Supporting Information

Antidepressant effects of Sulforaphane (SFN) and its derivatives SLL-III-9 and SLL-III-120 and their potential underlying mechanisms based on the microbiota-gut-brain axis

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Figure S1. ^{1}H NMR of SLL-III-9.

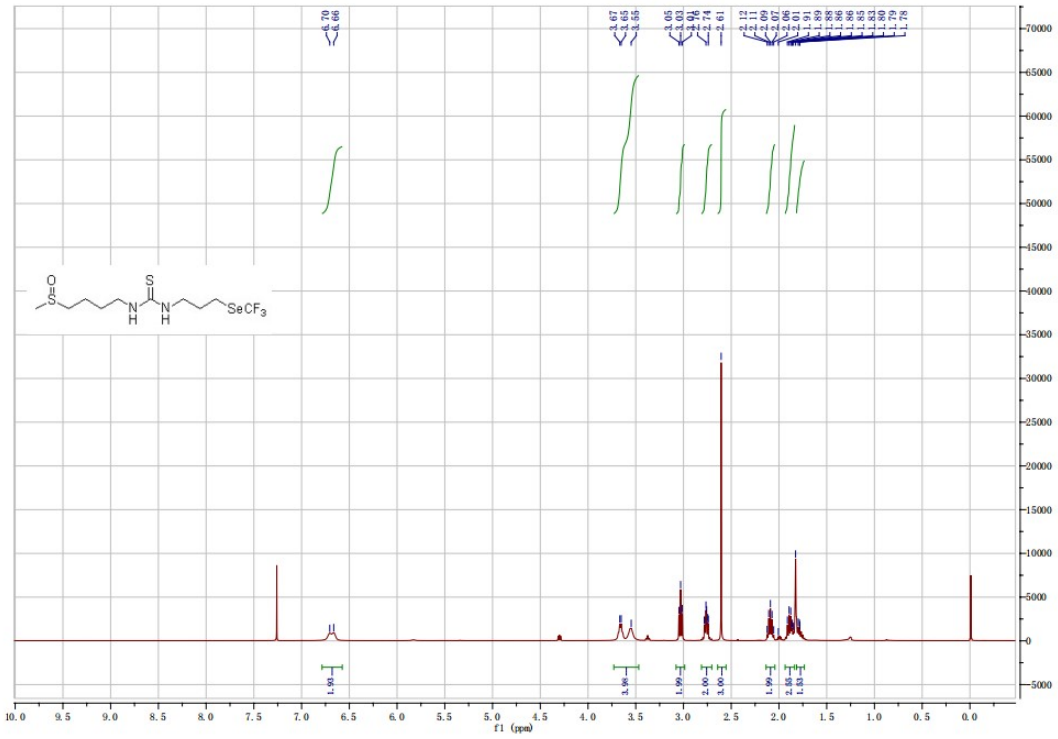

Figure S2. ^{1}H NMR of SLL-III-120.

