

Supplemental Table 1a: Safety variable (pQCT) at randomization.

<b>Covariate</b>	<b>Overall (N=30)</b>	<b>Placebo (N=14)</b>	<b>Topiramate (N=16)</b>
<b>PQCT*</b>			
Radius (4%) Trabecular vBMD	254 (28.6) <sup>11</sup>	255 (24.4) <sup>4</sup>	252 (34.2) <sup>7</sup>
Radius (4%) Trabecular CSA	240 (62.3) <sup>11</sup>	259 (42.0) <sup>4</sup>	218 (75.8) <sup>7</sup>
Radius (4%) BSI	39.9 (12.8) <sup>11</sup>	42.2 (12.4) <sup>4</sup>	37.2 (13.5) <sup>7</sup>
Radius (33%) Cortical vBMD	1142 (40.8) <sup>13</sup>	1149 (42.7) <sup>5</sup>	1135 (40.2) <sup>8</sup>
Radius (33%) Cortical CSA	84.1 (12.6) <sup>13</sup>	90.3 (13.3) <sup>5</sup>	77.2 (7.7) <sup>8</sup>
Radius (33%) Cortical thickness	3.1 (0.31) <sup>13</sup>	3.2 (0.36) <sup>5</sup>	3.0 (0.19) <sup>8</sup>
Radius (33%) Zp	271 (64.6) <sup>13</sup>	300 (67.9) <sup>5</sup>	239 (45.3) <sup>8</sup>
Radius (33%) SSI	236 (59.5) <sup>13</sup>	264 (59.6) <sup>5</sup>	205 (44.0) <sup>8</sup>
Tibia (4%) Trabecular vBMD	270 (31.6) <sup>9</sup>	276 (37.1) <sup>4</sup>	266 (26.6) <sup>5</sup>
Tibia (4%) Trabecular CSA	823 (176.5) <sup>9</sup>	824 (80.6) <sup>4</sup>	823 (237.6) <sup>5</sup>
Tibia (4%) BSI	124 (31.2) <sup>9</sup>	127 (30.9) <sup>4</sup>	122 (32.8) <sup>5</sup>
Tibia (50%) Cortical vBMD	1114 (31.4) <sup>9</sup>	1113 (33.3) <sup>4</sup>	1114 (31.2) <sup>5</sup>
Tibia (50%) Cortical CSA	341 (59.0) <sup>9</sup>	351 (52.7) <sup>4</sup>	331 (65.3) <sup>5</sup>
Tibia (50%) Cortical thickness	5.4 (0.81) <sup>9</sup>	5.4 (0.78) <sup>4</sup>	5.3 (0.88) <sup>5</sup>
Tibia (50%) Zp	2610 (522.1) <sup>9</sup>	2703 (549.0) <sup>4</sup>	2525 (507.2) <sup>5</sup>
Tibia (50%) SSI	2279 (454.9) <sup>9</sup>	2341 (446.8) <sup>4</sup>	2223 (476.4) <sup>5</sup>

\* superscript denotes number of subjects missing given observation

vBMD, volumetric bone mineral density (mg/cm<sup>3</sup>); CSA, cross-sectional area (mm<sup>2</sup>); BSI, total bone strength index (mg<sup>2</sup>/mm<sup>4</sup>); BMC, bone mineral content (mg/mm); cortical thickness (mm); Zp, non-weighted polar section modulus (mm<sup>3</sup>); SSI, strength strain index (mm<sup>3</sup>)

Supplemental Table 1b. Change in safety variable (pQCT) from randomization using completers only.

Outcome	N	Placebo $\Delta$ [mean (SD)]	Topiramate $\Delta$ [mean (SD)]	Mean Difference [Topiramate-Placebo] (95% CI)	P-value
PQCT					
Radius (4%): Trabecular vBMD	17	-7.52 (17.88)	-9.87 (16.70)	-2.36 (-17.87, 13.14)	0.770
Radius (4%): Trabecular CSA	17	-46.22 (57.58)	-13.48 (86.89)	-1.82 (-52.94, 49.29)	0.945
Radius (4%): BSI	17	5.32 (4.94)	0.87 (9.84)	-5.34 (-12.06, 1.38)	0.142
Radius (33%): Cortical vBMD	15	8.76 (21.56)	9.60 (23.13)	-1.42 (-21.54, 18.70)	0.892
Radius (33%): Cortical CSA	15	1.38 (3.71)	3.30 (8.34)	0.00 (-7.95, 7.95)	1.000
Radius (33%): Cortical thickness	15	0.05 (0.13)	0.12 (0.22)	0.06 (-0.15, 0.26)	0.598
Radius (33%): Zp	15	6.77 (22.22)	11.12 (35.11)	0.39 (-33.69, 34.48)	0.982
Radius (33%): SSI	15	6.59 (19.01)	11.46 (26.19)	-3.96 (-29.06, 21.14)	0.763
Tibia (4%): Trabecular vBMD	19	6.89 (12.54)	-1.32 (9.19)	-9.12 (-18.95, 0.71)	0.088
Tibia (4%): Trabecular CSA	19	28.00 (107.02)	47.24 (109.92)	16.91 (-75.68, 109.51)	0.725
Tibia (4%): BSI	19	7.58 (8.53)	-0.49 (8.97)	-8.23 (-16.07, -0.39)	0.056
Tibia (50%): Cortical vBMD	19	15.69 (9.45)	2.14 (26.05)	-12.39 (-28.76, 3.98)	0.157
Tibia (50%): Cortical CSA	19	5.94 (6.10)	10.84 (17.89)	4.38 (-7.77, 16.53)	0.490
Tibia (50%): Cortical thickness	19	0.03 (0.13)	0.07 (0.39)	0.03 (-0.24, 0.30)	0.824
Tibia (50%): Zp	19	81.47 (127.55)	119.93 (205.10)	54.74 (-76.64, 186.12)	0.426
Tibia (50%): SSI	19	127.11 (121.37)	99.77 (122.12)	-24.4 (-129.99, 81.19)	0.657

vBMD, volumetric bone mineral density ( $\text{mg}/\text{cm}^3$ ); CSA, cross-sectional area ( $\text{mm}^2$ ); BSI, total bone strength index ( $\text{mg}^2/\text{mm}^4$ ); BMC, bone mineral content ( $\text{mg}/\text{mm}$ ); cortical thickness (mm); Zp, non-weighted polar section modulus ( $\text{mm}^3$ ); SSI, strength strain index ( $\text{mm}^3$ )