Supplementary Material

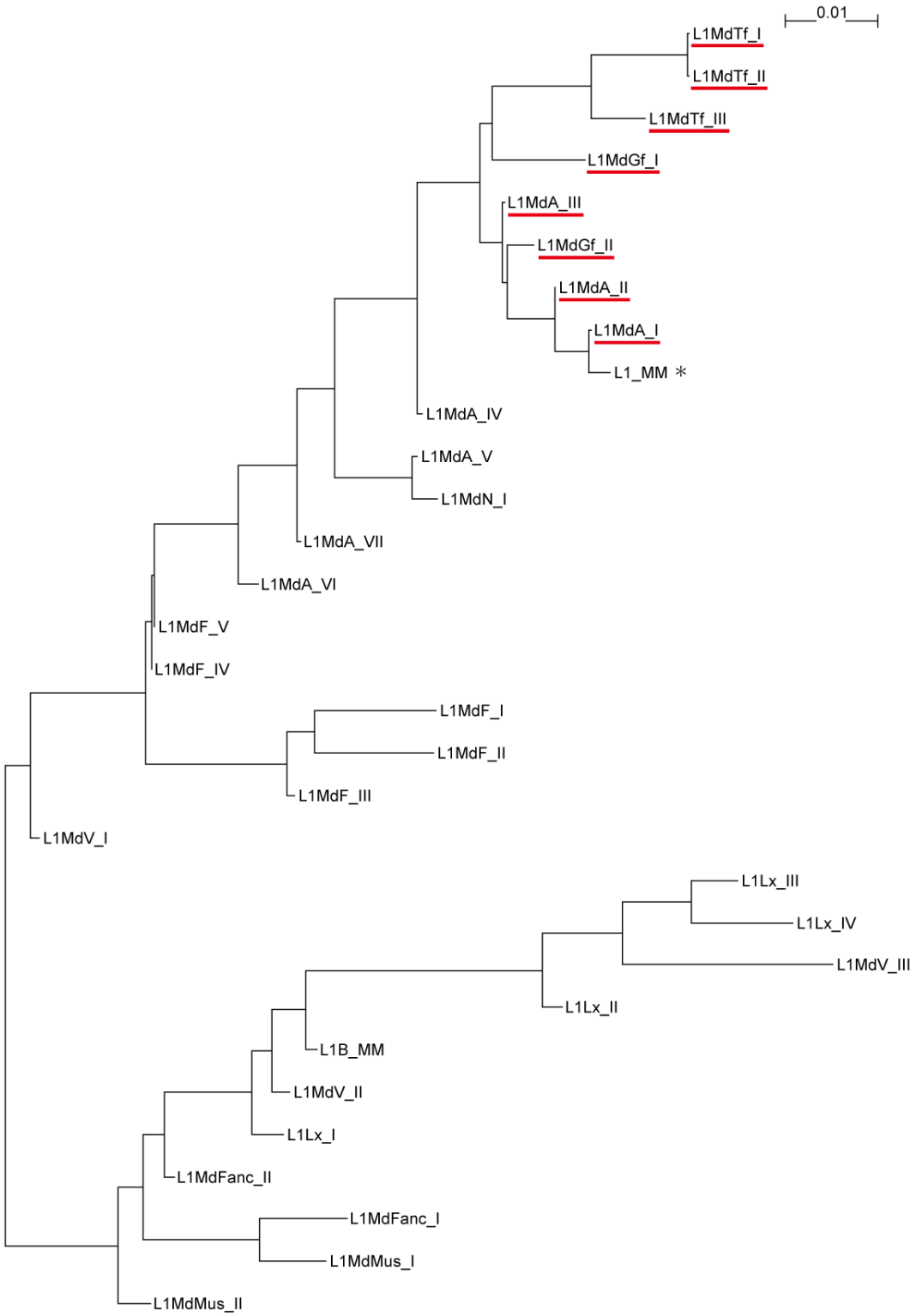


Figure S1. Dendritic tree of mouse L1 subfamily based on ORF2. Red underlines indicate subfamilies retaining retrotransposition activity. * is an ancestor LINE-1 sequence predicted from the confirmed LINE-1 (Shehee et al., 1987).

(A)

