**Supplementary Data**

# Aminothioneine, a product derived from golden oyster mushrooms (*Pleurotus cornucopiae* var. *citrinopileatus*), activates $Ca^{2+}$ signal-mediated Brain-derived neurotrophic factor expression in cultured cortical neurons

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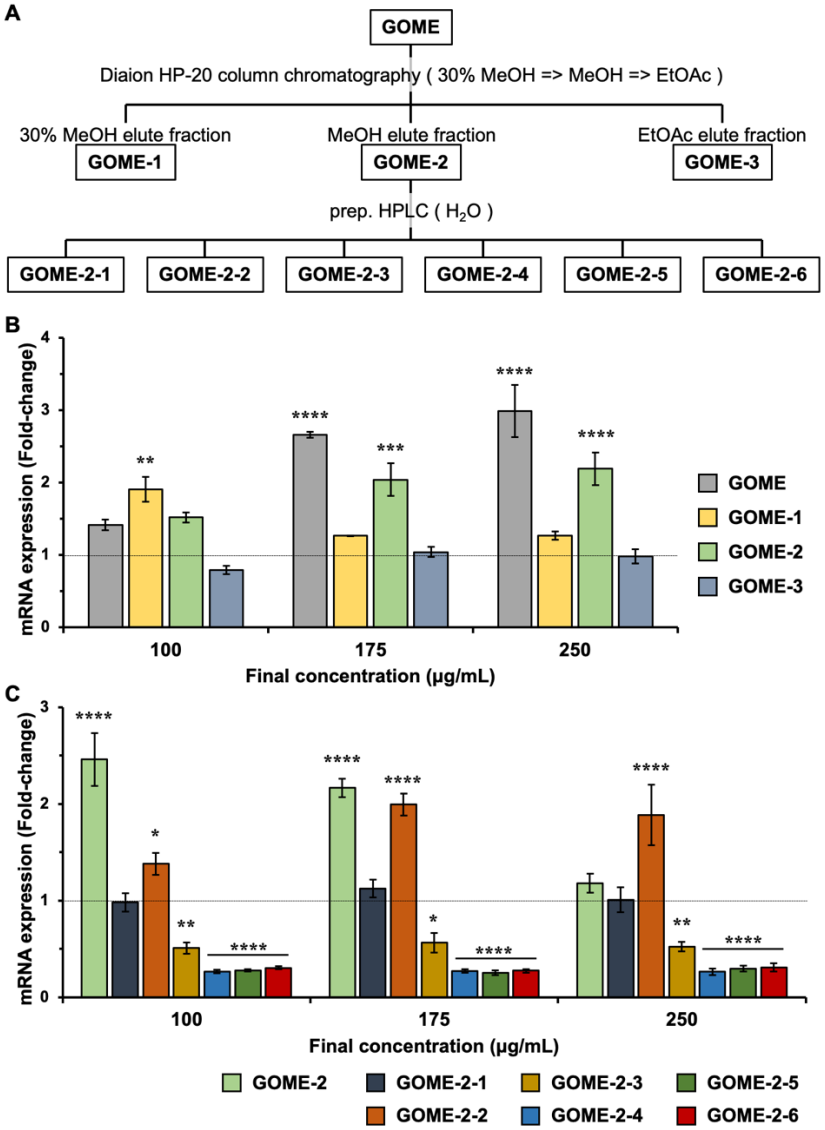


Figure S1. Effect of eluate fractions prepared from extracts of golden oyster mushrooms (GOME) on *Bdnf* mRNA expression in cultured neurons.

(A) An outline for fractionation. Detailed information was shown in Materials and methods. (B, C) At 13 days *in vitro*, cultured rat cortical neurons were treated with GOME-1, GOME-2, and GOME-3 (B), or GOME-2, GOME-2-1, GOME-2-2, GOME-2-3, GOME-2-4, GOME-2-5, and GOME-2-6 (C) at the indicated final concentrations for 3 h. Total RNA was extracted to examine the changes in *Bdnf* mRNA expression by RT-PCR. We determined the fold-change values of *Bdnf* mRNA expression by each fraction by comparing with the level of *Bdnf* mRNA expression in the PBS-treated neurons. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, and **** $p < 0.0001$ versus PBS (n = 3, one-way ANOVA with Dunnett's multiple comparisons test).

