# Supplementary Information

## Gentirigeoside B from *G. rigescens* Franch Prolongs Yeast Lifespan via Inhibition of TORC1/Sch9/Rim15/Msn Signaling Pathway and Modification of Anti-Oxidative Stress and Autophagy

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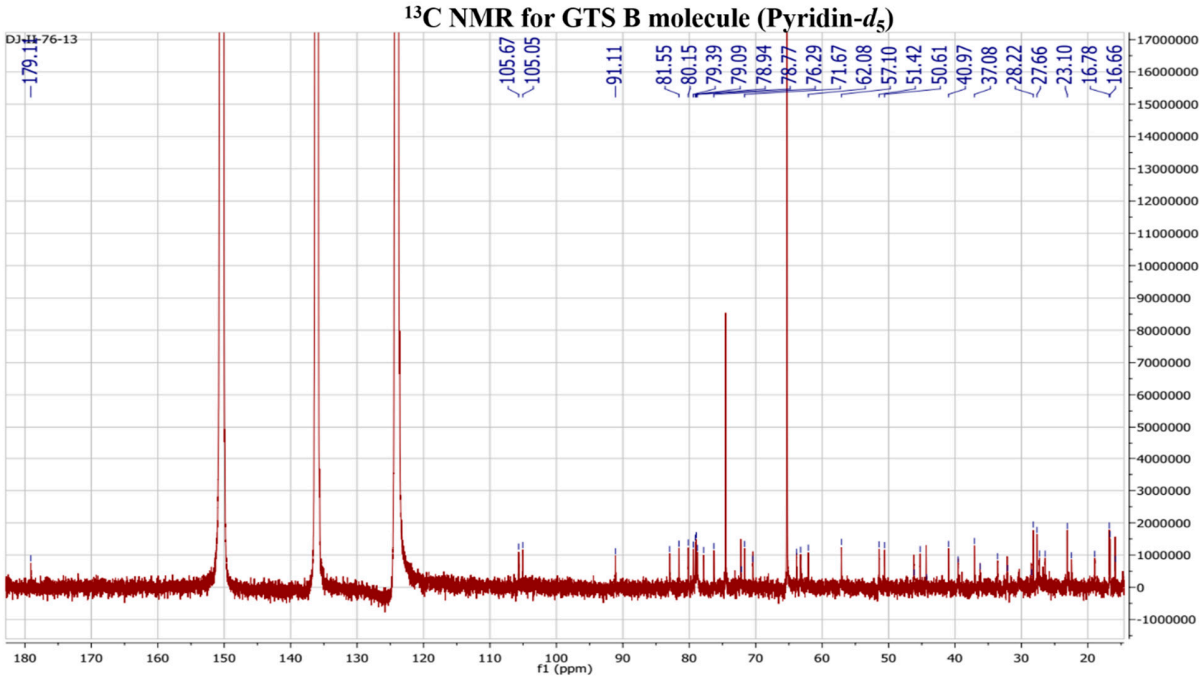
**Supplementary Table S1. List of primers sequence used for RT-PCR study.**

| Genes | Species | Sequences | Gene ID |
|---|---|---|---|
| SOD1 | Yeast | sense: 5′-CAC CAT TTT CGT CCG TCT TT-3′<br>antisense 5′-TGG TTG TGT CTC TGC TGG TC-3′ | 853568 |
| SOD2 | Yeast | sense: 5′-CTC CGG TCAAAT CAA CGA AT-3′<br>anti-sense: 5′-CCT TGG CCAGAA GAT CTG AG-3′ | 856399 |
| GPx | Yeast | anti-sense: 5′-CCT TGG CCAGAA GAT CTG AG-3′<br>sense: 5′-CGC TCC GTC AAG TAA ACA TAG G-3′ | S000001509 |
| CAT | Yeast | anti-sense:5′-GGC CGC TGT TAT TGT TTT GAA C-3′<br>sense: 5′-TGA CAA ACT CCA CTG GTA ATC C-3′ | S000002664 |
| TUB1 | Yeast | anti-sense: 5′-TCC CTG TTG AAA TGA GCC AA-3′<br>sense: 5′-CCA AGG GCT ATT TAC GTG GA-3′ | 854889 |
| TORC1 | Yeast | sense: 5‘-TTG GTA CAA GGC ATG GCA TA-3'<br>anti-sense: 5'-TAC CGT CAA TCC GCA CAT TA-3' | S000218103 |
| SIR2 | Yeast | sense: 5'-CGT TCC CCA AGT CCT GAT TA-3'<br>anti-sense: 5'-CCA CAT TTT TGG GCT ACC AT-3′ | 851520 |
| RPS26A | Yeast | sense: 5'-TCA GAA ACA TTG TTG AAG CCG C-3'<br>anti-sense: 5′-ACA ATT CTG GCG TGA ATA GCA C-3' | 852686 |
| RPL9A | Yeast | sense: 5'-ATG GTG CCA AAT TCA TTG AAG TC-3'<br>anti-sense 5'-AGTTACCTGACAAGACAATTTCG-3' | 852730 |
| SCH9 | Yeast | sense:5'-GCC ATT GAT GAT GGA AGA GAA CTAC-3'<br>anti-sense:5'- TCATATTTCGAATCTTCCACTGAC-3' | 856612 |
| RIM15 | Yeast | sense: 5'-GGA GCT GGA ACT GGA CGG CAAG -3'<br>anti-sense: 5'-AGC ATG TCT GTG GCC TTT TGAA-3' | 850511 |
| MSN2 | Yeast | sense: 5'-AGA ACG ATA TGC TGC CGA ATTC-3'<br>anti-sense: 5'-CGCCACTTTCGCAATAACG-3' | 855053 |
| MSN4 | Yeast | sense: 5'-GGATTGATGGACCCGGTATTG-3'<br>anti-sense: 5'-CCAAAGGTATATTCCGGCGAA-3' | 853803 |

