

## Supplementary Information

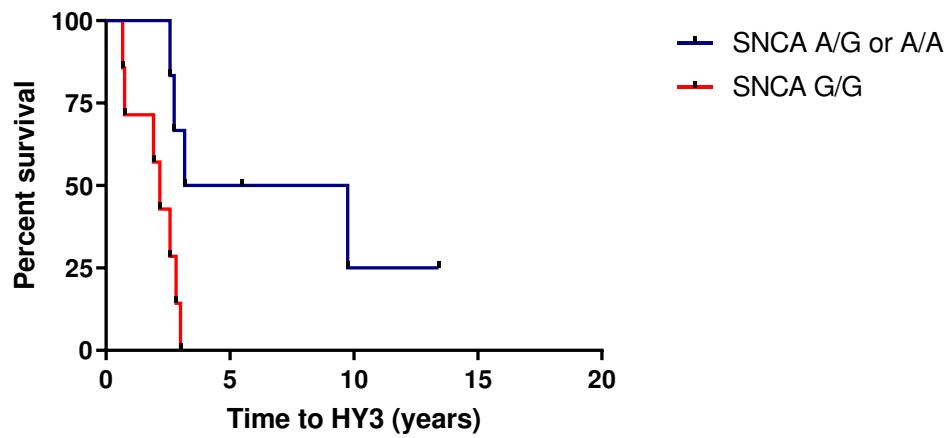
	<b>G/G</b>	<b>G/A and A/A</b>	<b>P-value</b>
<b>Number</b>	7	13	-
<b>Gender M:F</b>	7:0	7:6	0.032
<b>Age at diagnosis (SD)</b>	72.4 years (10.3)	75.5 years (9.3)	0.297
<b>Years in education (SD)</b>	9.7 years (1.1)	10.6 years (2.8)	0.428
<b>Total UPDRS at baseline (SD)</b>	48.8 (15.7)	44.1 (14.0)	0.5
<b>Motor UPDRS at baseline (SD)</b>	21.9 (13.0)	30.8 (9.9)	0.825
<b>Hoehn &amp; Yahr stage at baseline (SD)</b>	2.1 (0.6)	2.3 (0.6)	0.445
<b>MMSE at baseline (SD)</b>	27.6 (1.5)	27.2 (1.9)	0.624
<b>BDI at baseline (SD)</b>	7.9 (5.5)	7.4 (5.6)	0.858
<b>Baseline levodopa equivalent dose (SD)</b>	188.6 mg (201.0)	185.4mg (213.3)	0.974

Supplementary Table 1 – Patient demographics.

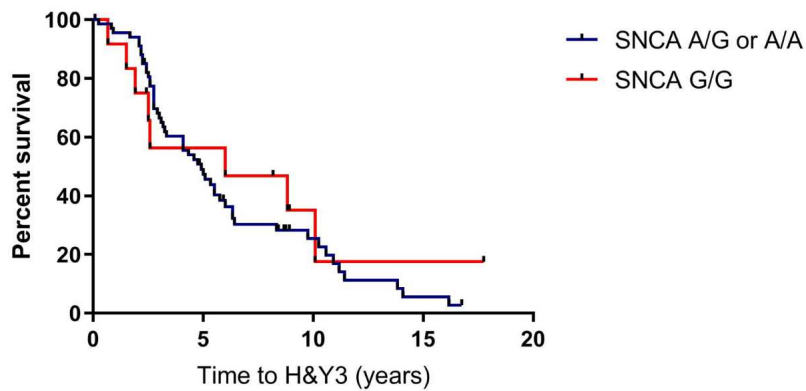
<b>Patient Number</b>	<b>GBA Variant</b>	<b>SNCA Genotype</b>
<b>1</b>	E326K	G/G
<b>2</b>	T369M	G/G
<b>3</b>	N370S*	G/G
<b>4</b>	c. 762 - 18 T>A	G/G
<b>5</b>	L444P*	G/G
<b>6</b>	T369M	G/G
<b>7</b>	c. 762 - 18 T>A	G/G
<b>8</b>	T369M	A/G
<b>9</b>	c. 762 - 18 T>A	A/G
<b>10</b>	E326K	A/G
<b>11</b>	T369M	A/G
<b>12</b>	E326K	A/G
<b>13</b>	T369M	A/G
<b>14</b>	R257Q*	A/G
<b>15</b>	E326K	A/A
<b>16</b>	R48W*	A/A
<b>17</b>	L119L	A/A
<b>18</b>	c. 762 - 18 T>A	A/A
<b>19</b>	E326K	A/A
<b>20</b>	N462K*	A/A

**Supplementary Table 2 – GBA Variants and SNCA rs356219 carrier status in all subjects.**

Asterixes indicate variants previously associated with Gaucher disease.



**Supplementary figure 1 – Survival analyses in *GBA1*-PD patients comparing those with high- and low-risk variants in the *SNCA* rs356219 polymorphism.** Kaplan-Meier curves for time to postural instability. To control for sex as a potential confounder, female patients were excluded, as all subjects in the *SNCA* G/G group were male. Abbreviations: HY3 = Hoehn and Yahr stage three.



**Supplementary Figure 2 – Time to postural instability in PD patients without *GBA* variants, comparing those with high- and low-risk variants in the *SNCA* rs356219 polymorphism.** Kaplan-Meier curve for time to postural instability in patients, comparing those carrying the G/G *SNCA* rs356219 variant to A carriers at this locus. Abbreviations: H&Y3 = Hoehn and Yahr stage three.