Supplementary Table 1. Summary of Differences between Cinacalcet and Vitamin D at Baseline

	Vitamin D Mean (SD)*	Cinacalcet Mean (SD)*	Difference Cinacalcet – Vitamin D Analog (SD)	95% CI for Difference	*P* value
PTH (pg/mL), Median (Q1, Q3)	684.0 (578.0, 861.0)	722.0 (528.0, 1046.0)	38.0	(-66, 112)**	0.79***
Calcium (mg/dL)	9.49 (0.54)	9.55 (0.46)	0.06 (0.50)	−0.05, 0.17	0.30
Phosphorus (mg/dL)	5.77 (1.49)	5.73 (1.62)	-0.04 (1.55)	−0.39, 0.30	0.80
Ca *x* P (mg^2, dL^2)	54.58 (14.16)	54.81 (15.86)	0.24 (15.03)	−3.14, 3.61	0.89
FGF-23 (ng/L)	348.2 (282.0)	336.0 (300.2)	−12.23 (291.4)	−82.67, 58.20	0.73
25(OH)D (ng/mL)	26.13 (14.12)	25.59 (13.97)	−0.55 (14.04)	−3.72, 2.62	0.73

Abbreviations: SD, standard deviation; CI, confidence intervals; PTH, parathyroid hormone; FGF-23, fibroblast growth factor-23.

*Except for PTH, where values are shown as medians and $25^{th}/75^{th}$ percentiles

** 95% bootstrap CI for difference of medians

*** *P* value from non-parametric Wilcoxon test, performed due to the skew of the PTH values.

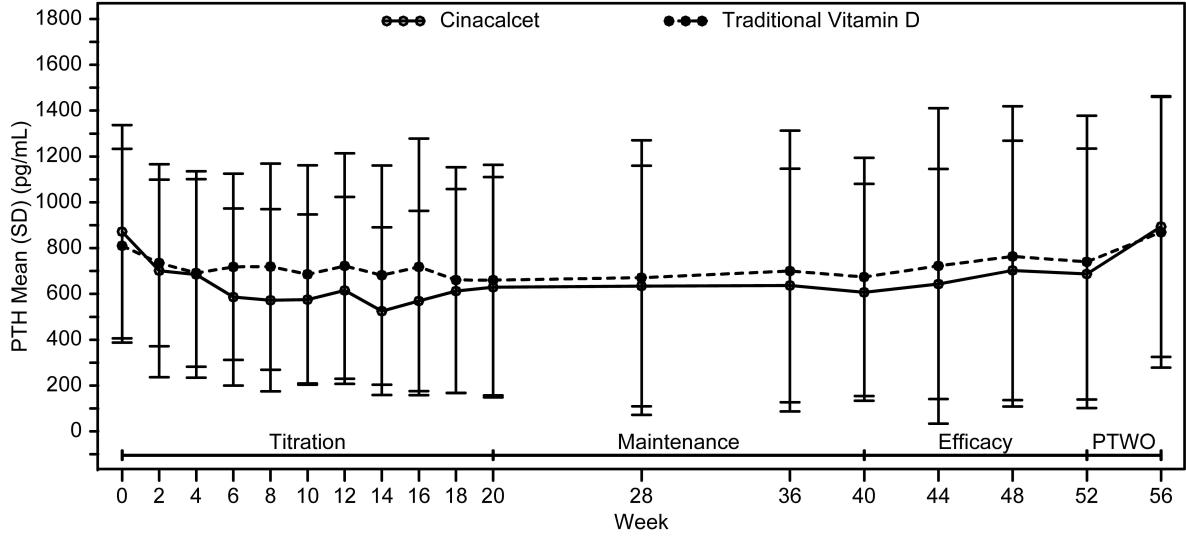
Supplemental Material

Additional details on Results: analyses based on stratification of dialysate calcium concentration

Supplementary Figure 1 (A, B) Mean (SD) PTH (pg/mL) over time by treatment arm when dialysate calcium concentration was (B) ≥2.5 mEq/L or (C) <2.5 mEq/L. Abbreviations: DCC, Dialysate Calcium Concentration; PTH, parathyroid hormone; PTWO, posttreatment washout phase.

