

Corrigendum: the FMRFamide-like peptide family in nematodes

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A corrigendum on

The FMRFamide-like peptide family in nematodes

by Peymen, K., Watteyne, J., Frooninckx, L., Schoofs, L., and Beets, I. (2014). *Front. Endocrinol.* 5:90. doi: 10.3389/fendo.2014.00090

In Figure 1, NLP-1 neuropeptides (not NLP-11 as indicated in Figure 1) are released from AWC olfactory cells and activate the NPR-11 receptor. The AWC-released neuropeptide NLP-1 is stated correctly in the figure legend.

In **Table 1**, the activity of neuropeptides on *C. elegans* G protein-coupled receptors is indicated by an EC50 range or by an activity threshold when EC50 values could not be calculated. The activity thresholds are indicated in italic in the corrected **Table 1** below.

Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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TABLE 1 | Neuropeptide genes encoding FLPs in nematodes.

flp gene ^a	Species ^b	C-terminal peptide consensus ^c	C. elegans FLPs ^d	C. elegans flp expression ^e	C. elegans receptor interaction [EC ₅₀ range or activity threshold] ^f	References
flp-1	<i>A. caninum</i> , <i>A. ceylanicum</i> , <i>A. suum</i> , <i>B. malayi</i> , <i>B. xylophilus</i> , <i>C. elegans</i> , <i>C. vulgaris</i> , <i>D. immitis</i> , <i>G. pallida</i> , <i>G. rostochoiensis</i> , <i>H. concortus</i> , <i>H. schachtii</i> , <i>L. loa</i> , <i>M. arenaria</i> , <i>M. chitwoodi</i> , <i>M. hapla</i> , <i>M. incognita</i> , <i>M. javanica</i> , <i>M. paranaensis</i> , <i>N. brasiliensis</i> , <i>N. americanus</i> , <i>O. onchengi</i> , <i>O. volvulus</i> , <i>P. redivivus</i> , <i>P. trichosuri</i> , <i>S. ratti</i> , <i>S. stercoralis</i> , <i>T. muris</i> , <i>T. spiralis</i> , <i>W. bancrofti</i>	- [P/N/Q/A] [N/T/D/S/K] [F/Y]LRFa	SADPNFLRFa SGPNFLRFa AGSDPNFLRFa SDPNFLRFa AAADPNFLRFa (K)PNFLRFa AGSDPNGLRFa *(K)PNFMRYa	AIA, AIV, AVA, AVE, AVK, RIG, RMG, M5	NPR-22 (100nM) NPR-4 (~0.4–9 μM) NPR-11 (~1–8 μM)	Geary et al., 1992; Rosoff et al., 1992, 1993; Schinkmann and Li, 1994; Nelson et al., 1998a; Kimber et al., 2001, 2002; Rogers et al., 2001; Lowery et al., 2003; Kim and Li, 2004; Husson et al., 2005, 2006; Kimber and Fleming, 2005; McVeigh et al., 2005; Mertens et al., 2006; Abad et al., 2008; Kikuchi et al., 2011; Jarecki et al., 2012; McCoy et al., 2014
flp-2	<i>A. caninum</i> , <i>A. suum</i> , <i>B. xylophilus</i> , <i>C. elegans</i> , <i>G. pallida</i> , <i>H. concortus</i> , <i>M. chitwoodi</i> , <i>M. hapla</i> , <i>M. incognita</i> , <i>M. javanica</i> , <i>N. americanus</i> , <i>N. brasiliensis</i> , <i>O. ostertagi</i> , <i>S. ratti</i>	[L/FV/S/Q] [P/R/M][G/R]EPI/LJRFa	LRGEPIRFa SPREPIRFa	AIA, RID, PVM, I5, MC (ASI, M4, head muscles, an extra pair of cells in the head	FRPR-18 (~50nM)	Nelson et al., 1998a; Kim and Li, 2004; McVeigh et al., 2005; Mertens et al., 2005; Kikuchi et al., 2011; Larsen et al., 2013; McCoy et al., 2014