GfII_ORF1-F

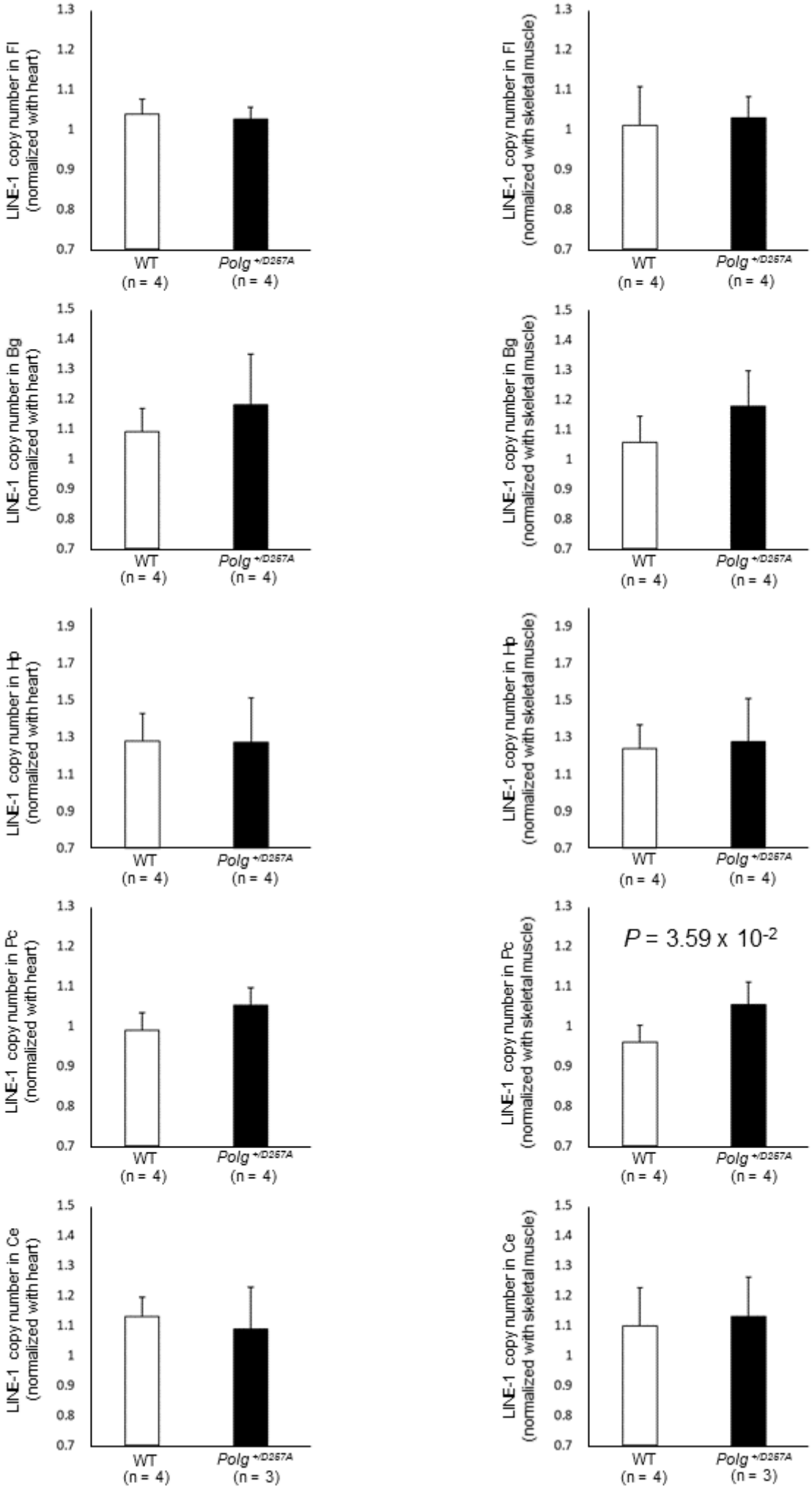
GfII_ORF1-R

(B)

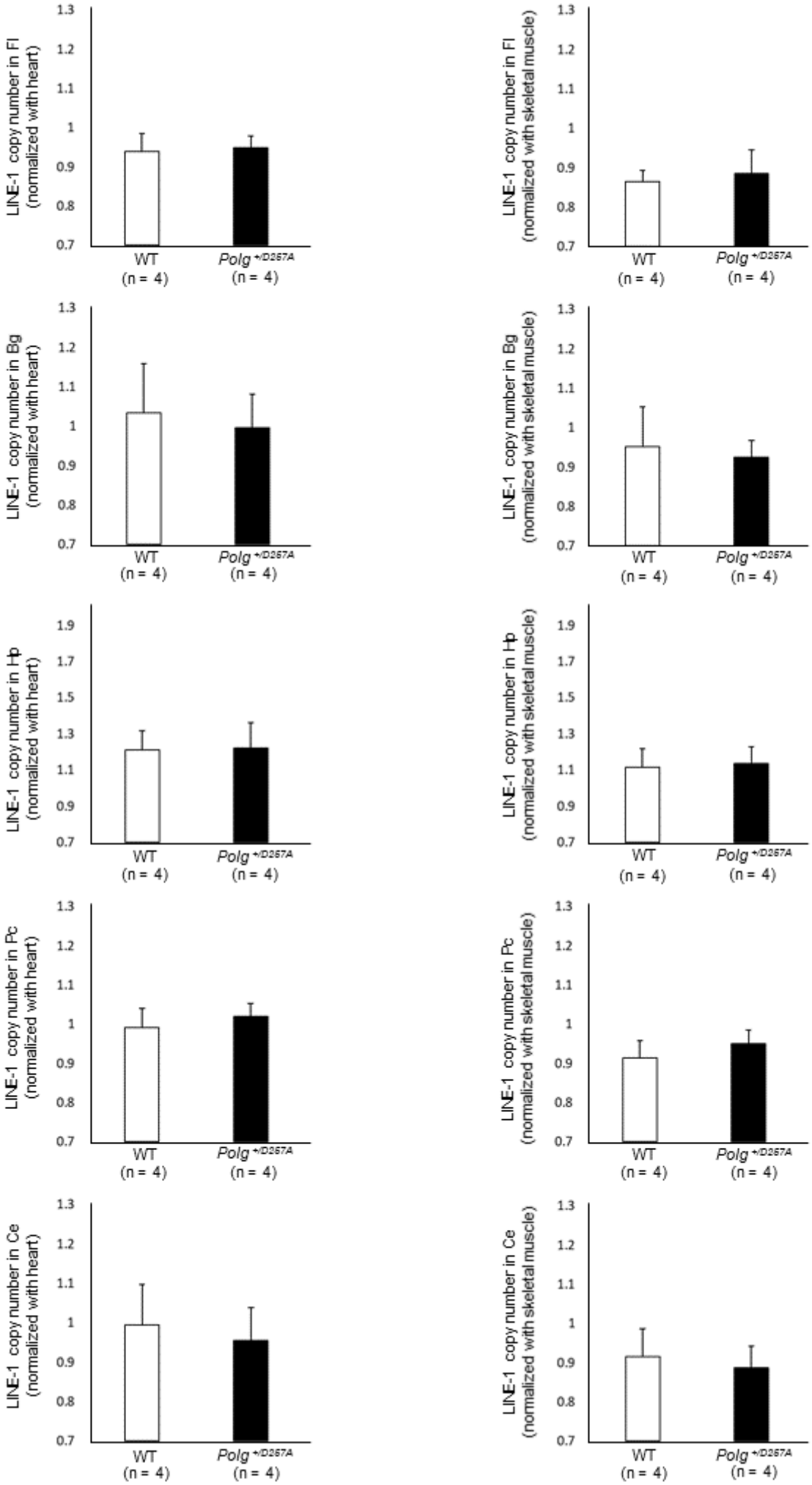
L1MdGf_II

Figure S2. Sequencing analysis of the PCR products amplified with the GfII_ORF1 primer pair. (A) Results of direct sequencing of PCR products. * is the sequence specific for GfII. (B) Dendrogram of 65 sequences derived from single colonies and 31 mouse LINE-1 consensus sequences. Amplicons of the GfII ORF1 are highlighted in pink. Clones that contained GfII-specific sequences are highlighted in yellow. The consensus sequence for GfII is shown in the red rectangle.