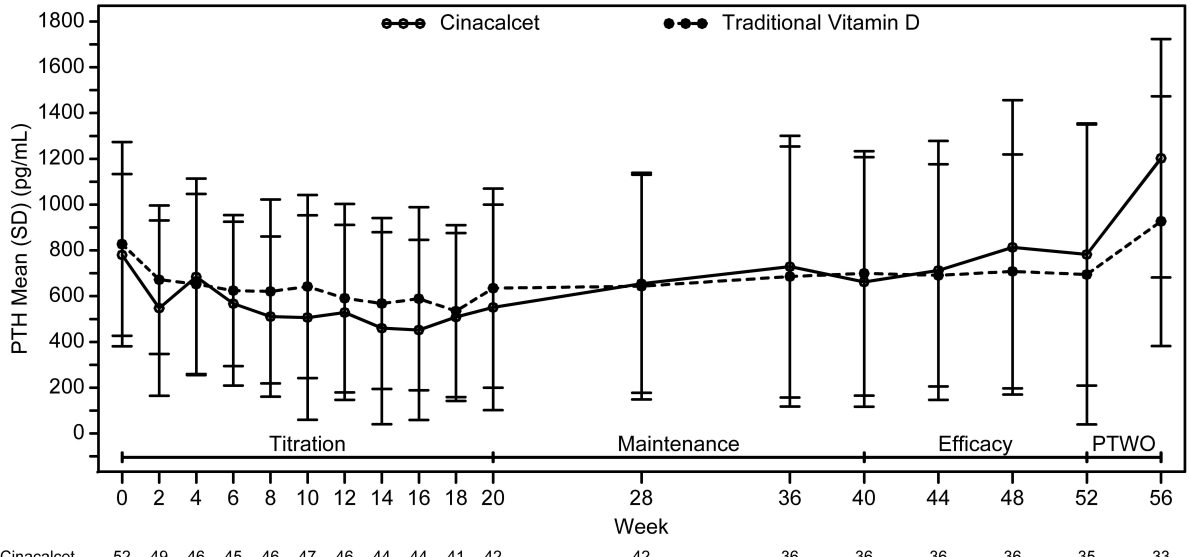
Supplementary Figure 2 (A-D) shows the levels of PTH and the doses of cinacalcet and vitamin D analogs over the course of the study when stratified according to dialysate calcium concentration. **Figures 2A** and **2B** demonstrate that the increase in PTH after washout between weeks 52 and 56 in both treatment arms was greater in participants receiving low dialysate calcium concentrations, and that this was generally more pronounced in participants treated with cinacalcet. Mean cinacalcet dose (**Figure 2C**) did not vary according to dialysate calcium concentration (<2.5 mEq/L, 83.6 mg/d; ≥2.5 mEq/L, 82.9 mg/d), and reached the highest doses by week 20 with stable levels thereafter. Mean doses of vitamin D analogs increased progressively (**Figure 2D**) during the study, with higher doses used in participants treated with low dialysate calcium concentrations (<2.5 mEq/L, 23.5 µg paricalcitol equivalent units per week; ≥2.5 mEq/L, 17.6 µg [IV] and 18.5 µg [oral] paricalcitol equivalent units per week during the EAP).

Supplementary Figure 1A. Mean (SD) PTH (pg/mL) over time by treatment arm when dialysate concentration was ≥2.5 mEq/L