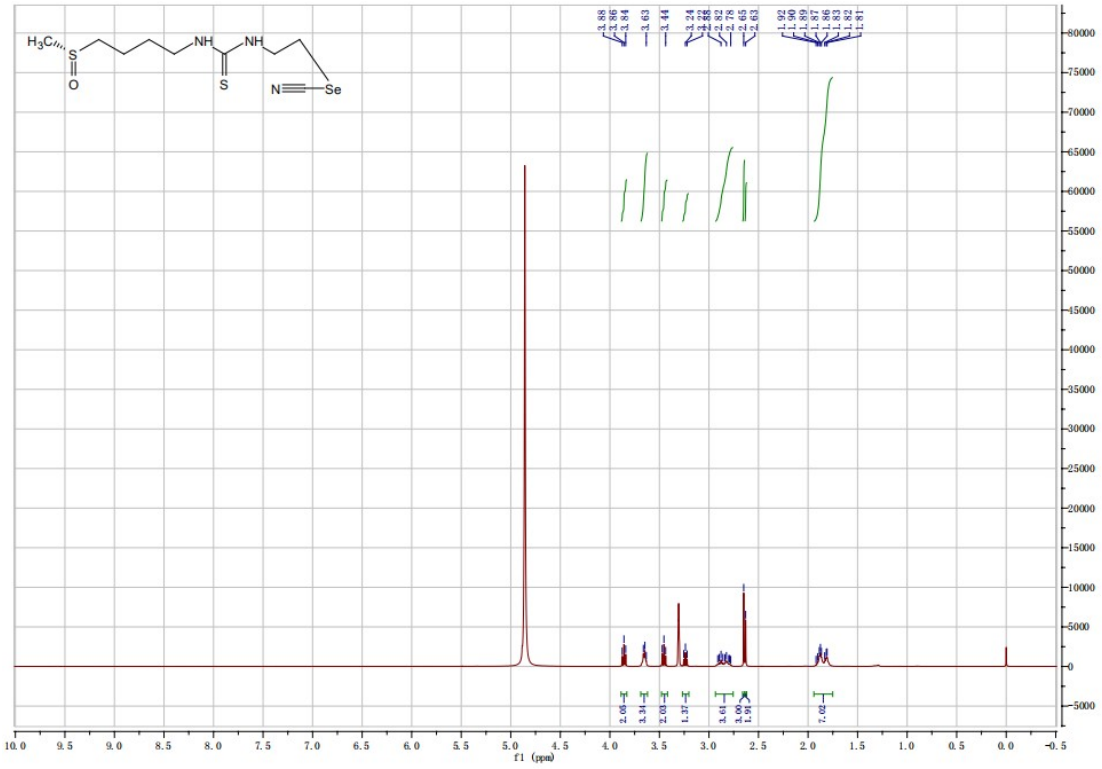

Figure S3. ^{13}C NMR of SLL-III-9.

