

3rd BIENNIAL CONFERENCE OF THE NORTH AMERICAN SOCIETY FOR COMPARATIVE ENDOCRINOLOGY

June 21-25, 2015, Ottawa, Ontario, Canada

FINAL PROGRAM

Sunday, June 21st

Summary of events



	Events	Location
14h00-17h30	Registration	90 University (residence)
17h30-18h30	<p>Opening ceremony MCs: Vance Trudeau & Nafissa Ismail</p> <p>Speakers/performers: Carlos Arámburo, NASCE President & Robert Dores, NASCE Vice President</p> <p>Thierry Giordano, Vice-Dean Governance and International affairs, Faculty of Science, uOttawa</p> <p>Marcel Merette, Dean, Faculty of Social Sciences & Pierre Gosselin, Director, School of Psychology, uOttawa</p> <p>Mona Nemer, Vice-President Research, uOttawa</p> <p>Thomas Louttit, Elder of the Moose Cree First Nation of James Bay</p> <p>Céline Cada-Matasawagona, Sheshegwaning Ojibway First of Manitoulin Island</p>	UCU AUD
18h30-19h30	<p>Plenary: Randy J Nelson Day length, reproduction, and immune function</p>	UCU AUD
19h45-	Opening reception – Summer Solstice Party	Tabaret Hall

Monday, June 22nd
Summary of events

	Events	Location
08h00-16h30	Registration	DMS lobby
09h00-10h00	Plenary: Alexander Raikhel Interplay between juvenile hormone, ecdysone and microRNAs in mosquito reproduction	DMS 1160
10h00-10h30	Coffee	DMS lobby
10h30-12h15	Presidential symposium: MicroRNAs and endocrine biology Co-chairs: Carlos Aramburo & Peter Lobie	DMS 1160
12h15-14h00	Lunch	
12h30-13h45	NASCE Council meeting	FSS 4004
14h00-15h45	Symposium 1: Regulation of Energy balance Co-chairs: Suraj Unniappan & Peggy Biga	DMS 1160
14h00-15h45	Symposium 2: Comparative endocrinology of terrestrial arthropods Co-chairs: Jean-Paul Paluzzi & Patricia Pietrantonio	DMS 1140
14h00-15h45	Symposium 3: Environmental gestagens: effects on reproductive biology of aquatic wildlife Co-chairs: Edward Orlando & Werner Kloas	DMS 1120
15h45-16h15	Coffee	DMS lobby
16h15-17h15	Gorbman-Bern Memorial Lecture: Glen Van Der Kraak The multiple regulatory networks controlling ovulation in teleosts	DMS 1160
17h30-19h00	Bio-Rad workshop: Introduction to Droplet Digital PCR (ddPCR) and application to molecular medicine Sean Taylor, Bio-Rad Field Application Manager Andrew Gumley, Bio-Rad Instrument Specialist/Territory Manager	DMS 1160

Presidential symposium: MicroRNAs and endocrine biology**Location:** DMS 1160**Co-chairs:** Carlos Aramburo & Peter Lobie

	Speaker
10h30-11h05	miRNA regulation of endocrine dependent cancer Lobie, P.E. and Zhu, T.
11h05-11h40	Endocrine crosstalk with microRNAs in the control of energy metabolism: insights from the rainbow trout Mennigen, J.A. , Panserat, S., Skiba-Cassy S.
11h40-12h15	Small details, big consequences: microRNAs, hormonal signaling and insect metamorphosis Belles, X.

Symposium 1: Regulation of Energy balance**Location:** DMS 1160**Co-chairs:** Suraj Unniappan & Peggy Biga

	Speaker
14h00-14h25	The effects of glucose concentration on muscle cell proliferation and regulation Biga, P.R. , Froehlich, J.M., Larimer, M.N., Seiliez, I., Gabillard, J.C.
14h25-14h50	Regulation of Drosophila food intake and lifespan Ja, W.W. , Bruce, K.D., Deshpande, S.A., Hoxha, S. and Carvalho, G.B.
14h50-15h15	Comparative Endocrinology of Nesfatin-1: Update 2015 Unniappan, S.
15h15-15h30	Effects of deficiency of acylated ghrelin signaling on locomotor activity and energetic metabolism by daytime restricted feeding in rats Arellanes-Licea, E. , Khazall, R., Díaz-Muñoz, M. and Abizaid A.
15h30-15h45	Novel function of leptin as a stimulator of glycolysis Douros, J.D. , Baltzegar, D.A., Reading, B. and Borski, R.J.