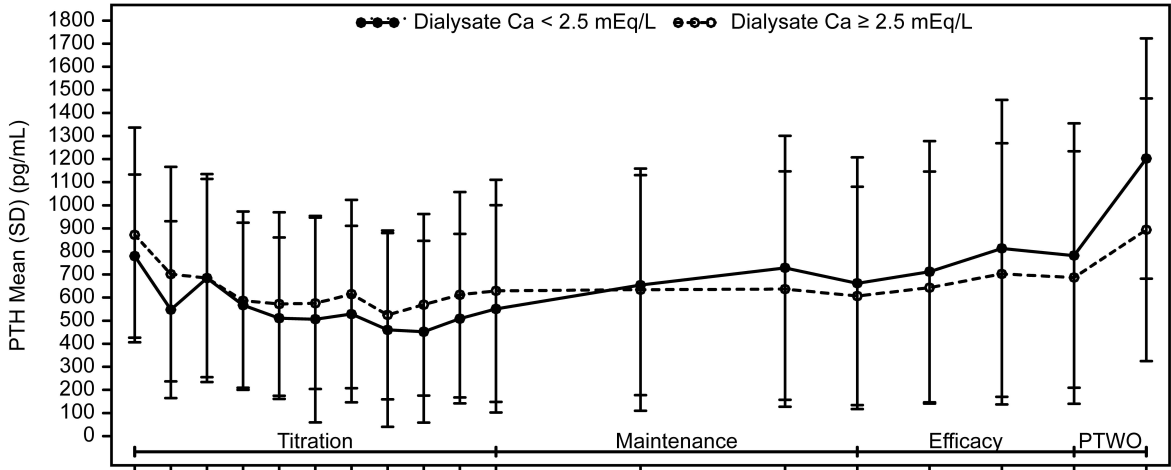


Cinacalcet	101	95	96	93	93	92	92	87	88	87	87	85	78	80	76	78	76	70
Traditional VD	106	102	100	99	95	88	89	89	86	84	87	81	78	77	75	75	73	72

Supplementary Figure 1B. Mean (SD) PTH (pg/mL) over time by treatment arm when dialysate calcium concentration was <2.5 mEq/L

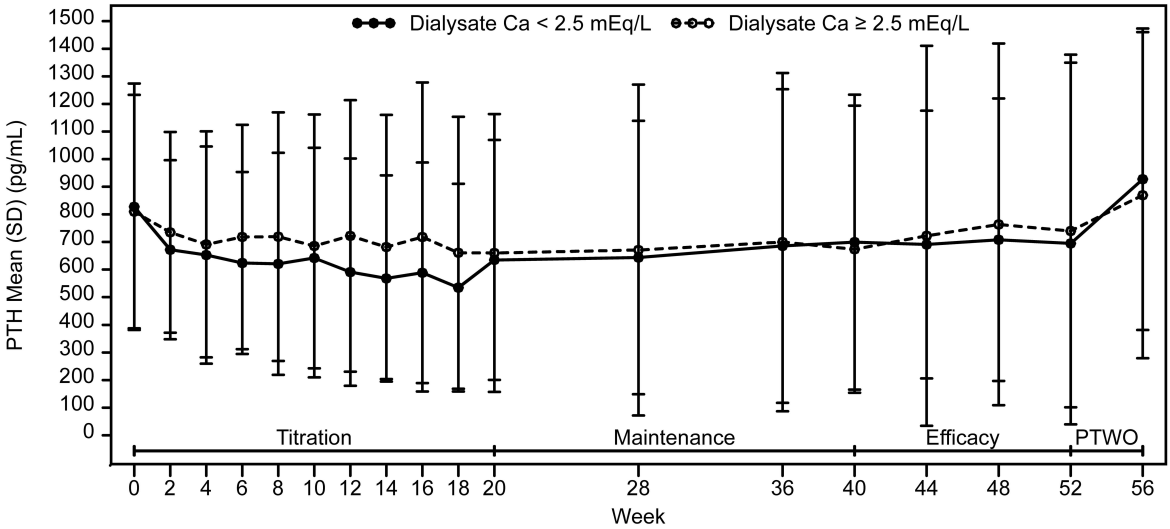


Supplementary Figure 2A. Mean (SD) PTH (pg/mL) over time by dialysate calcium concentration (mEq/L) for the cinacalcet treatment arm