flp-3	<i>A. suum</i> , <i>B. malayi</i> , <i>B. xylophilus</i> , <i>C. elegans</i> , <i>D. immitis</i> , <i>G. pallida</i> , <i>H. glycines</i> , <i>L. loa</i> , <i>M. arenaria</i> , <i>M. chitwoodi</i> , <i>M. hapla</i> , <i>M. incognita</i> , <i>O. volvulus</i> , <i>O. onchengi</i> , <i>S. ratti</i> , <i>W. bancrofti</i>	- [S/A/E/T/N][P/L]L[F/P] GTMRFa	SPLGTMRFa TPLGTMRFa SAEPFGTMRFa NPENDTPFGTMRFa ASEDALFGTMRFa EDGNAPFGTMRFa EAEELGTMRFa SADDSAPFGTMRFa NPLGTMRFa	IL1, PQR, SP, CP9	NPR-10 (~60–300nM) NPR-4 (≥ 10 μM)	Nelson et al., 1998a; Rogers et al., 2001; Lowery et al., 2003; Kim and Li, 2004; Greenwood et al., 2005; Husson et al., 2005; McVeigh et al., 2005; Husson et al., 2007a; Abad et al., 2008; Li and Kim, 2010; Kikuchi et al., 2011; McCoy et al., 2014
flp-4	<i>A. caninum</i> , <i>A. ceylanicum</i> , <i>A. suum</i> , <i>B. malayi</i> , <i>B. xylophilus</i> , <i>C. elegans</i> , <i>D. immitis</i> , <i>H. glycines</i> , <i>N. brasiliensis</i> , <i>O. ochengi</i> , <i>O. volvulus</i> , <i>W. bancrofti</i>	- [A/T/G]Q[N/S/K][P/S] [T/S]IRFa	PTIRFa ASPSIRFa	ADL, ASEL, AVM, AWC, FLP, PHA, PHE, PVD, I5, I6, NSM	NPR-4 (~5–80nM)	Nelson et al., 1998a; Lowery et al., 2003; Kim and Li, 2004; McVeigh et al., 2005; Li and Kim, 2010; Jarecki et al., 2011; Kikuchi et al., 2011; McCoy et al., 2014
flp-5	<i>A. caninum</i> , <i>A. suum</i> , <i>B. xylophilus</i> , <i>C. elegans</i> , <i>G. pallida</i> , <i>G. rostochoiensis</i> , <i>H. concortus</i> , <i>H. glycines</i> , <i>M. arenaria</i> , <i>M. hapla</i> , <i>M. javanica</i> , <i>M. incognita</i> , <i>N. brasiliensis</i> , <i>N. americanus</i> , <i>P. penetrans</i> , <i>S. ratti</i>	- [G/A/N/K][A/Q]KIRFa	APKIRFa AGAKIRFa GAKIRFa	ASE, PVT, RMG, I4, M4, pharyngeal muscle, amphidial neuron (PB, I2), rays 1,5,7, HOB, P8	NPR-11 (~1–8 μM)	Nelson et al., 1998a; Rogers et al., 2001; Lowery et al., 2003; Kim and Li, 2004; Husson et al., 2005; McVeigh et al., 2005; Abad et al., 2008; Li and Kim, 2010; Kikuchi et al., 2011; McCoy et al., 2014
flp-6	<i>A. caninum</i> , <i>A. ceylanicum</i> , <i>A. suum</i> , <i>B. malayi</i> , <i>B. xylophilus</i> , <i>C. elegans</i> , <i>D. immitis</i> , <i>G. pallida</i> , <i>G. rostochoiensis</i> , <i>H. concortus</i> , <i>H. glycines</i> , <i>L. loa</i> , <i>M. chitwoodi</i> , <i>M. hapla</i> , <i>M. incognita</i> , <i>M. paranaensis</i> , <i>N. brasiliensis</i> , <i>N. americanus</i> , <i>O. ochengi</i> , <i>O. ostertagi</i> , <i>O. volvulus</i> , <i>P. redivivus</i> , <i>S. ratti</i> , <i>S. stercoralis</i> , <i>T. circumcincta</i> , <i>W. bancrofti</i>	KS[A/S]YMRFa	KSAYMRFa (6x) *pQQDSEVEREMM	ASE, AFD, ADF, ASG, PVT, I1 (one or two pairs of head cells), rays 2, 5, 6, 7		Maule et al., 1994a; Marks et al., 1998; Nelson et al., 1998a; Rogers et al., 2001; Kim and Li, 2004; Husson et al., 2005; McVeigh et al., 2005; Abad et al., 2008; Jarecki et al., 2010; Li and Kim, 2010; Kikuchi et al., 2011; McCoy et al., 2014

(Continued)

