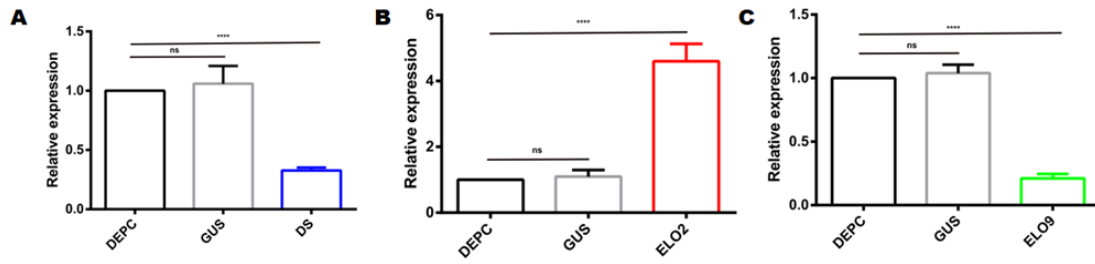


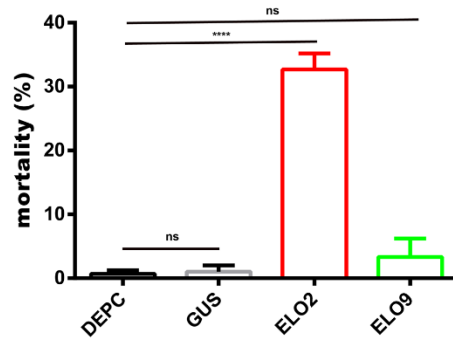
## Supporting information

	--- MARACWYYF SKFLEFADTVFFVL RKKNSQVSFLH VYHHGVMPFSVW I GMKFAPGGHSTFFGMLNSFVHI I MYSYY	
	170 180 190 200 210 220 230 240	
Ae-EL02	--- VARGCYVYFLAKLSELLDTVFFTLRKKDKQI SFLHLYHHTVMPMI SWGATKYFPGGHGTFI GVI NSFVHI I MYTTY	189
Ae-EL09	RFLQMARTCWYYI SKFTEFFDTLFFLLRKKNQHVSTLHVI HHGCMFPSVWMGMKFAPGGHSTFFAMLNSFVHI VMYFYY	210
Dm-CG6660	--- TLYASYAYMLKYL DLLDTVFI VL RKKNSQVSFLH VYHHGMVFGVSI FMTFLGGSHCSMLGI I NLLVHTVMYAYY	186
Dm-EL068α	--- LTKAFWFFYI SKI LEFADTAFFI LRQKWSQLSFLH VYHHSTMFVFCWI LI KWMPTGSTYVPAMI NSFVHI I MYGY	181
Nl-EL01	--- EMCSAYWQYLAMKI LDLADTI FI VL RKKQGNASFLHI YHHASMVFLTWF WF KYMREEQFVVLGALNLLVHSFMYSYY	197
Hs-EL01	--- MVRVAWLFLSKFI ELMDTVFI FI LRKKDQGVTF LHV FHHSVLPWSWWGVKI APGGMGSFHAMI NSSVHVI MYLY	182
Tm-EL01	--- MARTCWYYF SKFTEFFDTLFFI LRKKNSHVSTLHVI HHGCMFPSVWMGMKFAPGGHSTFFALLNTFVHI I MYFYY	187
Sc-EL01	--- ETLYYLNMTKFVEFADTVL MVLKHR- - KLTF LHTYHHGATALLCYNQLVGYT- AVTWVPVTLNLAVHVL MYWYY	212
Tm-EL02	--- MARGCWYYF SKFTEFLDTI FFVL RKKNDHI STLHVI HHGI MPMSVWF GVKFTPGGHSTFFGFLNTFVHI I MYSYY	187
	HXXHH MYTTY	