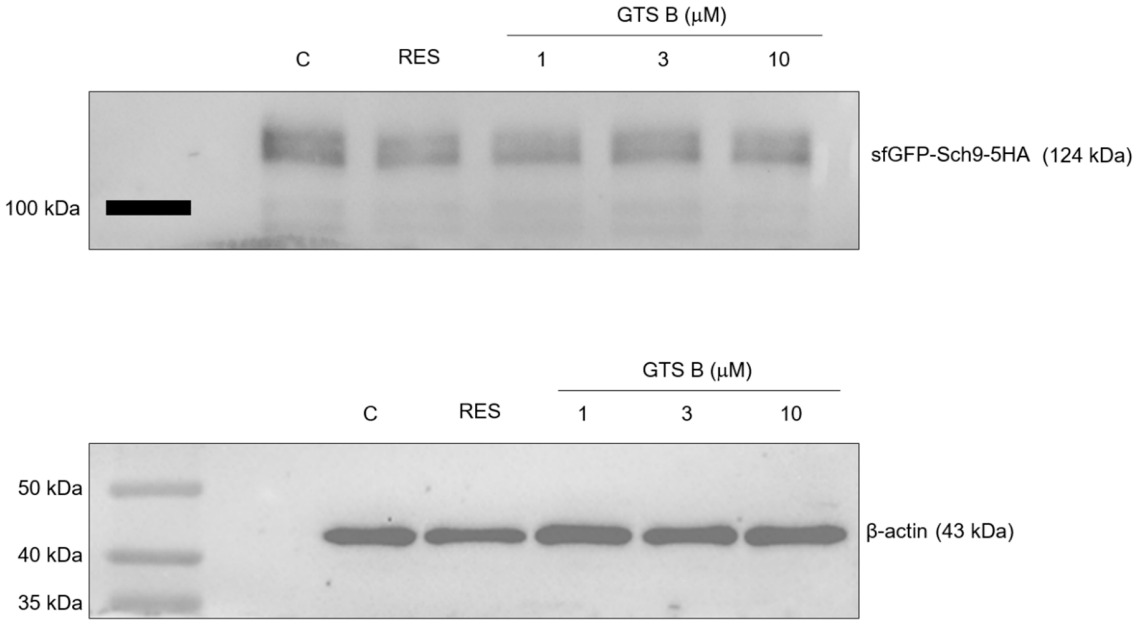
**Supplementary Table S2. Yeast strains were used in the present study.**

| Strains | Genome-type | Source |
|---|---|---|
| K6001 | MAta, Ade2-1, trp1-1, can1-100, leu2-3, 112, his-3-11, 15, GAL, psi+, ho::HO::CDC6 (at HO), cdc6::hisG, URA3 GAL-ubiR-CDC6 (URA3) | Gifted by Prof. Michael Breitenbach |
| Δ*uth1*, Δ*skn7*, Δ*cat*, Δ*gpx*, Δ*sod1*, Δ*sod2* with K6001 background | Replacement of UTH1, SKN7, SOD1 and SOD2 with Kanamycin gene. | Constructed by professor Akira Matsuura |
| BY4741 | Mata, his3Δ1, Leu2Δ0, met15Δ0, ura3Δ0 | Constructed by professor Akira Matsuura |
| MSN2-GFP yeast with BY4741 background | Mata, his3Δ1, Leu2Δ0, met15Δ0, ura3Δ0；MSN2-GFP::KanMX | Constructed by professor Akira Matsuura |
| sfGFP-SCH9 yeast with BY4741 background | Mata, his3Δ1, Leu2Δ0, met15Δ0, ura3Δ0；sfGFP-SCH9-5HA::LEU2 | Constructed by professor Akira Matsuura |
| RIM15-GFP yeast with BY4741 background | Mata, his3Δ1, Leu2Δ0, met15Δ0, ura3Δ0，RIM15-GFP::His3MX | Constructed by professor Akira Matsuura |
| YOM36 | Prototrophic derivative of BY4742 (MATα, his3Δ1, leu2Δ0, lys2Δ0, ura3Δ0) | Gifted by professor Akira Matsuura |
| YOM38 containing plasmid pR316-GFP-ATG8 | Prototrophic derivative of BY4742 (MATα, his3Δ1, leu2Δ0, lys2Δ0, ura3Δ0) containing plasmid pR316-GFP-ATG8 | Constructed by professor Akira Matsuura |

## Supplementary Figures




**Supplementary Figure S1.** The $^{13}C$ NMR spectrum of Gentirigeoside B from *G. rigescens* Franch L.




**Supplementary Figure S2.** The original results of western blotting analysis for Sch9 in Figure 3(b).