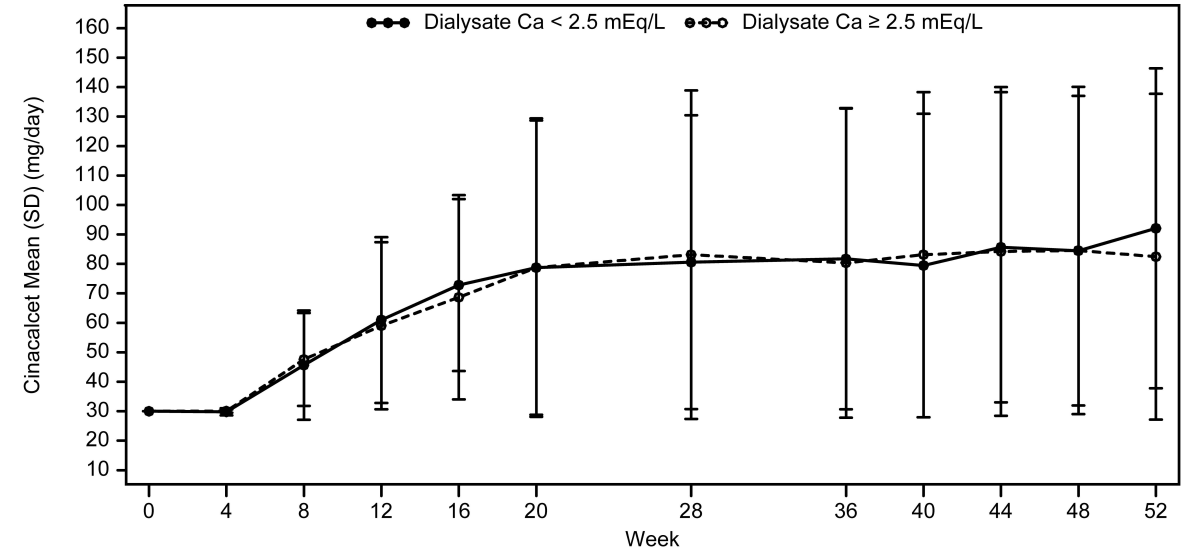
Dialysate Ca < 2.5	52	49	46	45	46	47	46	44	44	41	42	42	36	36	36	36	35	33
Dialysate Ca ≥ 2.5	101	95	96	93	93	92	92	87	88	87	87	85	78	80	76	78	76	70

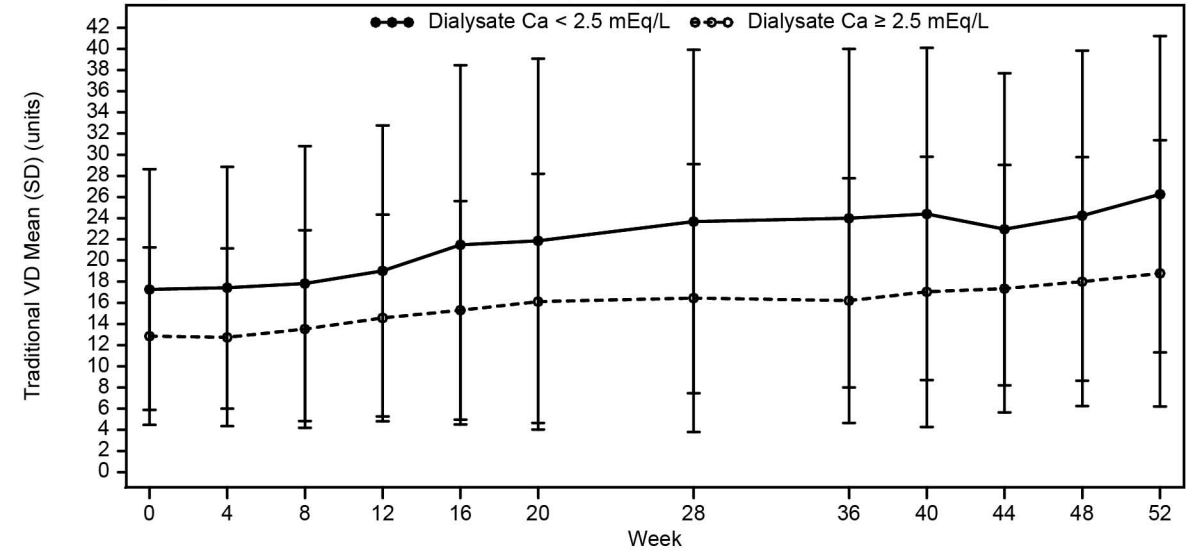
Supplementary Figure 2B. Mean (SD) PTH (pg/mL) over time by dialysate calcium concentration (mEq/L) for the vitamin D analog treatment arm



Dialysate Ca < 2.5	50	48	44	47	47	46	43	43	41	40	40	41	40	39	40	39	38	38
Dialysate Ca ≥ 2.5	106	102	100	99	95	88	89	89	86	84	87	81	78	77	75	75	73	72

Supplementary Figure 2C. Mean (SD) cinacalcet dose over time by dialysate calcium concentration (mEq/L)



Dialysate Ca < 2.5	52	52	48	47	44	44	41	39	35	34	34	33
Dialysate Ca ≥ 2.5	101	101	96	94	89	85	84	79	75	74	72	69

Supplementary Figure 2D. Mean (SD) vitamin D analog dose over time by dialysate calcium concentration (mEq/L)