

## Supplementary information

TATCGGTCGTAATGTCGTCGAACTGGCATGCGTCATTGGCTGCAACATATTGGCTTGCCTGATTGCGTAACAAATGCCGTG  
 CTTGTCGGTGAATGCCTGCGTACCATTCGGCATGCGTACGTGCAATCCAATTCTAATGCGTAATGCGTACT

1 - ATGGAGTCGCCTCC ACCTAGCTACCAAT GTGGCGCTTCAGTAC AATGAGACGACGGTG GTGTACGACGAGGGA  
 1 - M E F A S T L A T N V A L Q Y N E T T V V Y D E G

76 - GATGACCCGGATGCT GTCACGTTGCTCTCC ATACTGCTTGCCTG ATATTCCCTGTCATTG CTGATATTCCCTCAGC  
 26 - D D P D A V T L L S I L L V G I F L S L L I F L S

151 - GTAGCAGAACATA CTGGTCTGCATCGCG ATATACACGGACCGA GGGTTGCACGCATC GGGAACCTGTTCCCTG  
 51 - V A G N I L V C I A I Y T D R G L R R I G N L F L

226 - GCATCGTGGCCATC GCTGACATGCTGGTA GCTGCTGCGGTATG ACCTTGAGGAGTC AATGACCTGCTTGGA  
 76 - A S L A I A D M L V A A A V M T F A G V N D L L G

301 - TACTGGTATTCGGC GAGCAGTTCTGCGAC ACCTGGTGGCGTGT GACGTATGCTCA ACCGCCTCCATACTC  
 101 - Y W V F G E Q F C D T W V A C D V M C S T A S I L

376 - AACCTGTGCGCTATC TCGCTCGACAGATAC ATTACACATCAAAGAC CCTTTGAGGTACGGT CGCTGGGTGACCCGC  
 126 - N L C A I S L D R Y I H I K D P L R Y G R W V T R

451 - AAGGTGGCGGTAGCC ACAATAGCCATGATC TGGCTGCTAGCAGGC CTGGTCAGTTCTTG CCCATCTCGCTAGGG  
 151 - K V A V A T I A M I W L L A G L V S F L P I S L G

526 - CTTCACAGGCCCTGAT GAAGAAGCCCTGGCC ACACAGAAGCCCCG AGATACCCCACGTGC GCGTGGTCCCTGACG  
 176 - L H R P D E E A L A T Q K P P R Y P T C A L V L T

601 - CCGACGTACGCGGTC GTCTCAGCTGTATA TCGTTCATACTACCG TGTATTGTTATGATT AGTATATACTGCAGA  
 201 - P T Y A V V S S C I S F I L P C I V M I S I Y C R

676 - CTATACTGCTACGCT CAAAAACACGTCAAG TCAATCCGGGCCGTC ACCCGAACGGTCAA ATGCCGACAACCGG  
 226 - L Y C Y A Q K H V K S I R A V T R T V Q M P D N R

751 - ACGAAGTCCGCCGG ACTCGAGTCACACC CACGTGCACTCGTCA CCGTACACGTCTCC GATCACAAGGCGGCC  
 251 - T K S V R T R V H T H V H S S P Y H V S D H K A A

826 - ATTACTGTGGGTATC ATCATGGAGTGTCTT CTTCTTGTGGGTG CCCTTCTCTGTGTG AACATCGTCGCTGCG  
 276 - I T V G I I M G V F L L C W V P F F C V N I V A A

901 - TTTGTAAAACGTGT ATACCGGATTGGCA TTCAAAATCTGACG TGCGCTGGTACTCTCA AACTCCGCTTCAC  
 301 - F C K T C I P D L A F K I L T W L G Y S N S A F N

976 - CCTATCATATACTCA ATATTCAACACAGAG TTCCGGAAGCCTTC AAGAAGATCCTAACG TCCAGGTATCCTCTA  
 326 - P I I Y S I F N T E F R E A F K K I L T S R Y P L

1051 - TGCTCGGATACCAA AGCGTCAGAGCAAC ACACCAACACGAAAC GACAACCTTGTCACT GACTACGGACTAAA  
 351 - C C G Y Q S V R A N T P T R N D N F V T D Y G T K