TABLE 1 | Continued

<i>flp</i> gene ^a	Species ^b	C-terminal peptide consensus ^c	<i>C. elegans</i> FLPs ^d	<i>C. elegans flp</i> expression ^e	<i>C. elegans</i> receptor interaction (EC ₅₀ range or activity threshold) ^f	References
<i>flp-7</i>	<i>A. caninum</i> , <i>A. suum</i> , <i>B. xylophilus</i> , <i>C. elegans</i> , <i>G. pallida</i> , <i>G. rostochiensis</i> , <i>H. concortus</i> , <i>H. glycines</i> , <i>M. hapla</i> , <i>M. incognita</i> , <i>M. javanica</i> , <i>N. brasiliensis</i> , <i>O. ostertagi</i> , <i>S. ratti</i> , <i>S. stercoralis</i>	[A/T/S]P[F/L/M/I] [D/Q/A/E]R[S/AVT] [S/A/T/K]I[M/L/I] [A/V]IIRFa	TPMQRSSMVRFa (2x) SPMQRSSMVRFa (3x) SPMIERSAMVRFa SPMDRSKMVRFa	ALA, AVG, PHB; PDA, PVM, RIC, SAA (RMDV/SMDV, PHA)	NPR-22 (0.025–5 μM) FRPR-3 (>1 μM)	Nelson et al., 1998a; Rogers et al., 2001; Mertens et al., 2004a; McVeigh et al., 2005; Husson et al., 2006; Mertens et al., 2006; Abad et al., 2008; Li and Kim, 2010; Kikuchi et al., 2011; McCoy et al., 2014
<i>flp-8</i>	<i>A. ceylanicum</i> , <i>A. suum</i> , <i>B. malayi</i> , <i>B. xylophilus</i> , <i>C. elegans</i> , <i>D. immitis</i> , <i>H. concortus</i> , <i>L. loa</i> , <i>N. americanus</i> , <i>N. brasiliensis</i> , <i>O. ochengi</i> , <i>O. volvulus</i> , <i>S. ratti</i> , <i>T. muris</i> , <i>T. spiralis</i> , <i>W. bancrofti</i> , <i>X. index</i>	KNEFI[VR]Fa	KNEIRFa (3x)	AUA, PVM, URX (RMG,ADA, an extra pair of cells in the head), CP9		Cowden et al., 1989; Davis and Stretton, 1996; Nelson et al., 1998a; Rogers et al., 2001; Kim and Li, 2004; McVeigh et al., 2005; Yew et al., 2005; Li and Kim, 2010; Kikuchi et al., 2011; McCoy et al., 2014
<i>flp-9</i>	<i>A. caninum</i> , <i>A. ceylanicum</i> , <i>C. elegans</i> , <i>H. concortus</i> , <i>N. americanus</i> , <i>N. brasiliensis</i> , <i>O. ostertagi</i>	KPSVRFa	KPSFVRFa		NPR-22 (5 μM)	Marks et al., 1999; Nelson et al., 1998a; Husson et al., 2005, 2006; McVeigh et al., 2005; Mertens et al., 2006; McCoy et al., 2014
<i>flp-10</i>	<i>A. ceylanicum</i> , <i>C. elegans</i> , <i>X. index</i>	- [A/T/M]R[A]I[S/G] [G/S/K]YI[L]RFa	QPKARSGYIRFa	AIM, ASI, AUA, BAG, BDU, DVB, POR, PVR, URX, vulD	EGL-6 (11 nM)	Nelson et al., 1998a; Kim and Li, 2004; McVeigh et al., 2005; Ringstad and Horvitz, 2008