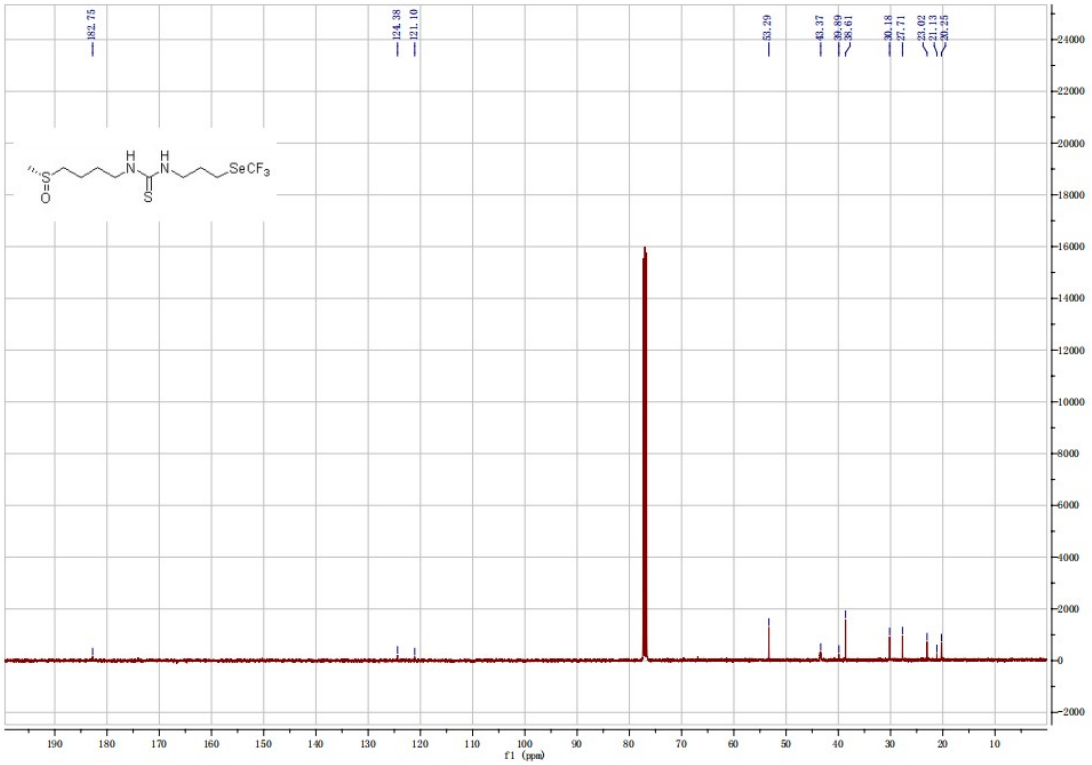

Figure S4. ^{13}C NMR of SLL-III-120.

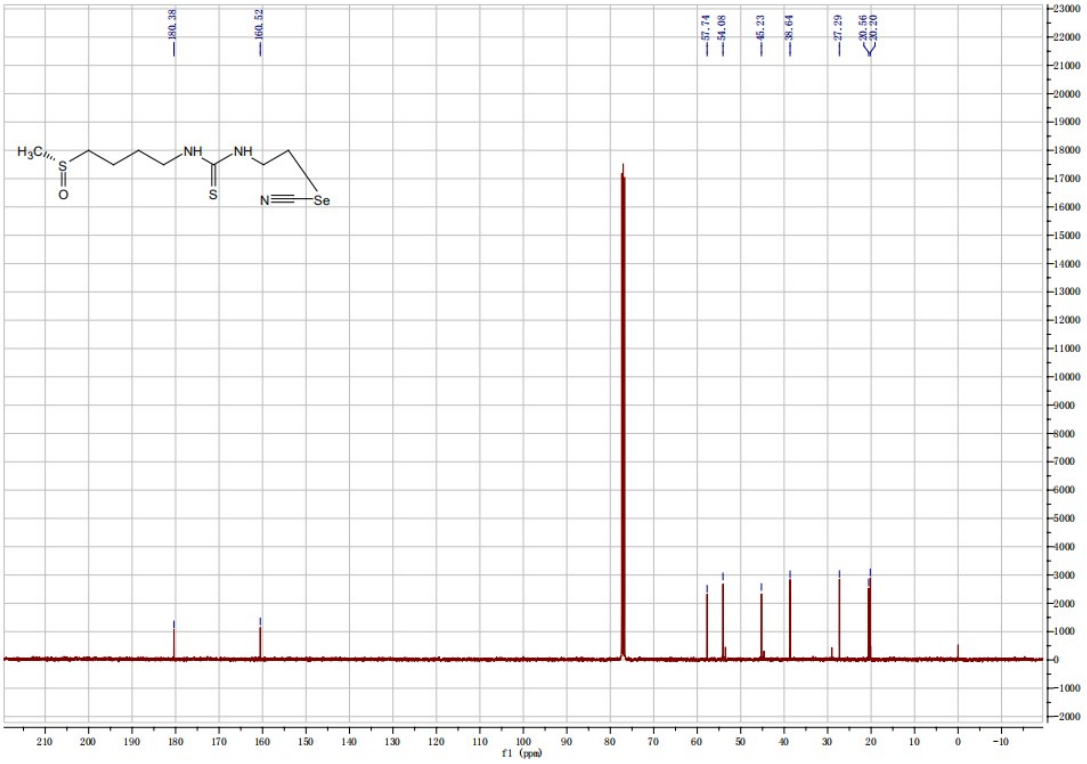

Figure S5. ^{19}F NMR of SLL-III-9.