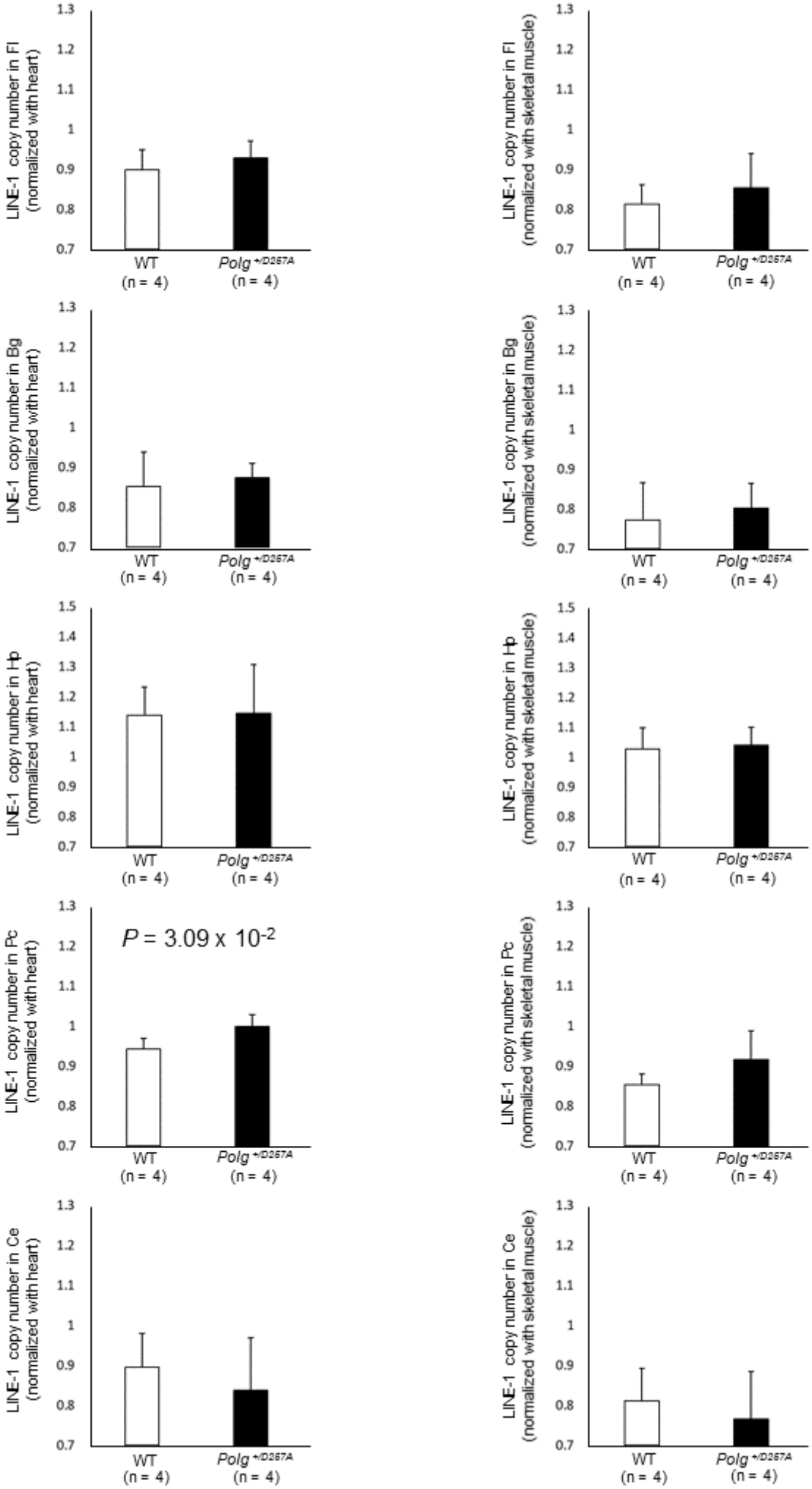
(A) m5UTR


LINE-1 copy number in Fl (normalized with heart)
LINE-1 copy number in Fl (normalized with skeletal muscle)
LINE-1 copy number in Bg (normalized with heart)
LINE-1 copy number in Bg (normalized with skeletal muscle)
LINE-1 copy number in Hp (normalized with heart)
LINE-1 copy number in Hp (normalized with skeletal muscle)
LINE-1 copy number in Pc (normalized with heart)
LINE-1 copy number in Pc (normalized with skeletal muscle)
LINE-1 copy number in Ce (normalized with heart)
LINE-1 copy number in Ce (normalized with skeletal muscle)
WT (n = 4)
Polg +/D257A (n = 4)
Polg +/D257A (n = 3)
P = 3.59 x 10-2