Symposium 2: Comparative endocrinology of terrestrial arthropods**Location:** DMS 1140**Co-chairs:** Jean-Paul Paluzzi & Patricia Pietrantonio

	Speaker
14h00-14h25	Impact of the feminizing Wolbachia wVulC strain on the androgenic hormone gene expression which is involved in male differentiation of the terrestrial isopod <i>Armadillidium vulgare</i> Grève, P. , Geniez, S., Moumen, B., Saint-Jean, A., Bertaux, J., Bouchon, D., Foster, J., Slatko, B.E. and Cerveau, N.

14h25-14h50	The fire ant (<i>Solenopsis invicta</i>) short neuropeptide F and insulin-like peptides signaling systems: toward elucidating their role in reproduction, colony nutrition and worker division of labor Pietrantonio, P.V. , Bajracharya, P., Castillo, P.
14h50-15h15	To pee or not to pee – investigation of an anti-diuretic hormone in the adult mosquito, <i>Aedes aegypti</i> Al Dhaheri, A., Uyklu, A. Teymouri, K., Bhatt, G. and Paluzzi J.P.
15h15-15h30	The presence and the functions of insulin-like peptides in the Chagas' disease vector <i>Rhodnius prolixus</i> Defferrari, M.S. , Orchard, I. and Lange, A.B.
15h30-15h45	Identification and characterization of the adipokinetic hormone/corazonin-related peptide (ACP) signalling system in <i>Rhodnius prolixus</i> : a novel role for truncated receptor variants Zandawala, M. , Haddad, A., Hamoudi, Z. and Orchard, I.

Symposium 3: Environmental gestagens: effects on reproductive biology of aquatic wildlife

Location: DMS 1120

Co-chairs: Edward Orlando & Werner Kloas

	Speaker
14h00-14h25	Environmental gestagens: Sources, concentrations, and exposure effects from receptor activation to reproductive behaviour Orlando, E.F. , Frankel, T.F., Cardon, M., Chambers, I.G., Ellestad, L.E., Hartig P., and Wilson V.
14h25-14h50	Reproductive, histological and transcriptional effects of synthetic progestins medroxyprogesterone acetate and dydrogesterone and their binary mixtures in zebrafish (<i>Danio rerio</i>) Zhao, Y. , Castiglioni, S. and Fent, K.
14h50-15h15	Environmental gestagens disrupt endocrine systems associated with reproduction and metamorphosis in amphibians Kloas, W. , Lorenz, C., Zikova, A., Hoffmann, F. and Lutz, I.
15h15-15h30	Is the combined contraceptive pill as oestrogenic to fish as we think? Katsiadaki I. , Antczak, P., Williams, T.D., Sebire, M., Elphinstone-Davis, J., Viant, M.R., Scott, A.P. and Falciani, F.
15h30-15h45	Effects of progesterone and norethindrone on female fathead minnow (<i>Pimephales promelas</i>) steroidogenesis Petersen, L.H. , Hala, D., Martinovic, D. and Huggett, D.B.