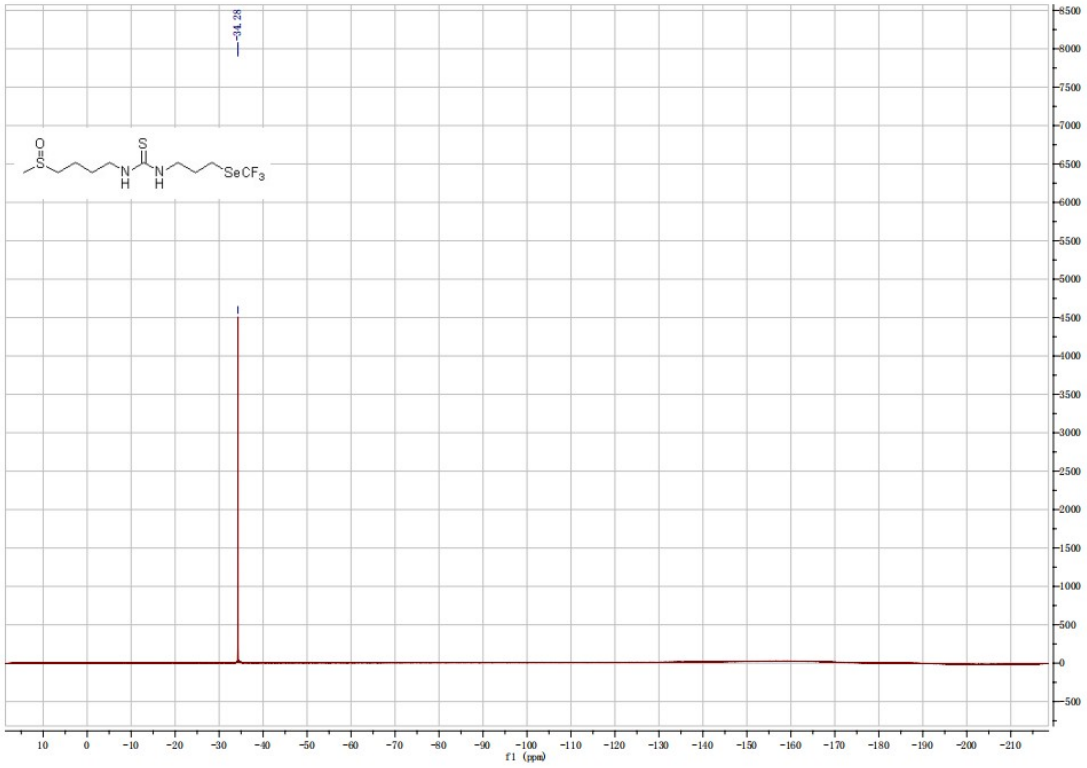

Figure S6. MS of SLL-III-120.