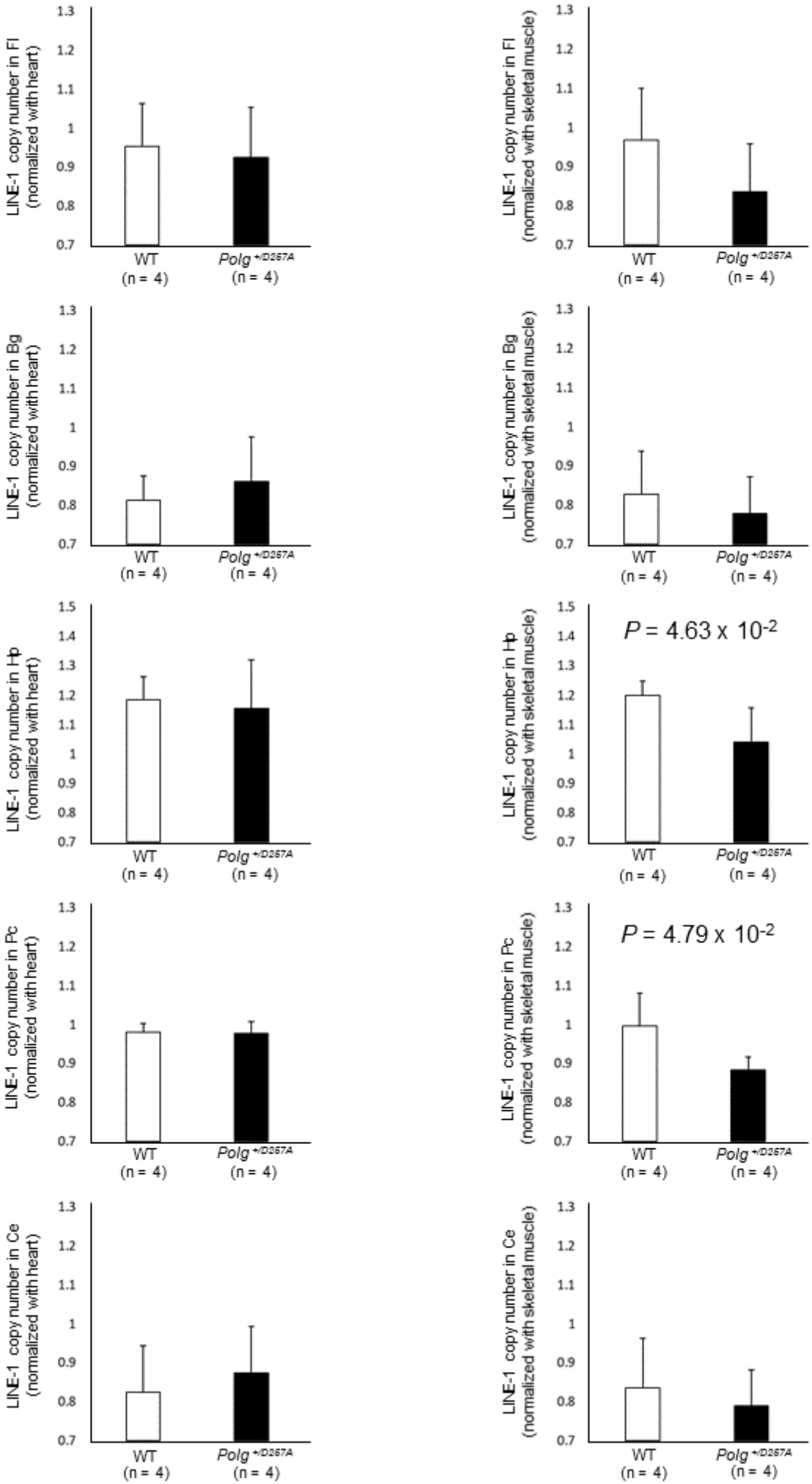
(B) mORF1


LINE-1 copy number in Fl (normalized with heart)
LINE-1 copy number in Fl (normalized with skeletal muscle)
LINE-1 copy number in Bg (normalized with heart)
LINE-1 copy number in Bg (normalized with skeletal muscle)
LINE-1 copy number in Hp (normalized with heart)
LINE-1 copy number in Hp (normalized with skeletal muscle)
LINE-1 copy number in Pc (normalized with heart)
LINE-1 copy number in Pc (normalized with skeletal muscle)
LINE-1 copy number in Ce (normalized with heart)
LINE-1 copy number in Ce (normalized with skeletal muscle)
WT (n = 4)
Polg +/D257A (n = 4)

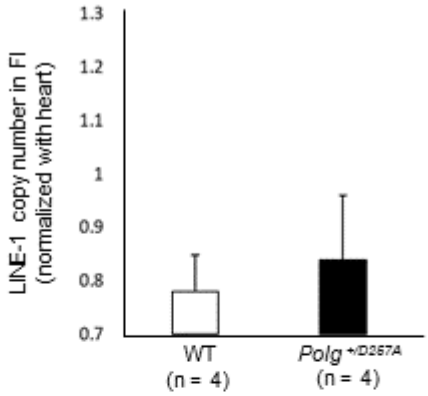
(C) mORF2

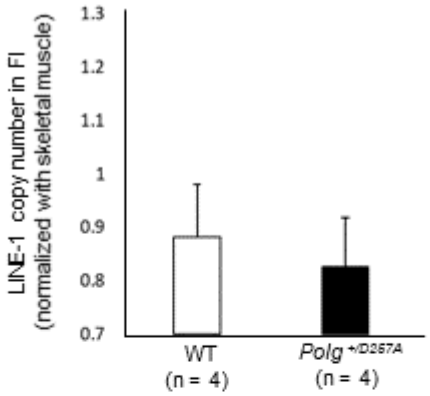

LINE-1 copy number in Fl (normalized with heart)
LINE-1 copy number in Fl (normalized with skeletal muscle)
LINE-1 copy number in Bg (normalized with heart)
LINE-1 copy number in Bg (normalized with skeletal muscle)
LINE-1 copy number in Hp (normalized with heart)
LINE-1 copy number in Hp (normalized with skeletal muscle)
LINE-1 copy number in Pc (normalized with heart)
LINE-1 copy number in Pc (normalized with skeletal muscle)
LINE-1 copy number in Ce (normalized with heart)
LINE-1 copy number in Ce (normalized with skeletal muscle)
P = 3.09 x 10-2
WT (n = 4)
Polg +/D257A (n = 4)

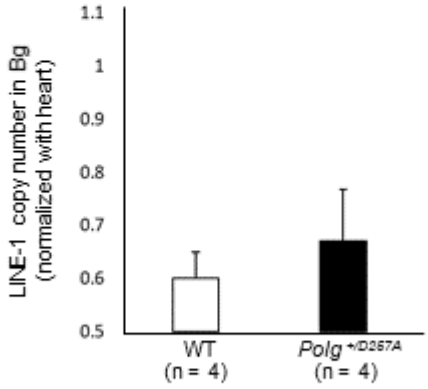
(D) A_ORF1

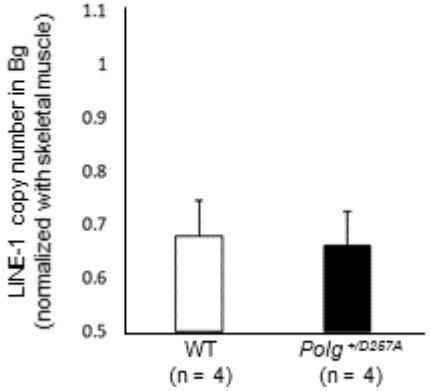

LINE-1 copy number in Fl (normalized with heart)
LINE-1 copy number in Fl (normalized with skeletal muscle)
LINE-1 copy number in Bg (normalized with heart)
LINE-1 copy number in Bg (normalized with skeletal muscle)
LINE-1 copy number in Hp (normalized with heart)
LINE-1 copy number in Hp (normalized with skeletal muscle)
P = 4.63 x 10-2
LINE-1 copy number in Pc (normalized with heart)
LINE-1 copy number in Pc (normalized with skeletal muscle)
P = 4.79 x 10-2
LINE-1 copy number in Ce (normalized with heart)
LINE-1 copy number in Ce (normalized with skeletal muscle)
WT (n = 4)
Polg +/D257A (n = 4)

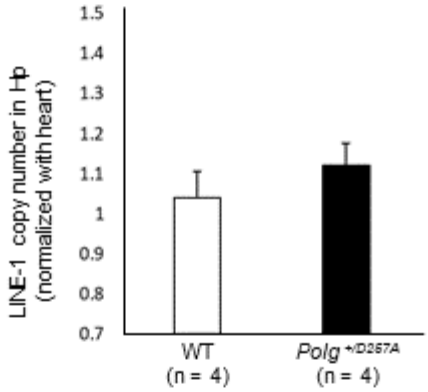
(E) A_ORF2_1

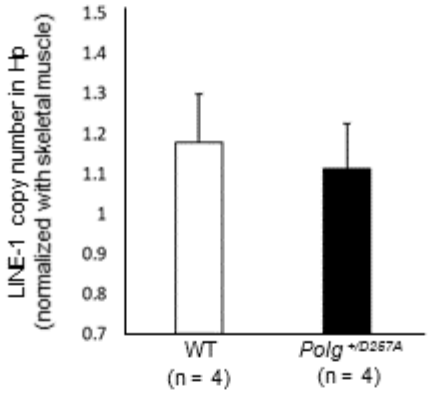

LINE-1 copy number in Fl
(normalized with heart)
1.3
1.2
1.1
1
0.9
0.8
0.7
WT
(n = 4)
Polg +/D257A
(n = 4)