Tuesday, June 23rd
Summary of events

	Events	Location
08h00-10h30	Registration	DMS lobby
09h00-10h00	Plenary: Kathleen Gilmour Regulation of the stress axis during chronic social stress	DMS 1160
10h00-10h30	Coffee	DMS lobby
10h30-12h15	Symposium 4: Neuroendocrine Disruptors Co-chairs: Cheryl Rosenfeld & Nancy Denslow	DMS 1160
10h30-12h15	Symposium 5: Cellular and molecular aspects of the hypothalamo-pituitary-adrenal/interrenal axis Co-chairs: Matt Vijayan & Robert Dores	DMS 1140
10h30-12h15	Symposium 6: Growth factor signalling in vertebrate reproduction Co-chairs: Chun Peng & Juan Fernadino	DMS 1120
12h15-14h00	Lunch	
12h30-13h45	GCE Editorial Board meeting	FSS 4004
14h00-15h45	Symposium 7: Vertebrate reproductive neuroendocrinology Part I Co-chairs: Stacia Sower & Hamid Habbibi	DMS 1160
14h00-15h45	Symposium 8: Practical applications of comparative endocrinology Co-chairs: Vance Trudeau & Gabriela Mastromonaco	DMS 1140
14h00-15h45	Symposium 9: Ocular hormones Co-chairs: Steve Harvey & Carlos Aramburo	DMS 1120
15h45-16h15	Coffee	DMS lobby
16h15-17h15	Gorbman-Bern New Investigator Lecture: Deborah Lutterschmidt Sex or candy? Neuroendocrine regulation of seasonal life-history transitions	DMS 1160

17h45-20h45	Poster session (supper provided)	Minto Sports Complex & The Draft pub
20h30-	Social	The Draft pub

Symposium 4: Neuroendocrine Disruptors

Location: DMS 1160

Co-chairs: Cheryl Rosenfeld & Nancy Denslow

	Speaker
10h30-10h55	Integrative molecular responses of estrogens in the teleost brain Denslow, N.D. , Lavelle, C., Smith, L.C., Garcia-Reyero, N., Sabo-Attwood, T. and Martyniuk, C. J.
10h55-11h20	The sexually dimorphic vasotocin system as target for neuroendocrine disruption in birds Panzica G.C. and Gotti S.
11h20-11h45	A multi-taxa comparative animal model approach to provide mechanistic insight into neuroendocrine disruption Rosenfeld, C.S
11h45-12h00	Naphthenic acids from petroleum extraction disrupt larval development and metabolism in <i>Silurana (Xenopus) tropicalis</i> Gutierrez-Villagomez, J.M. , Vazquez-Martinez, J., Xing, L., Gan, A., Langlois, V.S., Martyniuk, C.J. and Trudeau, V.L.
12h00-12h15	Investigating how developmental exposure to bisphenol-A (BPA) and ethinyl estradiol (EE2) affect F1 parental care and F2 pup parameters Johnson, S.A. , Javurek, A.B., Painter, M.S., Adams, G. F., Manshack, L.K., Ellersieck, M.R, Roberts, R.M. and Rosenfeld, C.S.

Symposium 5: Cellular and molecular aspects of the hypothalamo-pituitary-adrenal/interrenal axis

Location: DMS 1140

Co-chairs: Matt Vijayan & Robert Dores

	Speaker
10h30-10h55	Ontogeny of the hypothalamus-pituitary-interrenal axis functioning in zebrafish Vijayan, M.M. , Best, C., Faught, E. and Nesan, D.
10h55-11h20	Analyzing the activation of the melanocortin-2 receptor (MC2R): projecting a role for Transmembrane Domain 4 (TM4) and Extracellular Loop 2 (EC2) in the activation of <i>Xenopus tropicalis</i> MC2R Davis, P. , Liang, L. and Dores, R.M.

11h20-11h45	The optic tectum: An emerging target for CRF action Carr, J.A. , Prater, C. and Harris, B.N
11h45-12h00	Corticotrophin-releasing hormone (CRH) regulates depressive-like behaviors and BDNF expression in the mesocorticolimbic system following global cerebral ischemia de la Tremblaye, P.B. , Narvaez Linares, N. and Plamondon, H.
12h00-12h15	Krüppel-like factor 9 is a circadian transcription factor that regulates clock output genes and participates in corticosteroid modulation of peripheral circadian oscillators Knoedler, J.R. and Denver, R.J.