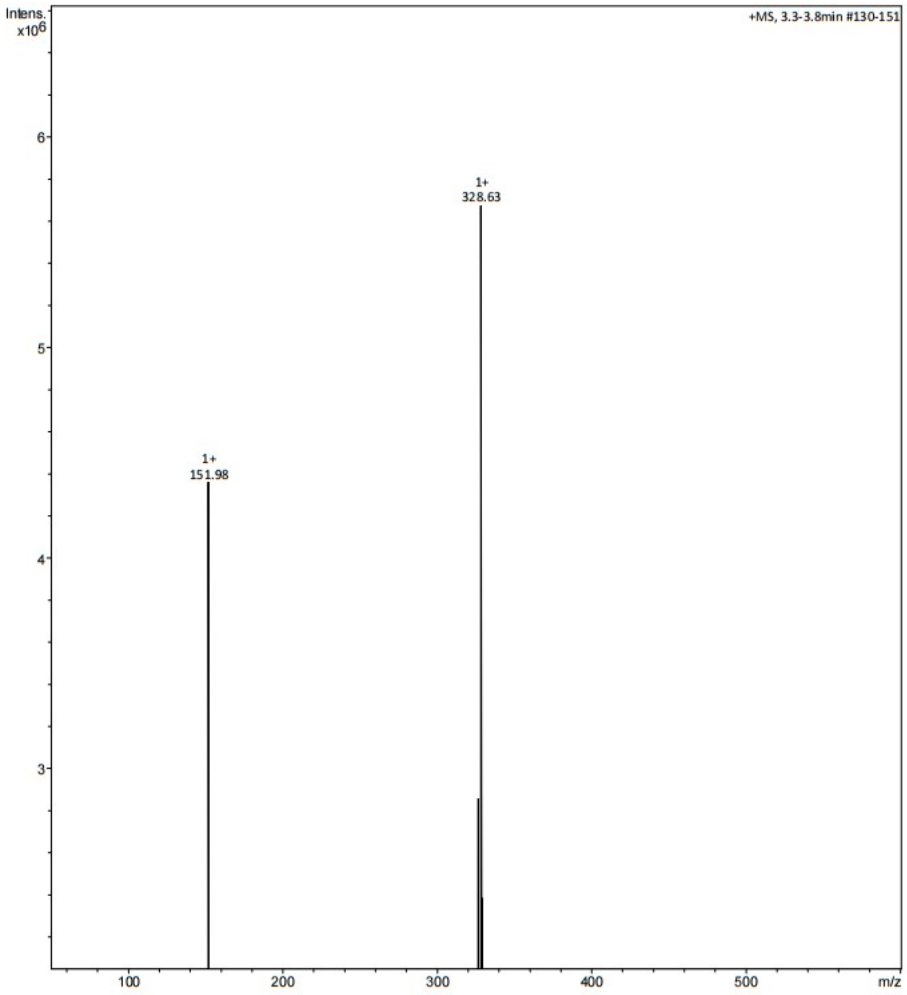

Figure S7. A mouse model of depression was validated by behavioral experiments. After mice were raised in isolation and given stress stimuli for 13 weeks, depression-related indicators (A) sucrose preference test, (B) tail suspension test, and (C) forced swimming test were performed to detect the successful establishment of the depressed mouse model. **P<0.01 compared to control group.

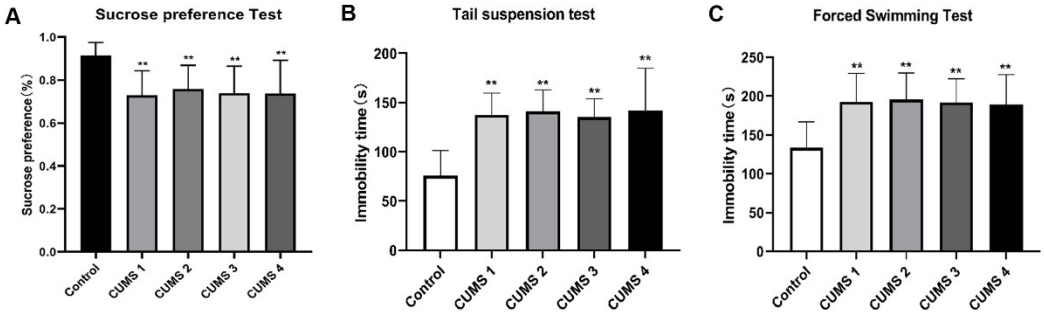

Figure S8. The effect of different concentration of SFN, SLL-III-9, and SLL-III-120 in LPS-activated BV2 cells. After BV2 cells were treated with 1 μg/mL LPS for 24 h to establish neuroinflammatory cell models, different concentrations of SFN, SLL-III-9, or SLL-III-120 were added to the culture medium for 24 h. The culture medium and cells were collected, and Griess assay, MTT assay and real-time PCR was performed to analysis (A) the production of nitrate, (B) cell viability and (C) iNOS mRNA expression. *P<0.05, **P<0.01, ***P<0.001 compared to the LPS group and $^{\#}P < 0.05$, $^{\#\#}P < 0.01$, $^{\#\#\#}P < 0.001$ compared to control group.