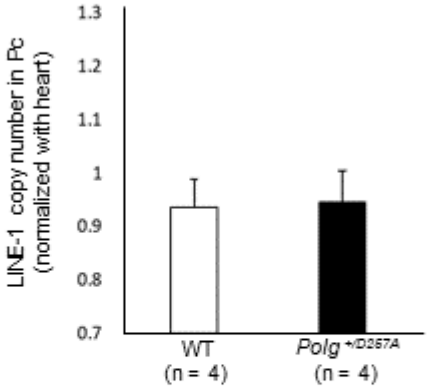

LINE-1 copy number in Fl
(normalized with skeletal muscle)
1.3
1.2
1.1
1
0.9
0.8
0.7
WT
(n = 4)
Polg +/D257A
(n = 4)

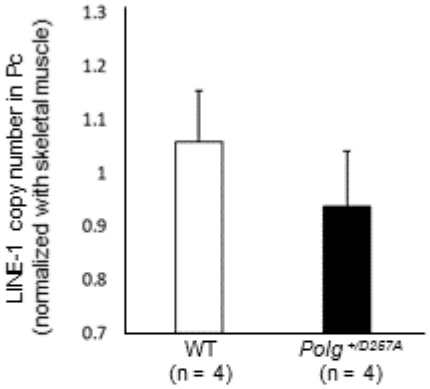

LINE-1 copy number in Bg
(normalized with heart)
1.1
1
0.9
0.8
0.7
0.6
0.5
WT
(n = 4)
Polg +/D257A
(n = 4)

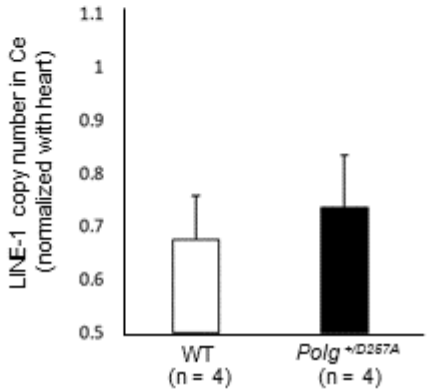

LINE-1 copy number in Bg
(normalized with skeletal muscle)
1.1
1
0.9
0.8
0.7
0.6
0.5
WT
(n = 4)
Polg +/D257A
(n = 4)

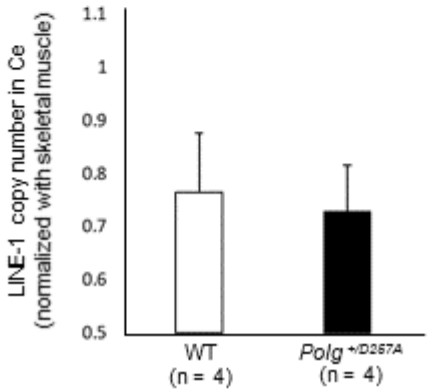

LINE-1 copy number in Hp
(normalized with heart)
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
WT
(n = 4)
Polg +/D257A
(n = 4)


LINE-1 copy number in Hp
(normalized with skeletal muscle)
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
WT
(n = 4)
Polg +/D257A
(n = 4)

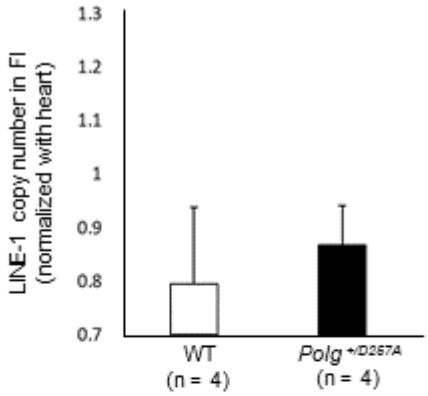

LINE-1 copy number in Pc
(normalized with heart)
1.3
1.2
1.1
1
0.9
0.8
0.7
WT
(n = 4)
Polg +/D257A
(n = 4)

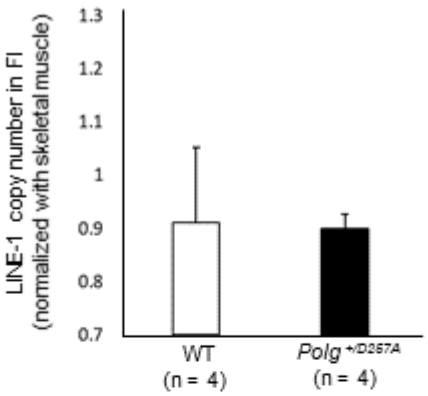

LINE-1 copy number in Pc
(normalized with skeletal muscle)
1.3
1.2
1.1
1
0.9
0.8
0.7
WT
(n = 4)
Polg +/D257A
(n = 4)

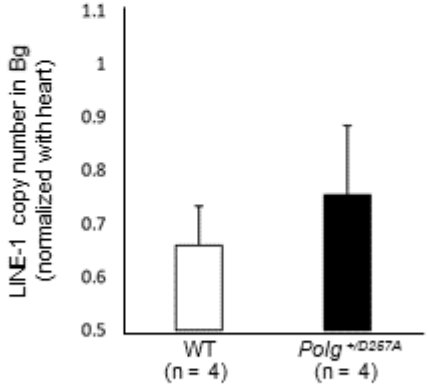

LINE-1 copy number in Ce
(normalized with heart)
1.1
1
0.9
0.8
0.7
0.6
0.5
WT
(n = 4)
Polg +/D257A
(n = 4)

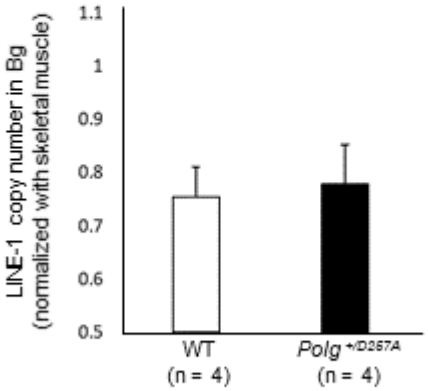

LINE-1 copy number in Ce
(normalized with skeletal muscle)
1.1
1
0.9
0.8
0.7
0.6
0.5
WT
(n = 4)
Polg +/D257A
(n = 4)

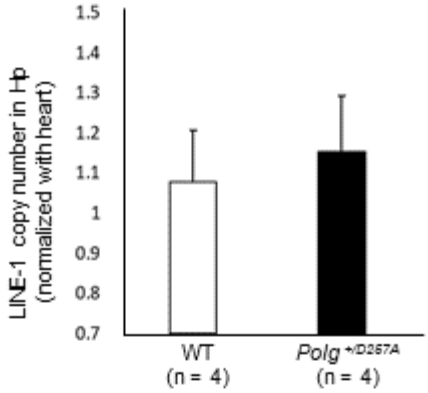
(F) A_ORF2_2

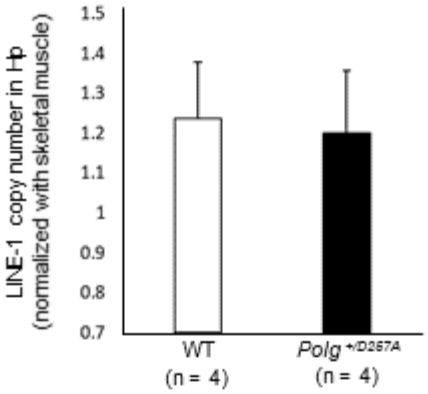

LINE-1 copy number in Fl (normalized with heart)
1.3
1.2
1.1
1
0.9
0.8
0.7
WT (n = 4)
Polg +/D257A (n = 4)