<i>flp-11</i>	<i>A. suum</i> , <i>A. caninum</i> , <i>A. ceylanicum</i> , <i>B. malayi</i> , <i>B. xylophilus</i> , <i>C. elegans</i> , <i>D. immitis</i> , <i>G. pallida</i> , <i>G. rostochiensis</i> , <i>H. concortus</i> , <i>H. glycines</i> , <i>L. loa</i> , <i>M. hapla</i> , <i>M. incognita</i> , <i>M. paranaensis</i> , <i>N. americanus</i> , <i>N. brasiliensis</i> , <i>O. ochengi</i> , <i>O. ostertagi</i> , <i>O. volvulus</i> , <i>P. penetrans</i> , <i>R. similis</i> , <i>S. ratti</i> , <i>S. stercoralis</i> , <i>T. circumcincta</i> , <i>W. bancrofti</i>	- M/I/G/A/S] [R/A]N[P]I[A/S/Q/E] [P/L] VRFa	AMRNALRFa ASGMRNALVRFa NGAPQPFVRFa *SPLDEEDFAPESPLQa	AUA, BAG, VD, DA, DD, DVB, LUA, PHC, PVC, SAB, URX, uvl, head muscle (socket cells), ray 4	NPR-22 (0.75–2.5 μM) FRPR-3 (~1 μM) NPR-4 (≥10 μM)	Nelson et al., 1998a; Lowery et al., 2003; Yew et al., 2003, 2005, 2007; Kim and Li, 2004; Mertens et al., 2004a; Husson et al., 2005, 2006; McVeigh et al., 2005; Mertens et al., 2006; Li and Kim, 2010; Kikuchi et al., 2011; McCoy et al., 2014
<i>flp-12</i>	<i>A. caninum</i> , <i>A. suum</i> , <i>B. malayi</i> , <i>B. xylophilus</i> , <i>C. elegans</i> , <i>D. immitis</i> , <i>G. pallida</i> , <i>G. rostochiensis</i> , <i>H. concortus</i> , <i>H. glycines</i> , <i>L. loa</i> , <i>M. arenaria</i> , <i>M. chitwoodi</i> , <i>M. hapla</i> , <i>M. incognita</i> , <i>M. javanica</i> , <i>M. minor</i> , <i>M. paranaensis</i> , <i>N. americanus</i> , <i>N. brasiliensis</i> , <i>O. ochengi</i> , <i>O. volvulus</i> , <i>S. ratti</i> , <i>W. bancrofti</i>	(K)I[R/K/N]KKEEFIRFa	RNKKEEFIRFa	AVA,AVJ, AVH, BAG, PDA, PVR, SAA, SDQ, SMB, (BDU), rays 1, 4, 5, 7, CP9		Davis and Stretton, 1996; Nelson et al., 1998a; Kimber et al., 2001, 2002; Kim and Li, 2004; Kimber and Fleming, 2005; McVeigh et al., 2005; Yew et al., 2005; Abad et al., 2008; Johnston et al., 2010; Kikuchi et al., 2011; McCoy et al., 2014
<i>flp-13</i>	<i>A. caninum</i> , <i>A. ceylanicum</i> , <i>A. suum</i> , <i>B. xylophilus</i> , <i>C. elegans</i> , <i>D. immitis</i> , <i>G. pallida</i> , <i>G. rostochiensis</i> , <i>H. concortus</i> , <i>H. glycines</i> , <i>L. loa</i> , <i>M. chitwoodi</i> , <i>M. hapla</i> , <i>M. incognita</i> , <i>M. javanica</i> , <i>N. americanus</i> , <i>N. brasiliensis</i> , <i>O. ochengi</i> , <i>O. volvulus</i> , <i>P. penetrans</i> , <i>Ppacificus</i> , <i>S. ratti</i> , <i>S. stercoralis</i> , <i>W. bancrofti</i>	-P[F/L]I]I[L/M]VRFa	AMDSPIRFa AADGAPFIRFa APEASPFIRFa (2x) AADGAPLIRFa ASPSAPFIRFa SPSAPFIRFa SAAAPLIRFa ASSAPFIRFa	ASE, ASG, ASK, BAG, DD, I5, M3, M5 (an extra pair of cells in the head), VSP	NPR-22 (2.5–5 μM)	Davis and Stretton, 1996; Marks et al., 1997, 2001; Nelson et al., 1998a; Kim and Li, 2004; Husson et al., 2005, 2006; Mertens et al., 2006; Abad et al., 2008; Jarecki et al., 2010; Li and Kim, 2010; Kikuchi et al., 2011; McCoy et al., 2014

