**Supplementary data**

**TS1**: HTA ABZ dose response data\_raw(.Rda)

**TS2**: HTA ABZ dose response data\_processed(.tsv)

**TS3**: HTA phenotype data of *C. elegans* wild strains\_raw(.Rda)

**TS4**: HTA phenotype data of *C. elegans* wild strains\_processed(.tsv)

**TS5**: GWA single marker mapping data\_processed(.tsv)

**TS6**: GWA single marker fine mapping data(.tsv)

**TS7:** GWA gene-burden mapping phenotype data(.ped)

**TS8**: GWA gene-burden mapping data(.tsv)

**TS9**: Positions and effects for all *ben-1* variants(.tsv)

**TS10**: Summary of population genetics data(.Rda)

**TS11**: Tajima’s D, Fay’s Wu and Zeng’s E for *ben-1* (.tsv)

**TS12:** HTA phenotype data of *C. elegans* *ben-1* mutants\_raw(.Rda)

**TS 13**: HTA phenotype data of *C. elegans* *ben-1* mutants\_processed(.tsv)

**TS 14**: competition assay data\_processed(.tsv)

**TS 15**: relative fitness calculations(.xml)

**TS 16**: ben1 regressed with ben1 covariate(.tsv)

**TS 17**: GWA single-marker mapping data after *ben-1* regression(.tsv)

**TS 18**: GWA single-marker fine mapping data after *ben-1* regression(.tsv)

**TS 19:** GWA gene-burden mapping phenotype data after ben-1 regression(.ped)

**TS 20:** GWA gene-burden mapping data after ben-1 regression(.assoc)

**TS 21:** GWA gene-burden mapping data after ben-1 regression(.tsv)

**TS 22**: Tajima’s D for other *C. elegans* beta-tubulins (.tsv)

**TS 23**: HTA re-phenotyping of *C. elegans* wild strains(.Rda)

**Supplemental Table 1**: Oligonucleotide sequences(.csv)

**Supplemental Table 2**: strains(.csv)

Missing:

**TS 14**: competition assay data\_raw(.csv)