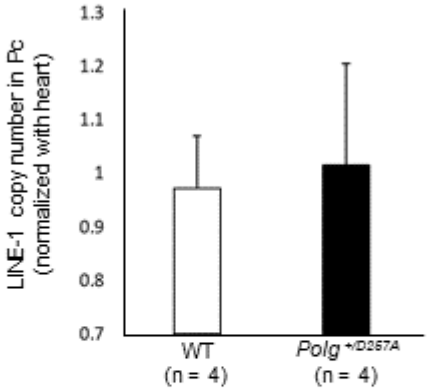

LINE-1 copy number in Fl (normalized with skeletal muscle)
1.3
1.2
1.1
1
0.9
0.8
0.7
WT (n = 4)
Polg +/D257A (n = 4)

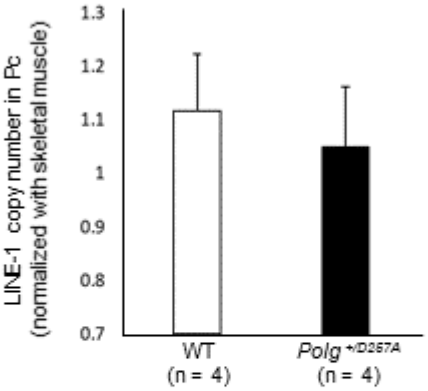

LINE-1 copy number in Bg (normalized with heart)
1.1
1
0.9
0.8
0.7
0.6
0.5
WT (n = 4)
Polg +/D257A (n = 4)

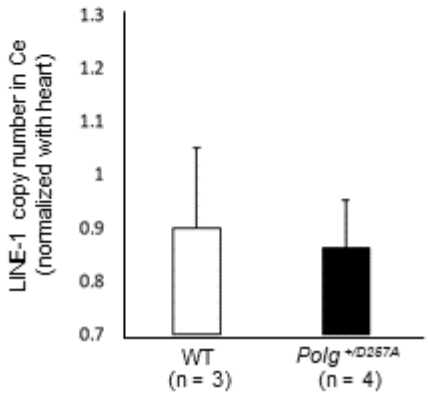

LINE-1 copy number in Bg (normalized with skeletal muscle)
1.1
1
0.9
0.8
0.7
0.6
0.5
WT (n = 4)
Polg +/D257A (n = 4)

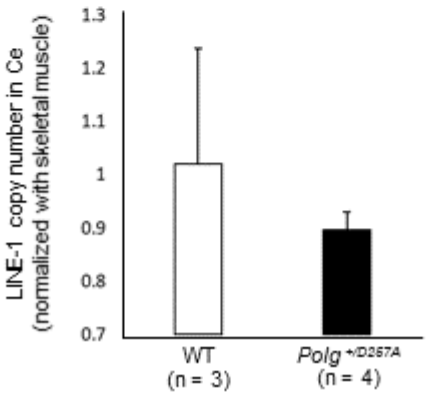

LINE-1 copy number in Hp (normalized with heart)
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
WT (n = 4)
Polg +/D257A (n = 4)


LINE-1 copy number in Hp (normalized with skeletal muscle)
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
WT (n = 4)
Polg +/D257A (n = 4)