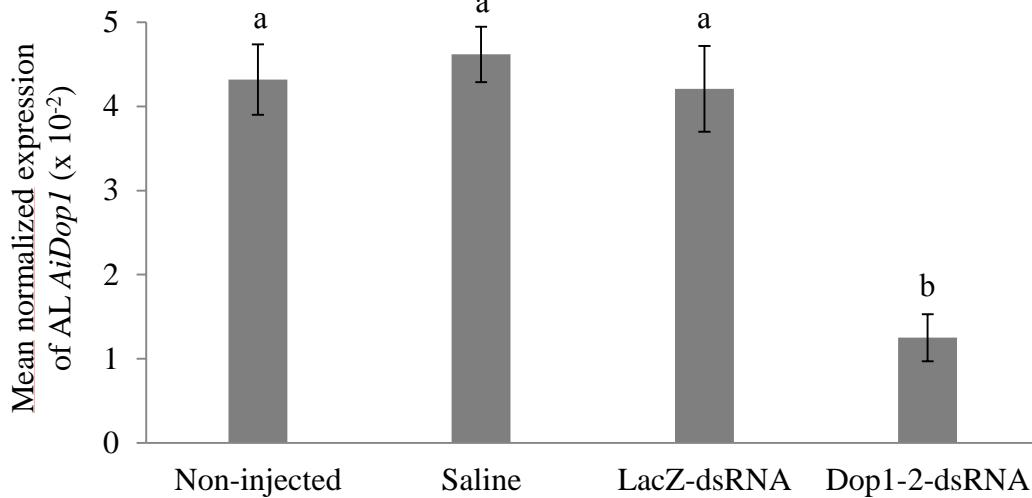
1126 - ACCTGGTGGTGCAG CGTAGCGGGTCCCTT GGCCTCTCAGGAGTG GACCCCACTCCAAGG TCATCGGAGAGTCC  
 376 - T L V V R R S G S L G L S G V D P T P R S S A E S

1201 - GTACGCCACTCAGA GAGTACAACATT  
 401 - V R P L R E Y N I

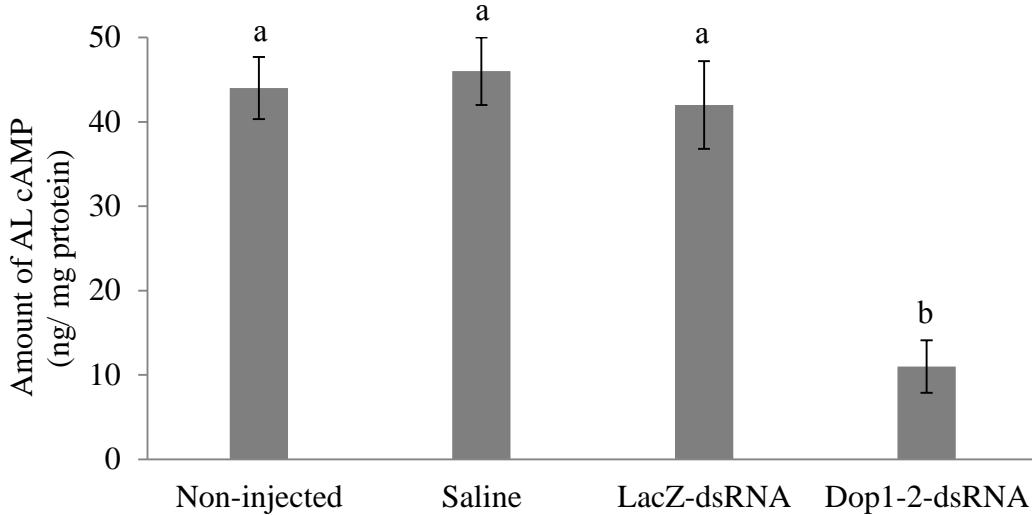
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 CAATGTCGATGCGTCGCAATCTCATGCGTGGAGTCGAGTCGATGCGTATTGCGGATGCTGACTGCGTAAATGCGTCGATGCGTCAATGCGT  
 CCGTGAATGCTCTGCGTACTGCTGATGCGTAACTGCGTCGTTGCGACGTAATGCTGACCAATGCGTCGTCAGTCGTCAGAGAGAC  
 TGCTATGCGCATGCGTCGACTGCAATGCGGCTGGCTGCTAGATGCTACCCACGTCAGTCGTAATGCGTACGTCGTCAGTCGTCAGAGAGAC  
 TGCTAAACTGCTCGTCGAGTATCACGTCGTCGAGTACGTCGTCAGTCGTCAGTCGTCAGTCGTCAGTCGTCAGTCGTCAGTCGTCAGAGAGAC  
 CACAAGTCGTCGGCTGCTGCTGCGTGGCCGACACACAGGATGCGTCGATGCGTACACAGAGTCGATGCTGCAATGCGTCATCGACATGGTGGCTGGC  
 CAAGTCGTCGGCTGCAATGCTACACATGCGTACCATGCGTACATGCGTCCATCGTCATGCCATGCAATCTGCTAGAGAGGAATC  
 GT**AATAA**GTGACTGCGTGTGCGAGACATGCGTACTAGTCGATCGCGCAATCTCATCGTCGAGAATGCTGAATCGTAGTCGGA  
 CTCTATCGAAGCaaaaaaaaaaaaaa

**Figure S1. Nucleotide and deduced amino acid sequences of *A. epsilon* Dop1.** Nucleotide (upper line) and amino acid (lower line) numbers are given on the left. The polyadenylation signal (AATAAA) in the 3'-UTR is in bold type.