(Continued)

TABLE 1 | Continued

<i>flp</i> gene ^a	Species ^b	C-terminal peptide consensus ^c	<i>C. elegans</i> FLPs ^d	<i>C. elegans flp</i> expression ^e	<i>C. elegans</i> receptor interaction (EC ₅₀ range or activity threshold) ^f	References
<i>flp-14</i>	<i>A. caninum</i> , <i>A. ceylanicum</i> , <i>A. suum</i> , <i>B. malayi</i> , <i>B. xylophilus</i> , <i>C. elegans</i> , <i>D. immitis</i> , <i>G. pallida</i> , <i>G. rostrochiensis</i> , <i>H. concortus</i> , <i>L. loa</i> , <i>M. arenaria</i> , <i>M. chitwoodi</i> , <i>M. hapla</i> , <i>M. incognita</i> , <i>M. javanica</i> , <i>M. paranaensis</i> , <i>N. americanus</i> , <i>N. brasiliensis</i> , <i>O. ochengi</i> , <i>O. volvulus</i> , <i>P. redivivus</i> , <i>P. trichosuri</i> , <i>P. penetrans</i> , <i>P. penetrans</i> , <i>R. similis</i> , <i>S. ratti</i> , <i>S. stercoralis</i> , <i>T. circumcincta</i> , <i>T. muris</i> , <i>T. spiralis</i> , <i>W. bancrofti</i>	KH[E/D]Y[F/I]L[V/I]RFa	KHEYLRFa (4x)		NPR-4 (≥10 μM) NPR-11 (~1–8 μM)	Cowden and Stretton, 1993; Maule et al., 1994b; Davis and Stretton, 1996; Li et al., 1999; Kimber et al., 2001, 2002; Rogers et al., 2001; Lowery et al., 2003; McVeigh et al., 2005; Kimber and Fleming, 2005; Yew et al., 2005; Husson et al., 2006; Abad et al., 2008; Jarecki et al., 2010; Johnston et al., 2010; Kikuchi et al., 2011; McCoy et al., 2014
<i>flp-15</i>	<i>A. ceylanicum</i> , <i>A. suum</i> , <i>C. elegans</i> , <i>H. concortus</i> , <i>N. americanus</i> , <i>N. brasiliensis</i> , <i>O. osteragi</i> , <i>T. circumcincta</i>	[R/D/G/A][G/V]P[T/S/Q]GPLRFa	GGPQGLRFa RGPSGLRFa	PHA, 12, socket/sheath cells (pharyngeal muscle, several cells in the head)	NPR-3 (~100–600 nM) NPR-4 (≥10 μM)	Li et al., 1999; Kubiak et al., 2003b; Lowery et al., 2003; Kim and Li, 2004; McVeigh et al., 2005; Mertens et al., 2006; Li and Kim, 2010; McCoy et al., 2014
<i>flp-16</i>	<i>A. caninum</i> , <i>A. ceylanicum</i> , <i>A. suum</i> , <i>B. malayi</i> , <i>B. xylophilus</i> , <i>C. elegans</i> , <i>D. immitis</i> , <i>G. pallida</i> , <i>G. rostrochiensis</i> , <i>H. concortus</i> , <i>H. glycines</i> , <i>L. loa</i> , <i>M. hapla</i> , <i>M. incognita</i> , <i>M. javanica</i> , <i>N. americanus</i> , <i>N. brasiliensis</i> , <i>O. ochengi</i> , <i>O. volvulus</i> , <i>O. osteragi</i> , <i>P. trichosuri</i> , <i>P. penetrans</i> , <i>P. vulnus</i> , <i>R. similis</i> , <i>S. ratti</i> , <i>W. bancrofti</i>	[A/G]QTFVRFa	AQTFVRFa (2x) GQTFVRFa			McVeigh et al., 2005; Abad et al., 2008; Li and Kim, 2010; Kikuchi et al., 2011; McCoy et al., 2014