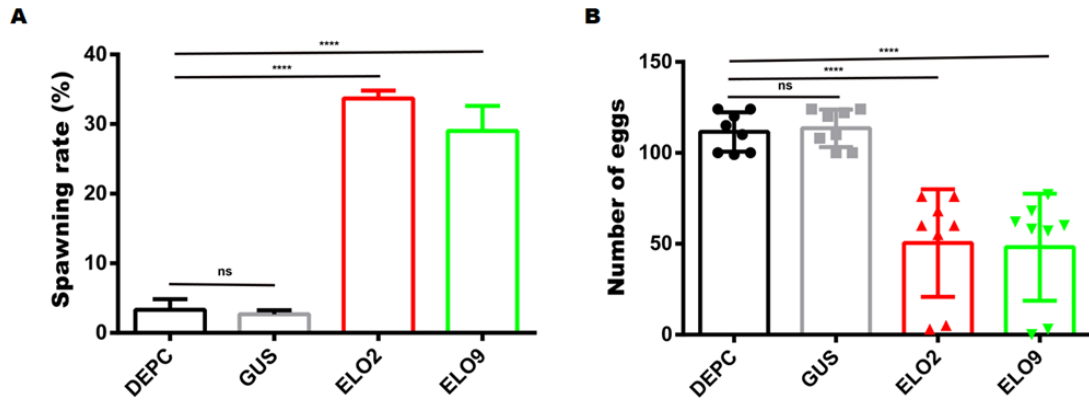
**Figure S1.** Amino acid alignment of AeELO2, AeELO9 and other known ELO proteins. (Ae, *Aedes aegypti*; Dm, *Drosophila melanogaster*; Nl, *Nilaparvata lugens*; Hs, *Homo sapiens*; Tm, *Tenebrio molitor*; Sc, *Saccharomyces cerevisiae*). The other known ELO proteins were selected from published sources. The conserved histidine motif HXXHH (solid line) and the conserved motif YXYX (dotted line) are indicated.



**Figure S2.** Quantitative RCR was used to determine the relative expression levels of *AeELO2* and *AeELO9* after *DOPAL* synthase knockdown. (A) Quantitation of *DOPAL* synthase expression after RNAi-mediated knockdown in larvae. (B) The relative expression of *AeELO2* after *DOPAL* synthase knockdown. (C) The relative expression of *AeELO9* after *DOPAL* synthase knockdown. *Abbreviations:* DEPC, larvae treated with DEPC water; GUS, larvae treated with *gus*-dsRNA; DS, larvae treated with *DOPAL* synthase-dsRNA; ELO2, larvae treated with *AeELO2*-dsRNA; ELO9, larvae treated with *AeELO9*-dsRNA; \*\*\*\*  $P < 0.0001$ , ns, not significant. \*\*\*\* and ns represent significant differences compared with the blank control (larvae treated with DEPC water).



**Figure S3.** Mortality of larvae molted abnormally. *Abbreviations:* DEPC, Blank control; GUS, larvae treated with *gus*-dsRNA; ELO2, larvae treated with *AeELO2*-dsRNA; ELO9, larvae treated with *AeELO9*-dsRNA; \*\*\*\*  $P < 0.0001$ , ns, not significant. \*\*\*\* and ns represent significant differences compared with the blank control (larvae treated with DEPC water).



**Figure S4.** The probability of reduced oviposition and the number of eggs in adult mosquitoes after *AeELO2* and *AeELO9* knockdown. (A) The probability of oviposition in *AeELO2* and *AeELO9* knockdown mosquitoes was significantly lower than that in the controls. The different treatment groups and the probability of reduced oviposition are shown on the x- and y-axes, respectively. (B) The number of eggs laid by adult mosquitoes with reduced oviposition. *Abbreviations:* DEPC, adult mosquitoes treated with DEPC water; GUS, adult mosquitoes treated with *gus*-dsRNA; ELO2, adult mosquitoes treated with *AeELO2*-dsRNA; ELO9, adult mosquitoes treated with *AeELO9*-dsRNA; \*\*\*\*  $P < 0.0001$ , ns, not significant. \*\*\*\* and ns represent significant differences compared with the blank control (adult mosquitoes treated with DEPC water).