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Supplemental information

Neuronal activation of $G_{\alpha q}$ EGL-30/GNAQ late in life rejuvenates cognition across species

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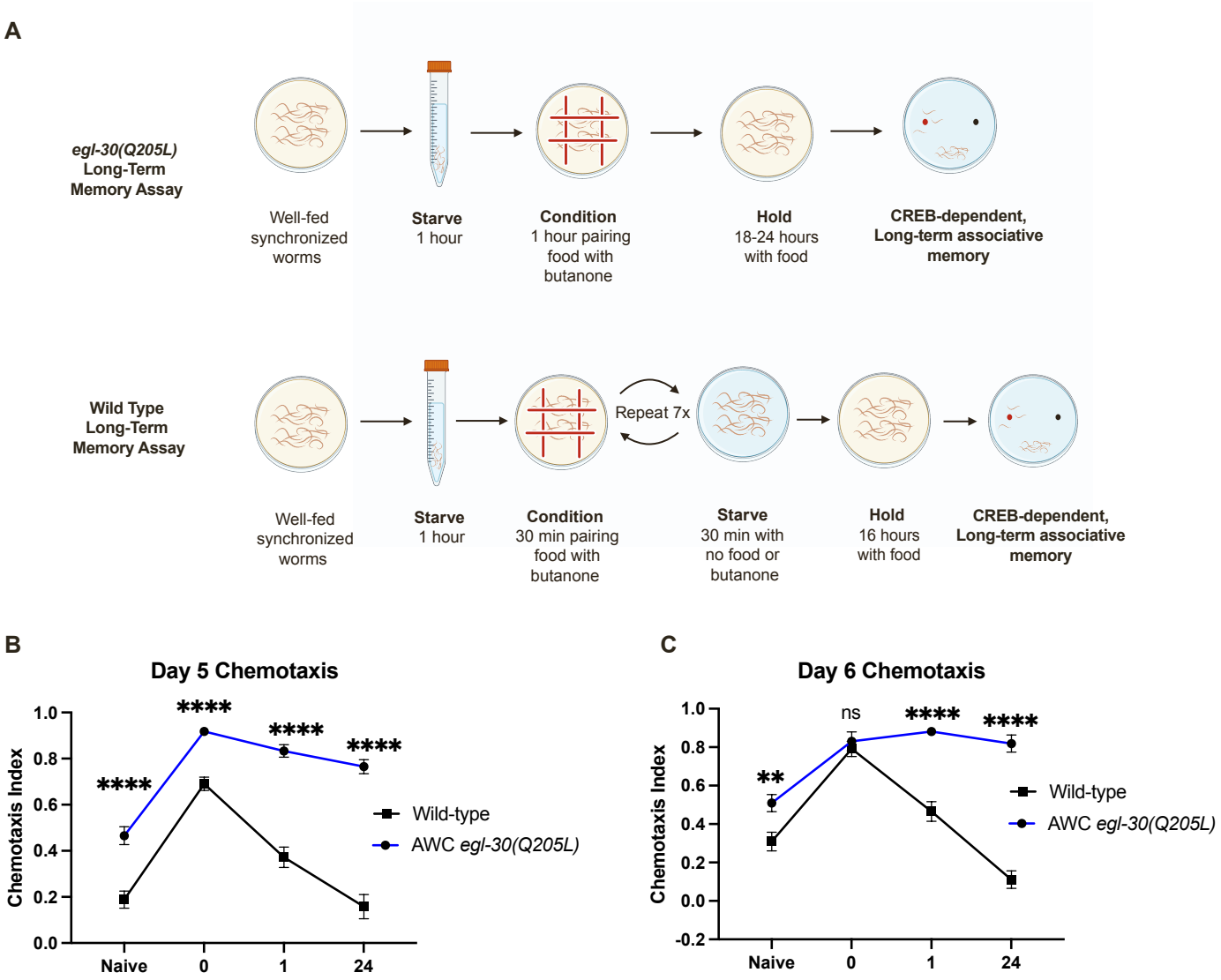

Fig. S1. Memory assay and chemotaxis for heat-shock inducible AWC-egl-30(Q205L) strain with age. **(A)** Schematic of memory assays. egl-30(Q209L) can form CREB-dependent long-term memories with a single training pairing butanone with food. However, wild-type worms require seven pairings to form a CREB-dependent long-term memory. **(B)** Day 5 and **(C)** Day 6, 1-hour short-term and 24-hour long-term memory was extended in C. elegans after AWC-only egl-30(Q205) activation late-in-life. Data presented as Mean +/-SEM. Two-way ANOVA with Bonferroni *post hoc* test **p<0.01; ****p<0.0001

