Main Figure genotypes:

Figure 1:
(B) 412-Gal4, UAS-CD4:tdTomato (C-C') hsFLP; Sp or CyO/+; 412-Gal4/
UAS>CD2>CD8-GFP (D) +; tsh-LexA, 8X-LexAopFLP; 10X-UAS-myr:GFP/412-Gal4
(E) tsh-Gal80/+; 412-Gal4, UAS-mCD8-GFP (F) tub>Gal80> tshLexA, 8X-LexAopFLP;
10X-UAS-myr:GFP/412-Gal4 (G) (i) tsh-LexA, 8X-LexAopFLP/412-Gal4/+ (ii) UAS-
dTrpA1/+; 412-Gal4/+ (iii) tsh-Gal80/UAS-dTrpA1; 412-Gal4/+ (iv) tub>Gal80> tsh-
LexA, 8X-LexAopFLP; UAS-dTrpA1/412-Gal4 (J-M) (i) tsh-LexA, 8X-LexAopFLP/412-
Gal4/+ (ii) ppk1.9-Gal4/+; UAS-dTrpA1/+ (iii) tub>Gal80> tsh-LexA, 8X-LexAopFLP;
UAS-dTrpA1/412-Gal4

Figure 2:
(A-E) UAS-ReaChR/PPK1.9-Gal4 (C-D) UAS-ReaChR/+; 412-Gal4/+ (E) (i)
UAS-ReaChR/PPK1.9-Gal4 (ii) UAS-ReaChR/+; 412-Gal4/+ 

Figure 3:
(A-C) 20X-UAS-IVS-GCaMP6m/+; 412-Gal4 (D-F) (i) 20X-UAS-IVS-GCaMP6m/+; 412-
Gal4/+ (ii) 20X-UAS-IVS-GCaMP6m/R38A10-LexA; 412-Gal4/13X-LexAop2-IVS-
TNT::HA (G) w-; Sp or CyO/R38A10-LexA;13XLexAop2-IVS-myr:GFP/+ (H) (i) 38A10-
LexA/+ (iii) R38A10-LexA/+; 13XLexAop2-IVS-TNT::HA/+ (I) (i) UAS-dTrpA1/+; 412-
Gal4/+ (ii) R38A10-LexA/UAS-dTrpA1; 412-Gal4/13X-LexAop2-IVS-TNT::HA

Figure 4:
Genotypes: (A, D-I) R70F01-LexA/8X-Aop2FLPL; 412-Gal4/UAS>Stop>Kir2.1-GFP
(C) (i) 8X-Aop2FLPL/+; 10X-UAS>Stop>Kir2.1-GFP/+ (ii) R70F01-LexA/8X-
Aop2FLPL; 412-Gal4/UAS>Stop>Kir2.1-GFP

Figure 5:
Circuit diagram: (G) A1 Right/A1 Left: Class IV group: ddaC, v’ada, vdaB; Class III
group ddaF, ddaA, ldaB, v’pda, vdaD; external sensory group: ventral’es, lesA
Figure 6:
Circuit diagram: (C) A1 right/A1 left: A10f, A09l; A4 right/A 4 left: A09e; A5 right/A5 left: A09e; Projection neuron: TePn05 (E) A1 right/A1 left: A09l, A27k, A01d-3, A18l, A02g, A02e, A03g, A27j, A07c4, A01c, LT1

Figure 7:
(B-E) R69E06-LexAp65/+;20xUAS-CsChrimson-mCherry,13xLexAop2-IVS-GCaMP6s-p10/412-Gal4 (F-H) (i) LexAop-Kir2.1/+/412-Gal4/UAS-dTrpA (ii) LexAop-Kir2.1/16e11-LexA;412-Gal4/UAS-dTrpA

Circuit diagram: DnP group; A09l Down-and-Back (T3 A1 A2 A3 A4 A5 right/left); Basin- 2,4 group: A09a Basin-2 (A1 left, A2 right, A3 right, A4 right/left), A09c Basin-4 (A1 left/right, A3 left, A4 left); Basin-3 group: A09g Basin-3 (A1 right/left, A4 right); A09e group: A09e (A4 right/left, A5 right/left); TePn05 group: TePn05 class-IV related projection C (Right/Left); A02o Wave (T3 A1 A2 A3 A5 right/left, A4 A6 Left); A23g group: A23g (A1 right/left, A2 right/left); A05q group: A05q (A1 right/left); Goro group: Goro (T2 right/left)