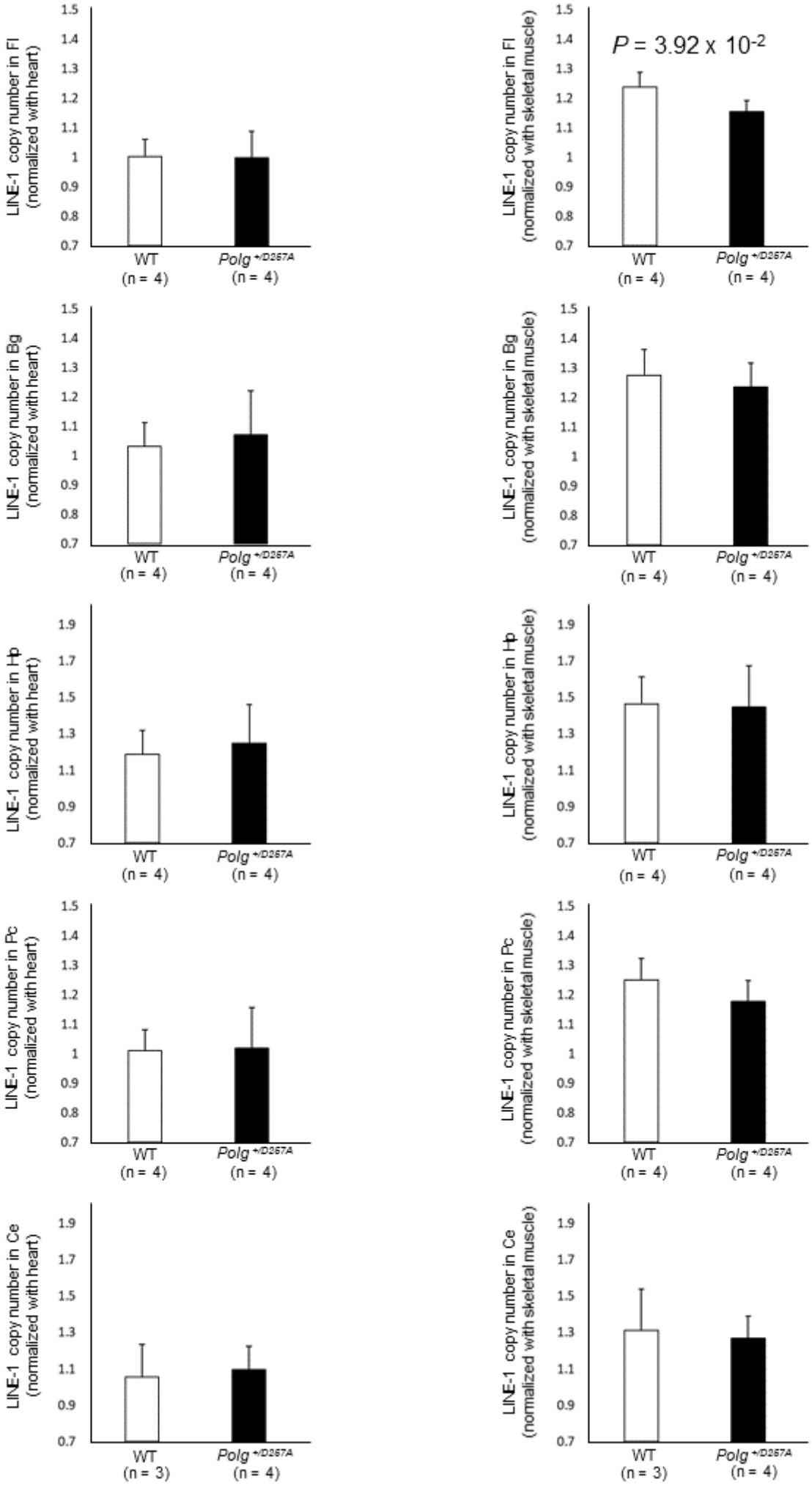

LINE-1 copy number in Pc (normalized with heart)
1.3
1.2
1.1
1
0.9
0.8
0.7
WT (n = 4)
Polg +/D257A (n = 4)


LINE-1 copy number in Pc (normalized with skeletal muscle)
1.3
1.2
1.1
1
0.9
0.8
0.7
WT (n = 4)
Polg +/D257A (n = 4)

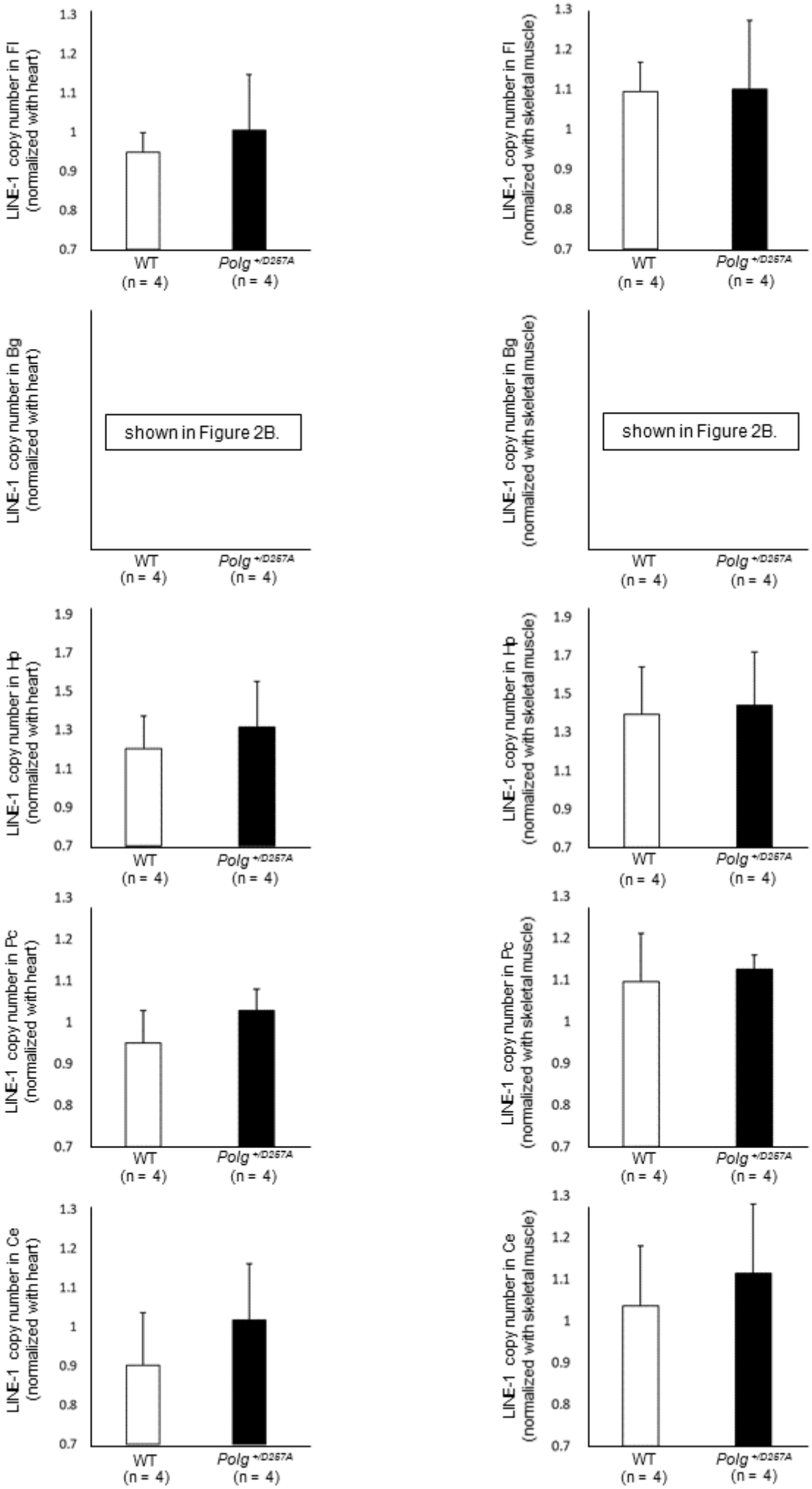

LINE-1 copy number in Ce (normalized with heart)
1.3
1.2
1.1
1
0.9
0.8
0.7
WT (n = 3)
Polg +/D257A (n = 4)


LINE-1 copy number in Ce (normalized with skeletal muscle)
1.3
1.2
1.1
1
0.9
0.8
0.7
WT (n = 3)
Polg +/D257A (n = 4)

(G) Gfl_5UTR-ORF1



(H) GfII_ORF2


LINE-1 copy number in Fl (normalized with heart)
LINE-1 copy number in Fl (normalized with skeletal muscle)
LINE-1 copy number in Bg (normalized with heart)
LINE-1 copy number in Bg (normalized with skeletal muscle)
shown in Figure 2B.
shown in Figure 2B.
LINE-1 copy number in Hp (normalized with heart)
LINE-1 copy number in Hp (normalized with skeletal muscle)
LINE-1 copy number in Pc (normalized with heart)
LINE-1 copy number in Pc (normalized with skeletal muscle)
LINE-1 copy number in Ce (normalized with heart)
LINE-1 copy number in Ce (normalized with skeletal muscle)
WT (n = 4)
Polg +/D257A (n = 4)