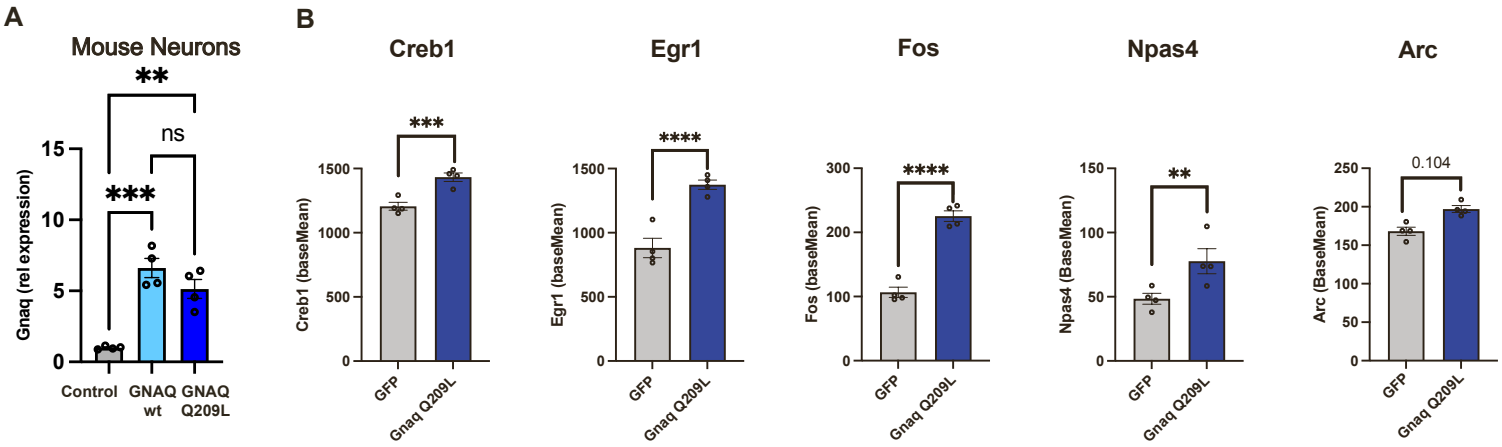

Fig. S2. Relative Expression of Gnaq in mouse primary neurons and IEG expression. (A) Gnaq expression for GNAQ wt and GNAQ(Q209L) were elevated compared to control, but they did not differ from each other. (B) Gnaq(Q209L) overexpression increases immediate early gene expression in primary neurons. mRNA expression was assessed using RNA-sequencing of primary neurons infected with Gnaq Q209L or GFP control. Data presented as Mean +/-SEM and Bonferroni correction was applied for bulk sequencing analyses **p<0.01; ****,p<0.0001.

Figure S2

A

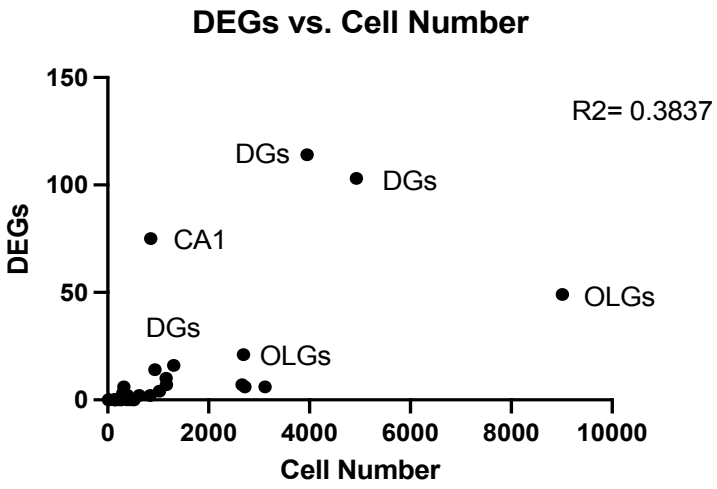

Fig. S3. Differentially expressed genes (DEGs) vs. cell number per cluster. (A) There is not a strong correlation between the number of differentially expressed genes and the number of cells per cluster. Pearson Correlation; R squared=0.3827

Figure S3