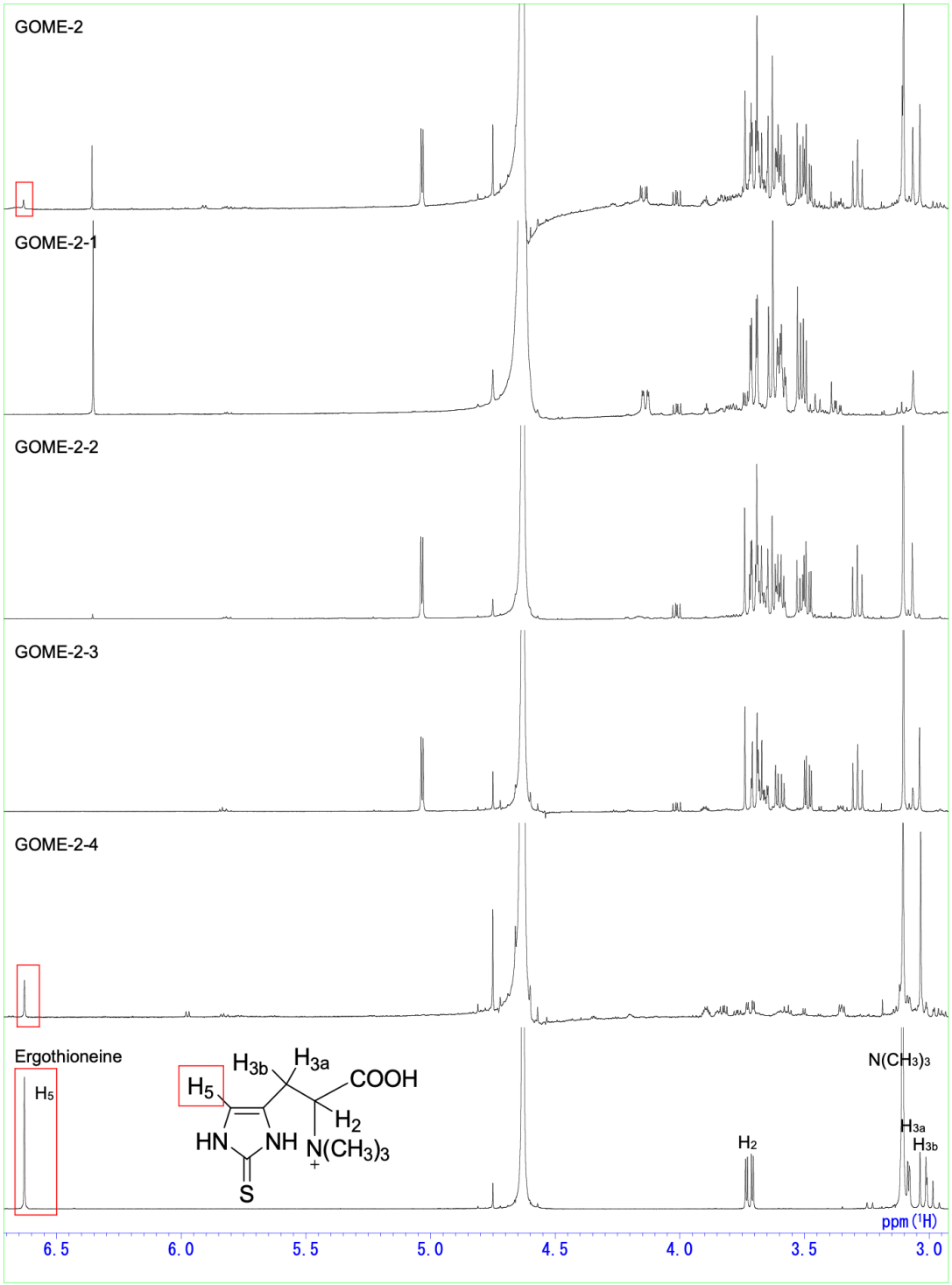


Figure S2. Proton nuclear magnetic resonance ($^1$H-NMR) spectra of GOME-2, GOME-2-1, GOME-2-2, GOME-2-3, GOME-2-4, and ergothioneine in $D_2O$.

NMR spectra were recorded on a JEOL ECZ-500 (500 MHz for $^1$H NMR, Tokyo, Japan) spectrometer using standard JEOL pulse programs.