<i>flp-17</i>	<i>A. caninum</i> , <i>A. suum</i> , <i>B. xylophilus</i> , <i>C. elegans</i> , <i>H. contortus</i> , <i>N. americanus</i> , <i>N. brasiliensis</i> , <i>O. osteragi</i> , <i>S. ratti</i> , <i>S. stercoralis</i> , <i>X. index</i>	KS [A/S/Q]F ^Y [L/V/I]RFa	KSAFVRFa (2x) KSQVRFa	BAG, M5 (an extra pair of cells in the head), rays 1, 5, 7	EGL-6 (1–28 nM)	Li et al., 1999; Kim and Li, 2004; McVeigh et al., 2005; Ringstad and Horvitz, 2008; Li and Kim, 2010; Jarecki et al., 2011; Kikuchi et al., 2011; McCoy et al., 2014
<i>flp-18</i>	<i>A. caninum</i> , <i>A. ceylanicum</i> , <i>A. suum</i> , <i>B. xylophilus</i> , <i>C. elegans</i> , <i>D. immitis</i> , <i>G. pallida</i> , <i>G. rostrochiensis</i> , <i>H. concortus</i> , <i>L. loa</i> , <i>M. chitwoodi</i> , <i>M. hapla</i> , <i>M. incognita</i> , <i>M. javanica</i> , <i>N. americanus</i> , <i>N. brasiliensis</i> , <i>O. ochengi</i> , <i>O. osteragi</i> , <i>O. volvulus</i> , <i>P. pacificus</i> , <i>S. ratti</i> , <i>S. stercoralis</i> , <i>T. muris</i> , <i>T. spiralis</i> , <i>W. bancrofti</i>	- [P/Q/A][G/Q/D/A] [V/M/F/L]V[M/F/L]RFa	(DFD)GAMPGLRFa EMPGVLRFa (SYFDEKK)SPGVLRFa (3x) EIPGVLRFa SEVPGVLRFa DVPGLRFa	AVA, AIV, RIG, RIM, M2 (M3, two extra pairs of cells in the head), rays 2, 6	NPR-4 (~5–80 nM) NPR-10 (~60 nM–4.6 μM) NPR-1 ((-32.2)–(-6.8))* NPR-5a (~20–70 μM) NPR-5b (~30–800 nM) NPR-11 (~80 nM–8 μM)	Edison et al., 1997; Kimber et al., 2001; Lowery et al., 2003; Rogers et al., 2003; Husson et al., 2005, 2006; Kimber and Fleming, 2005; McVeigh et al., 2005; Yew et al., 2005; Abad et al., 2008; Cohen et al., 2009; Li and Kim, 2010; Kikuchi et al., 2011; McCoy et al., 2014
<i>flp-19</i>	<i>A. caninum</i> , <i>A. suum</i> , <i>B. malayi</i> , <i>B. xylophilus</i> , <i>C. elegans</i> , <i>D. immitis</i> , <i>G. pallida</i> , <i>H. concortus</i> , <i>H. glycines</i> , <i>L. loa</i> , <i>M. hapla</i> , <i>M. incognita</i> , <i>N. americanus</i> , <i>N. brasiliensis</i> , <i>O. ochengi</i> , <i>O. volvulus</i> , <i>P. penetrans</i> , <i>S. ratti</i> , <i>T. circumcincta</i> , <i>W. bancrofti</i>	- W[A/S]N[S/T] [Q/K/S]V[L]RFa	WANQVRFa ASWASSVRFa	AIN, AWA, BAG, HSN, URX (an extra pair of cells in the tail), rays 5, 7, 9, CEM		Li et al., 1999; Rogers et al., 2001; Kim and Li, 2004; Husson et al., 2005, 2006; McVeigh et al., 2005; Abad et al., 2008; Li and Kim, 2010; Jarecki et al., 2011; Kikuchi et al., 2011; McCoy et al., 2014

