Supplemental legends

**Figure 1** Vitamin D dose response curve – Final and 6 month serum 25OHD (25-hydroxyvitamin D) levels (ng/ml and both nmol/L) are presented according to the dose of vitamin D IU/d or placebo. Serum 25OHD at 6 and 12 months was significantly lower in placebo group compared to all vitamin D dose groups individually (p <0.05). The blue line is the regression line for 6 month serum 25OHD values and the black line is the corresponding regression line for 12 month values. The red diamonds represent the values at baseline for each group. The analysis is repeated using the actual measured amounts of vitamin D in the tablets (green line).

**Figure 2** Effect of BMI >30 kg/m² on the vitamin D dose response on serum 25OHD at 12 months. The green lines are the 95% prediction interval for Caucasian women at 12 months with BMI>30. The black line is the regression line for serum 25OHD values of African American women at 12 months. Individual points are for serum 25OHD values in African American women at 12 months with BMI>30 kg/m².

**Figure 3** Effect of BMI <30 kg/m² on the vitamin D dose response on serum 25OHD at 12 months. The green lines are 95% prediction interval for Caucasian women at 12 months with BMI<30 kg/m². The black line is the regression line for serum 25OHD values of African American women at 12 months. Individual points are for serum 25OHD values in African American women at 12 months with BMI<30 kg/m².

**Figure 4** Effects of different doses of vitamin D or placebo on serum parathyroid hormone levels (pg/ml) at 12 months. There is no significant effect of dose on serum PTH. The regression lines are shown for baseline data (red), 6 month values (blue) and 12 month values (black). The analysis is repeated using the actual measured amounts of vitamin D in the tablets (green line).
Serum 25OHD at each time point

Vitamin D dose

serum 25OHD ng/ml

Baseline
6 month
12 month
measured 12 month

Fig 1
Fig 2

Serum 25OHD at 12 month BMI $\geq 30$ kg/m$^2$

Green lines are 95% prediction interval of the white women at 12 months with BMI $\geq 30$
Black line and points are for the AA women at 12 months with BMI $\geq 30$
Fig 3B

Serum 25OHD at 12 month BMI < 30 kg/m²

- Green lines are 95% prediction interval of the white women at 12 months with BMI <30
- Black line and points are for the AA women at 12 months with BMI <30

Vitamin D dose IU/day

- Serum 25OHD ng/ml
- Serum 25OHD nmol/l
PTH at each time point

Vitamin D dose

Baseline
6 month
12 month
measured 12 month

Figure 4