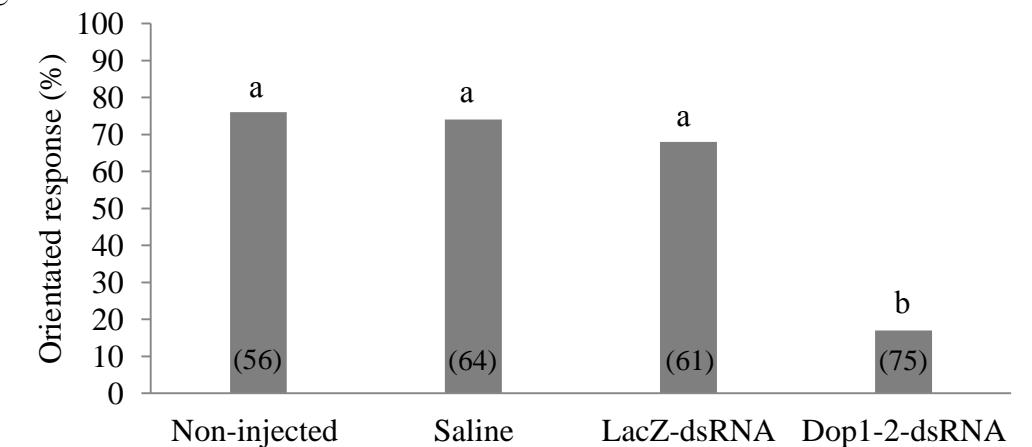
A



B



C



**Figure S2. Efficiency and effect of Dop1-2-dsRNA on both the amount of AL cAMP and the sex pheromone behavioral response in *A. epsilon* males.** Two-day-old males received an injection of saline solution, bacterial Beta-galactosidase (LacZ)-dsRNA or Dop1-2-dsRNA, or no injection (non-injected). For each treatment and three days after injection, the relative expression of *AiDop1* mRNA (A) and the amount of cAMP (B) were quantified in ALs, and the percentages of orientated responses were determined in the wind tunnel experiments (C). Each real time qPCR was run in three technical replicates with five independent biological replicates. The cAMP amounts were quantified from 10 ALs for each experimental group with 10 biological replicates. For the *AiDop1* mRNA and cAMP levels, the bars represent means  $\pm$  SD and those with different letters are significantly different (analysis of variance; Tukey's test; P<0.05). For the behavioral tests, the numbers in parentheses indicate the numbers of tested males and the columns with the same letter are not significantly different (G-test; P<0.05).

**Table S1.** List of the primers used in the study.

| Primer name   | Sequence  |
|---------------|---|
| Dop1Gdir1     | 5'-CTGATATTYCTCAGYGTAGCA-3'                         |
| Dop1Grev1     | 5'-GTTGAATATCGAGTAKATRAT-3'                         |
| Dop15'-RACE   | 5'-CGCGATGCAGACCAGTATGTT-3'                         |
| Dop13'-RACE   | 5'-TCAAACCTCCGCGTTCAACCCCT-3'                       |
| qDop1dir      | 5'-GGGCTTCACAGGCCTGATGAAGAA-3'                      |
| qDop1rev      | 5'-CATTGAACCCTTCGGGTGACGGC-3'                       |
| RpL8dir       | 5'-CCAGTTGTCTACTGCGGCAA-3'                          |
| RpL8rev       | 5'-GCTTAACCCTAGTACGCTTGGCA-3'                       |
| LacZ T7 dir   | 5'-taatacgactcaactataggATGACCATGATTACGCCAAGC-3'     |
| LacZ T7 rev   | 5'-taatacgactcaactataggCCATTGCCATTAGGCTGCG-3'       |
| Dop1-1 T7 dir | 5'-taatacgactcaactataggTCAGTACAATGAGACGACGGTGG-3'   |
| Dop1-1 T7 rev | 5'-taatacgactcaactataggTGATGTGAATGTATCTGAGCGAG-3'   |
| Dop1-2 T7 dir | 5'-taatacgactcaactataggTACTGCAGACTATACTGCTACGCTC-3' |
| Dop1-2 T7 rev | 5'-taatacgactcaactataggGGCTCTGACGCTTGATCCGCAGC      |