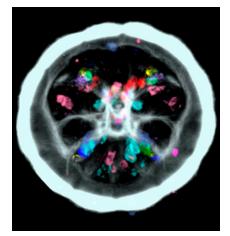
Supporting Information

PNAS PNAS

Conzelmann et al. 10.1073/pnas.1109085108

A	RYamide_Platynereis RYamide_Capitella RYamide_Lottia RF/Yamide_Podocoryne RF/Yamide_Hydractinia	K R G T - L M R Y G K R K R V P I F R Y G K R K R G V R L P F R Y G K R - R S T L P L R R G R Y G K - - R E V - L P L R R G R Y G K -	
в	DLamide_Platynereis DLamide_Capitella	K R <mark>Y A - F</mark> N A <mark>D L</mark> G K R K R <mark>Y</mark> S P F R A <mark>D L</mark> G K R	
с	FVMamide_Platynereis FVSamide_Capitella	K K N <mark>D G D</mark> Y S K <mark>F V M</mark> G K K K K N D - Q F N <mark>D F V</mark> S G K R	
D	FMRFamide_Platynereis FMRFamide_Aplysia FMRFamide_Loligo RFamide_Caenorhabditis RFamide_Renilla RFamide_Calliactis	KR FMR FGKK KR FMR FGK - KR FMR FGK - - R S P N FL R FGK - - K EQGR FGR - - R - FEDQGR FGR -	
E	FVamide_Platynereis FVamide_Capitella FVamide_Helobdella PRQFVamide-Aplysia Enterin_Aplysia	K R R <mark>L</mark> F V G K R K R A P A F V G K R K R T H <mark>L</mark> F V G K R K R P R Q F V G K R K R <mark>V P G Y</mark> S H S F V G K R	
F	FLamide_Platynereis FLamide_Capitella FLamide_Lottia Fulicin_Aplysia Fulicin_Achatina	K R A K Y F L G K R K R A K Y F L G K R K R L R N F L G K R K K S Y D F L G K R K R T Y D F L G K R	
G	AGN_L11_Platynereis AGN_L11_Lottia AGN_L11_Aplysia AGN_L11_Caenorhabditis	RR P D C T R F V F H P S C R G V A A K I RK L D C T K F V F A P K C R G V A A K I R R P R I D C T R F V F A P A C R G V S A K I Y S L D C R K F S F A P A C R G I M L K I	۲ ۲

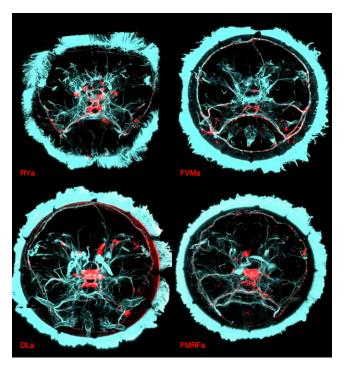
Fig. S1. (*A*–*G*) Multiple alignment of conserved neuropeptides. Multiple alignments of *Platynereis* RYa, DLa, FVMa, FMRFa, FVa, FLa, and L11 neuropeptides are shown with related neuropeptides from other metazoans including cnidarians (*Podocoryne, Hydractinia, Renilla, and Calliactis*), Lophotrochozoans (*Capitella, Lottia, Helobdella, Aplysia, Loligo, and Achatina*), and Ecdysozoan (*Caenorhabditis*).



Movie S1. Neuropeptide expressions in the *Platynereis* larva. Average expression pattern of each neuropeptide was registered to the same acetylated tubulin reference. Anterior view of a 48-hpf larva is shown.

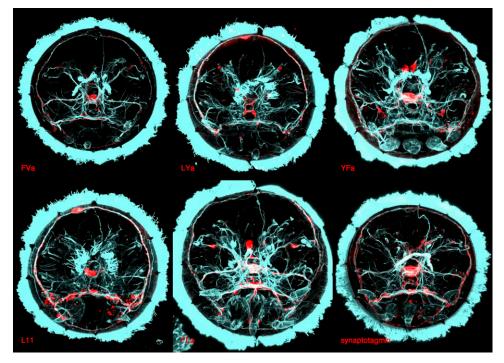
Movie S1

ANd



Movie S2. Neuropeptide antibody labelings in the *Platynereis* larva. Immunostainings with RYa, FVMa, DLa, and FMRFa antibodies (red) and the acetylated tubulin antibody (white) are shown. All images are anterior views of 48-hpf larvae.

Movie S2

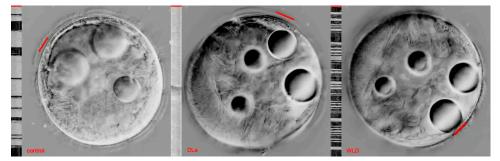


Movie S3. Neuropeptide antibody labelings in the *Platynereis* larva. Immunostainings with FVa, LYa, YFa, L11, FLa, and synaptotagmin antibodies (red) and the acetylated tubulin antibody (white) are shown. All images are anterior views of 48-hpf larvae.

Movie S3

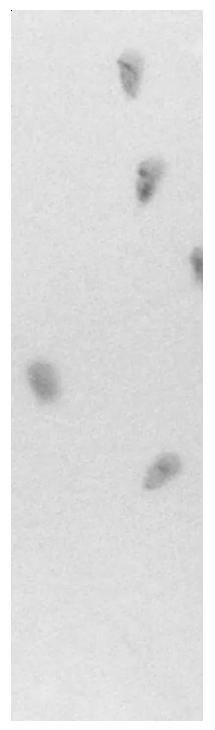
PNA

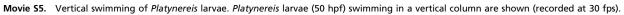
S A



Movie 54. Ciliary beating and arrests in *Platynereis* larvae. Ciliary beating and arrests in an immobilized, control 50-hpf *Platynereis* larva and larvae in the presence of 20 μM YYGFNNDLa or WLDNSQFRDE neuropeptide are shown. The recordings were done at 15 fps.

Movie S4





Movie S5

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