(Continued)

TABLE 1 | Continued

flp gene ^a	Species ^b	C-terminal peptide consensus ^c	C. elegans FLPs ^d	C. elegans flp expression ^e	C. elegans receptor interaction (EC ₅₀ range or activity threshold) ^f	References
flp-20	<i>A. suum</i> , <i>A. caninum</i> , <i>B. xylophilus</i> , <i>C. elegans</i> , <i>G. pallida</i> , <i>H. concortus</i> , <i>M. hapla</i> , <i>M. incognita</i> , <i>N. brasiliensis</i> , <i>P. trichosuri</i> , <i>S. ratti</i>	[A/V]MMRFa	AMMRFa (2x)	ALM, ASEL, AVM, LUA, PLM, PVC, PVM, PVR, RIB, AIB ₁ (PVT)	Li et al., 1999; Kim and Li, 2004; McVeigh et al., 2005; Abad et al., 2008; Kikuchi et al., 2011; McCoy et al., 2014	
flp-21	<i>A. caninum</i> , <i>A. suum</i> , <i>B. malayi</i> , <i>B. xylophilus</i> , <i>C. elegans</i> , <i>D. immitis</i> , <i>G. pallida</i> , <i>H. concortus</i> , <i>L. loa</i> , <i>M. hapla</i> , <i>M. incognita</i> , <i>N. americanus</i> , <i>N. brasiliensis</i> , <i>O. ochengi</i> , <i>O. ostertagi</i> , <i>O. volvulus</i> , <i>P. penetrans</i> , <i>P. pacificus</i> , <i>R. similis</i> , <i>S. ratti</i> , <i>S. stercoralis</i> , <i>T. circumcincta</i> , <i>W. bancrofti</i>	- [G/A/S/L]L[A] GRRPLRFa	GLGRRPLRFa	ADL, ASI, ASEASH, ASJ, ASK, FLP, URA, MC, M4, M2, SP, DVF, P6, P7, P9	NPR-1 (~2.5–100 nM) NPR-11 (~1–10 nM) NPR-5a (~0.6–5 μM) NPR-5b (~200–1500 nM)	Kubiak et al., 2003a; Lowery et al., 2003; Rogers et al., 2003; Greenwood et al., 2005; McVeigh et al., 2005; Abad et al., 2008; Cohen et al., 2009; Kikuchi et al., 2011; McCoy et al., 2014
flp-22	<i>A. caninum</i> , <i>A. ceylanicum</i> , <i>A. suum</i> , <i>B. malayi</i> , <i>B. xylophilus</i> , <i>C. elegans</i> , <i>D. immitis</i> , <i>G. pallida</i> , <i>G. rostochiensis</i> , <i>H. concortus</i> , <i>H. glycines</i> , <i>L. loa</i> , <i>M. hapla</i> , <i>M. incognita</i> , <i>N. brasiliensis</i> , <i>O. ochengi</i> , <i>O. ostertagi</i> , <i>O. volvulus</i> , <i>P. trichosuri</i> , <i>P. penetrans</i> , <i>P. pacificus</i> , <i>R. similis</i> , <i>S. ratti</i> , <i>S. stercoralis</i> , <i>T. circumcincta</i> , <i>W. bancrofti</i>	- [P/E/A/T/S]P/Q/G/ E/N/S]S/G/N/A] KWMRFa	SPSAKWMRFa (3x)	AIM, ASG, AVA, AVG, AVL, CEP, PVD, PWW, RIC, AIZ, RIV, SMD, URA, uv1, 6 out of 9 CP	NPR-22 (1 μM)	Husson et al., 2005, 2006; McVeigh et al., 2005; Mertens et al., 2006; Abad et al., 2008; Kikuchi et al., 2011; McCoy et al., 2014
flp-23	<i>B. malayi</i> , <i>C. elegans</i> , <i>D. immitis</i> , <i>L. loa</i> , <i>O. ochengi</i> , <i>O. volvulus</i> , <i>T. circumcincta</i> , <i>W. bancrofti</i>	- [N/V/T]V/D/K] [G/D/F]Q/G/F] QDFLRfa	WGGQDFLRfa TKFQDFLRfa			Kim and Li, 2004; McVeigh et al., 2005; Li and Kim, 2010; McCoy et al., 2014
flp-24	<i>A. caninum</i> , <i>A. ceylanicum</i> , <i>A. suum</i> , <i>B. malayi</i> , <i>C. elegans</i> , <i>D. immitis</i> , <i>H. concortus</i> , <i>L. loa</i> , <i>N. americanus</i> , <i>O. ostertagi</i> , <i>O. ochengi</i> , <i>O. volvulus</i> , <i>S. ratti</i> , <i>W. bancrofti</i>	VP[S/N]J[A/P] [G/A]DM[V/I]RFa	VPSAGDMVMRFa			Kim and Li, 2004; McVeigh et al., 2005; Li and Kim, 2010; Jarecki et al., 2010; McCoy et al., 2014
flp-25	<i>A. caninum</i> , <i>A. suum</i> , <i>B. malayi</i> , <i>C. elegans</i> , <i>D. immitis</i> , <i>G. pallida</i> , <i>G. rostochiensis</i> , <i>H. concortus</i> , <i>L. loa</i> , <i>M. chitwoodi</i> , <i>M. hapla</i> , <i>M. incognita</i> , <i>M. javanica</i> , <i>N. americanus</i> , <i>N. brasiliensis</i> , <i>O. ochengi</i> , <i>O. volvulus</i> , <i>S. ratti</i> , <i>S. stercoralis</i> , <i>W. bancrofti</i>	- [D/A/S/N/T] YD]Y[F]N]RFa	DYDFVRfa ASYDYIRFa	ASE		McVeigh et al., 2005; Husson et al., 2006; Etchberger et al., 2007; Abad et al., 2008; Li and Kim, 2010; McCoy et al., 2014
flp-26	<i>A. caninum</i> , <i>A. ceylanicum</i> , <i>A. suum</i> , <i>C. elegans</i> , <i>N. americanus</i>	- [G/S]G[E]G[E/P] [L/M]I[A/E]F[H/S/N] [P/A]I[N/D]I[D/M]I[A/S/T] LRfa	(E)FNADDLTLRFa GGAGEPLAFSPDMLSLRFa *FRLPFGFFGANEFDNSGLT *NYYESKPY			McVeigh et al., 2005; Husson et al., 2006; Li and Kim, 2010; McCoy et al., 2014
flp-27	<i>A. caninum</i> , <i>C. elegans</i> , <i>H. glycines</i> , <i>M. chitwoodi</i> , <i>M. hapla</i> , <i>M. incognita</i> , <i>M. javanica</i> , <i>M. paranaensis</i> , <i>N. americanus</i> , <i>R. similis</i>	[G/T/S/A]K[L/M]G[G/S] RMRfa	GLGGRMRfa *POPIDEERPIFME			McVeigh et al., 2005; Husson et al., 2006; Abad et al., 2008; Li and Kim, 2010; McCoy et al., 2014

(Continued)