(I) TfII_3UTR

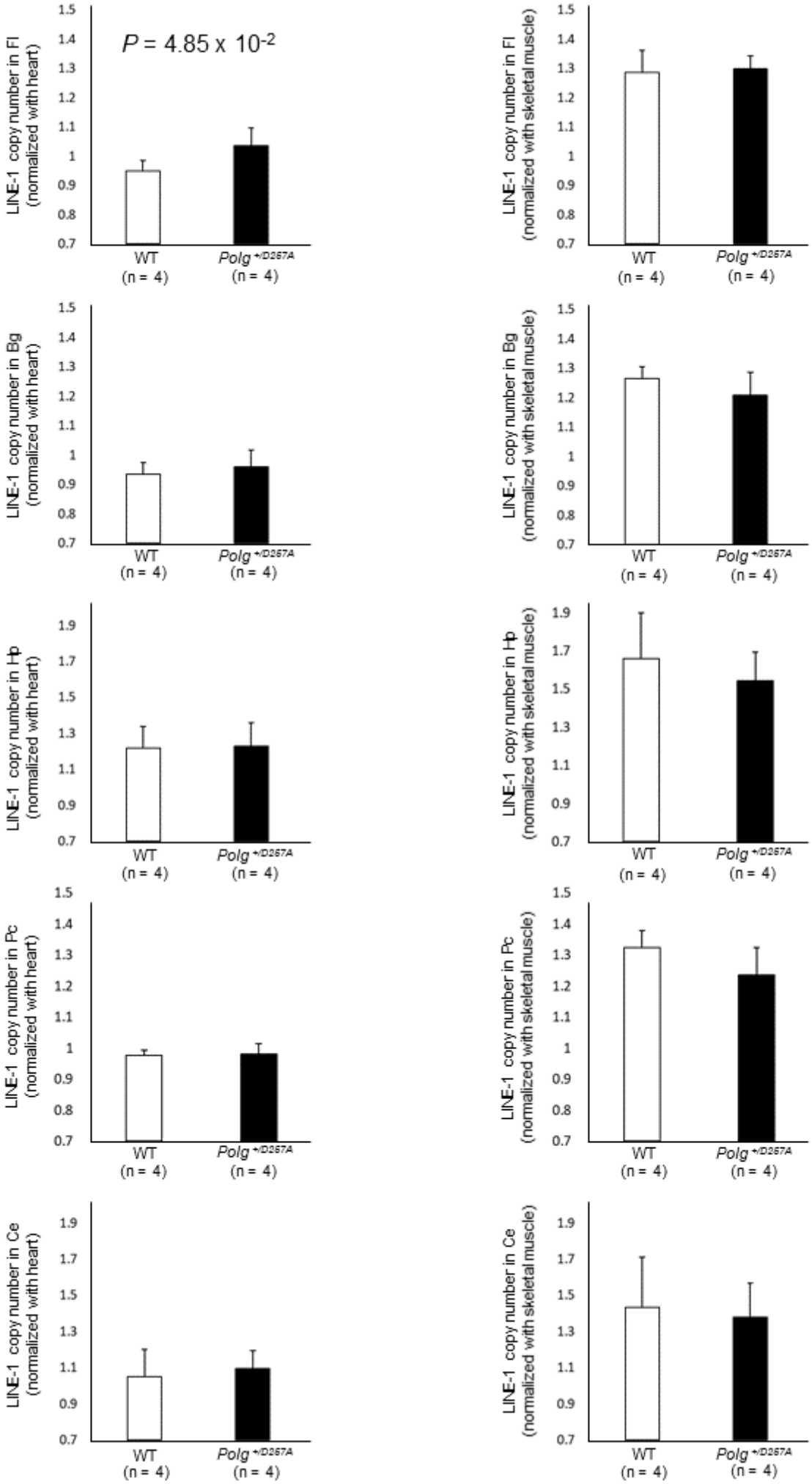

P = 4.85 x 10-2
LINE-1 copy number in Fl (normalized with heart)
LINE-1 copy number in Fl (normalized with skeletal muscle)
LINE-1 copy number in Bg (normalized with heart)
LINE-1 copy number in Bg (normalized with skeletal muscle)
LINE-1 copy number in Hp (normalized with heart)
LINE-1 copy number in Hp (normalized with skeletal muscle)
LINE-1 copy number in Pc (normalized with heart)
LINE-1 copy number in Pc (normalized with skeletal muscle)
LINE-1 copy number in Ce (normalized with heart)
LINE-1 copy number in Ce (normalized with skeletal muscle)
WT (n = 4)
Polg +/D257A (n = 4)

Figure S3. LINE-1 copy number detected in 84-week-old *Polg*$^{+/D257A}$ mouse brain. The copy number in the brain was normalized to the heart or skeletal muscle. Data are represented as the mean ± standard deviation. Significant change in Welch's t test is denoted in its p value (others show no significance).

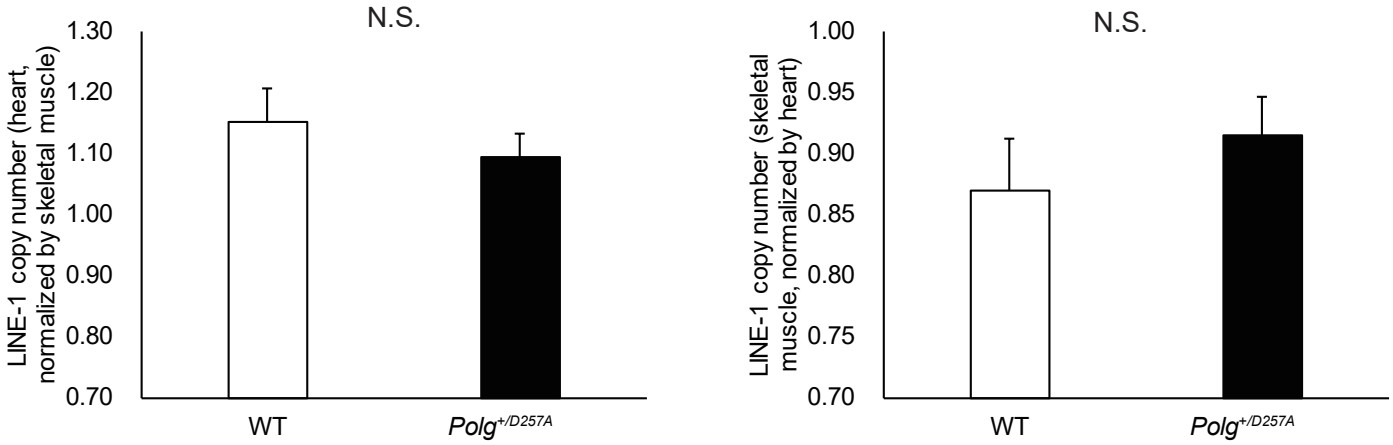


Figure S4. Comparison of LINE-1 contents in heart normalized by skeletal muscle and vice versa. Data of GfII_ORF1 is shown. Data are represented as the mean ± standard deviation. N.S.; not significant in Welch' s t test (P > 0.05), WT; wild-type mice**.**