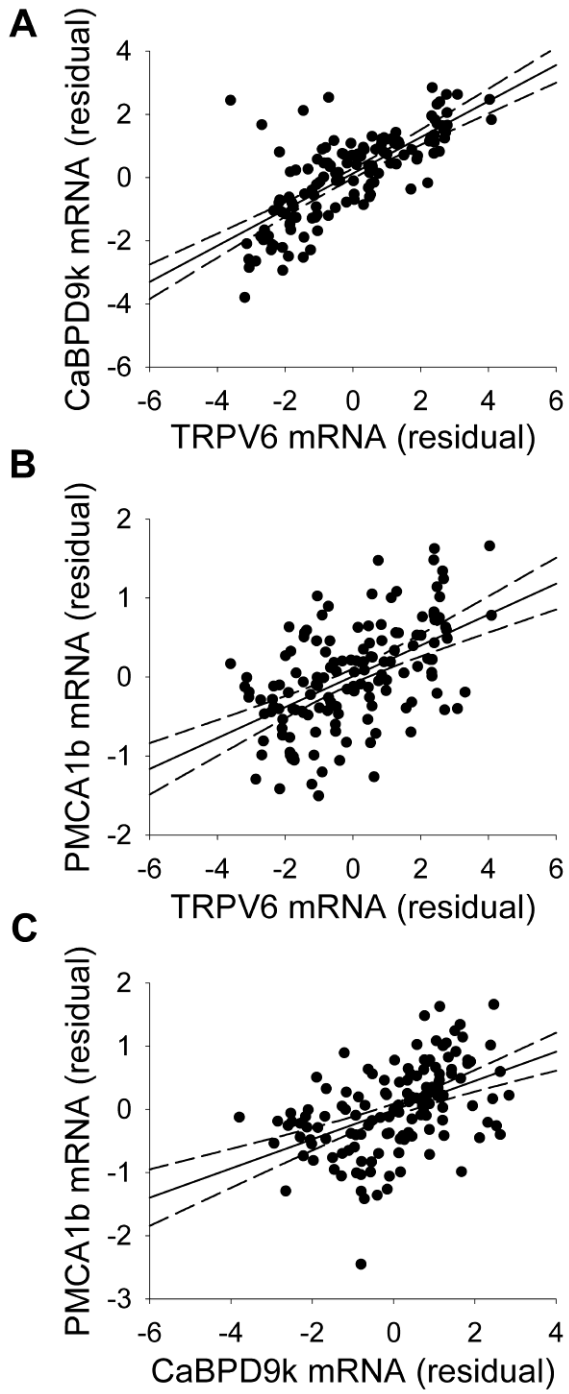
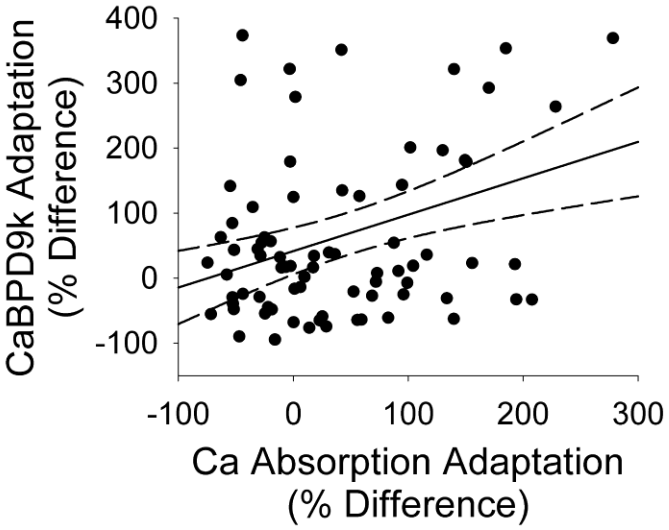


Supplemental Fig. 1. Genetic diversity affects the relationship between 1,25$(OH)_2$D and Ca absorption. Ca absorption and serum 1,25$(OH)_2$D levels were examined in 3 mo. old mice fed either a 0.5% or 0.25% Ca diet starting at 4 wks of age. Transformed, body-size corrected residuals are plotted for the entire population of 11 inbred mouse lines. The relationship between serum 1,25$(OH)_2$D and intestinal Ca absorption across the 11 inbred lines ($r=0.35$, $p<0.001$, $n=166$) is weaker than that observed for the B6 line alone ($r=0.65$, $p<0.01$, $n=24$).



Supplemental Fig. 2. Key members in the facilitated diffusion model are interrelated at the mRNA level. Duodenal tissue was harvested from 3 mo. old mice fed either a 0.5% or 0.25% Ca diet starting at 4 wks of age then RNA was isolated and analyzed for specific mRNA levels by real-time PCR. mRNA of the 3 key members in the facilitated diffusion of Ca absorption were each significantly correlated to the others. (A) TRPV6 to CaBPD9k ($r=0.74$, $p<0.0001$, $n=140$), (B) TRPV6 to PMCA1b ($r=0.53$, $p<0.0001$, $n=142$), and (C) CaBPD9k to PMCA1b ($r=0.47$, $p<0.0001$, $n=141$). Data are shown as body size-corrected residuals with 95% confidence intervals.



Supplemental Fig. 3. Adaptation of CaBPD9k to a low Ca diet is significantly, positively correlated with adaptation of Ca absorption to a low Ca diet. Ca absorption and duodenal mRNA was examined in 3 mo old mice fed a 0.5% or 0.25% Ca diet starting at 4 wks of age. An adaptation parameter was calculated for each mouse on the 0.25% diet. Pearson's correlation was calculated using individual values from mice representing all 11 inbred lines with data points present for both phenotypes ($r=0.38$, $p<0.001$, $n=79$), dotted line = 95% confidence interval.