TABLE 1 | Continued

flp gene ^a	Species ^b	C-terminal peptide consensus ^c	C. elegans FLPs ^d	C. elegans flp expression ^e	C. elegans receptor interaction (EC ₅₀ range or activity threshold) ^f	References
flp-28	<i>A. suum</i> , <i>A. caninum</i> , <i>C. elegans</i> , <i>H. concortus</i> , <i>N. brasiliensis</i> , <i>O. ostertagi</i> , <i>P. penetrans</i> , <i>S. ratti</i>	- [V/I]L[F]MRFa	VLMRFa APNRVLMRFa			McVeigh et al., 2005; Husson et al., 2006; McCoy et al., 2014
flp-31	<i>B. xylophilus</i> , <i>G. pallida</i> , <i>M. chitwoodi</i> , <i>M. hapla</i> , <i>M. incognita</i> , <i>P. penetrans</i>	LYRPRGPPRFa				McVeigh et al., 2005; Abad et al., 2008; McCoy et al., 2014
flp-32	<i>A. caninum</i> , <i>B. xylophilus</i> , <i>C. elegans</i> , <i>G. pallida</i> , <i>H. concortus</i> , <i>M. hapla</i> , <i>M. incognita</i> , <i>N. brasiliensis</i> , <i>S. ratti</i>		AMRNSLVRFa			McVeigh et al., 2005; Abad et al., 2008; Li and Kim, 2010; Kikuchi et al., 2011; McCoy et al., 2014
flp-33	<i>A. suum</i> , <i>A. caninum</i> , <i>B. xylophilus</i> , <i>C. elegans</i> , <i>H. concortus</i> , <i>N. brasiliensis</i>		APLEGFEDMSGFLRTIDGIQ KPRFa			Husson et al., 2007b; Li and Kim, 2010; Kikuchi et al., 2011; McCoy et al., 2014
flp-34	<i>A. suum</i> , <i>A. caninum</i> , <i>B. malayi</i> , <i>B. xylophilus</i> , <i>C. elegans</i> , <i>D. immitis</i> , <i>G. pallida</i> , <i>H. concortus</i> , <i>M. hapla</i> , <i>M. incognita</i> , <i>L. loa</i> , <i>N. brasiliensis</i> , <i>O. onchengi</i> , <i>O. volvulus</i> , <i>W. bancrofti</i>		ALNRDSLVA SLNNAERLRFa *ADISTFASAINNAGRLRYa			Li and Kim, 2010; McCoy et al., 2014

^aThe flp-coding genes flp-29 and flp-30 were recently suggested to represent orthologues of *C. elegans* flp-28 and flp-2, respectively, and have been accordingly included in this table (McCoy et al., 2014).
^bSpecies: *Ascaris suum*, *Ancylostoma caninum*, *Ancylostoma ceylanicum*, *Brugia malayi*, *Bursaphelenchus xylophilus*, *Caenorhabditis elegans*, *Caenorhabditis vulgans*, *Dirofilaria immitis*, *Globodera pallida*, *Globodera rostochiensis*, *Haemonchus concortus*, *Heterodera glycines*, *Heterodera schachtii*, *Loa loa*, *Meloidogyne arenaria*, *Meloidogyne incognita*, *Meloidogyne javanica*, *Meloidogyne paranaensis*, *Necator americanus*, *Nippostrongylus braziliensis*, *Onchocerca coheni*, *Onchocerca volvulus*, *Ostertagia ostertagi*, *Panagrellus redivivus*, *Parastongylodes trichosuri*, *Pratylenchus penetrans*, *Pristionchus pacificus*, *Radolophus similis*, *Strongyloides ratti*, *Strongyloides stercoralis*, *Teladorsagia circumcincta*, *Trichinella spiralis*, *Trichuris muris*, *Wuchereria bancrofti*, *Xiphinema index*.
^cSequences that start with a hyphen have variable N-terminal extensions.
^dPeptides indicated in bold have been isolated from *C. elegans*. Peptides indicated with an asterisk are non-FLPs encoded by the indicated flp gene. The copy number of peptides encoded by the gene is indicated between brackets.
^eExpression patterns were adapted from Li and Kim (2010), Etchberger et al. (2007) and Wormbase (www.wormbase.org).
^fThe approximate EC₅₀ range for receptor activation is indicated between brackets and includes receptor activation by all peptides encoded by this precursor. Values indicated in *italic* are activity threshold values as EC₅₀ values could not be calculated.
^{**}Values represent alteration of current in response to neuropeptide application in *Xenopus* assay.