Symposium 6: Growth factor signalling in vertebrate reproduction

Location: DMS 1120

Co-chairs: Chun Peng & Juan Fernandino

	Speaker
10h30-10h55	IGF regulation of Y-Box Binding Protein 1 (YB-1; Ybx1) in the ovary: A potential mechanism of how the growth axis influences ovarian follicle activation GE, W. , Lau, S.-W., Zhang, L. and Zhu B.
10h55-11h20	Mechanisms of sex determination in South American silversides: from TSD to GSD Hattori, R.S. , Zhang, Y., Sarida, M., Yamamoto, Y., Strüssmann, C.A., Fernandino, J.I. and Somoza, G.M
11h20-11h45	Nodal and its modulating microRNAs in placental development Peng, C. , Nadeem, U., Nadeem, L., Brkic, J., Fu, G., Luo, L., Dunk, C. and Lye, S.
11h45-12h00	Growth hormone (GH) effects on proliferation of ovarian granulosa cells in the hen Ahumada-Solórzano, S.M. , Carranza, M., Ávila-Mendoza, J., Luna, M. and Arámburo, C.
12h00-12h15	Follicle stimulate hormone and vascular endothelial growth factor increase the production of sphingosine-1-phosphate in cultured of bovine granulosa cells Hernández-Coronado C.G. , Guzmán A., Romano-Pardo M.C., Gutiérrez C.G., Rodríguez A, Mondragón J.A. and Rosales-Torres A.M.

Symposium 7: Vertebrate reproductive neuroendocrinology Part I

Location: DMS 1160

Co-chairs: Stacia Sower & Hamid Habbibi

	Speaker
14h00-14h25	Characterization of novel neuropeptides modulating fish reproduction Levavi-Sivan, B.

14h25-14h50	Plasticity in the postnatal gonadotropin-releasing hormone system Tsai, P.-S. , Rochester, J.R., Gonzalez, P.K., Link, C.D., Kavanaugh, S.I.
14h50-15h15	Evolution of the GnRH and GnRH Receptor Families: Insight from a Basal Vertebrate and Mollusk Sower, S.A. , Tsai, P-S., Kavanaugh, S.I. and Plachetzki, D.C.
15h15-15h30	Expression and Localization of Two Glycoprotein Hormone Receptors in the Ovary and Thyroid Implies that Hypothalamic-Pituitary-Ovary & -Thyroid Axes Overlap in the Sea Lamprey, <i>Petromyzon marinus</i> Hausken, K.N. , Scialabba, R.L. and Sower, S.A.
15h30-15h45	GnRH-selective regulation of PIP ₃ -dependent signaling contributes to the differential control of LH and GH secretion in goldfish, <i>Carassius auratus</i> Pemberton, J.G. , Stafford, J.L. and Chang, J.P.

Symposium 8: Practical applications of comparative endocrinology

Location: DMS 1140

Co-chairs: Vance Trudeau & Gabriela Mastromonaco

	Speaker
14h00-14h25	Applied comparative endocrinology and novel hormone entities: Finding a pathway to commercialization Lovejoy, D.A.
14h25-14h50	Novel substrates for hormone analysis in wildlife. Mastromonaco, G.F. , Gilman, C., O'Handley, S.
14h50-15h15	Applying the principles of evolutionary endocrinology to develop spawning induction methods in amphibians Trudeau, V.L. , Vu, M., Xia, X., Thoney, D., McGinnity, D. and Dancosse, J.
15h15-15h30	Identification of California condor (<i>Gymnogyps californianus</i>) estrogen receptors 1 and 2 and their activation by endocrine disrupting chemicals Felton, R. , Steiner, C., Milnes, M., Durrant, B. and Tubbs, C.
15h30-15h45	Optimisation of ovulation and oviposition in the Barred Frog (<i>Mixophyes fasciolatus</i>) by induction with human chorionic (hCG) gonadotropin with pregnant mare serum gonadotropin (PMSG) priming Clulow, J. , Clulow, S., Guo, J., French, A.J., Mahony, M.J. and Archer, M.

Symposium 9: Ocular hormones

Location: DMS 1120

Co-chairs: Steve Harvey & Carlos Aramburo

	Speaker
14h00-14h25	Ocular growth hormone: a comparative perspective

	Harvey, S. , Martínez-Moreno, C.G., Luna, M. and Arámburo, C.
14h25-14h50	Growth hormone is expressed in the neuroretina of green iguana Ávila-Mendoza, J. , Carranza, M., Luna, M., and Arámburo, C.
14h50-15h15	Vascular and neuroprotective actions of vasoinhibins and prolactin in the retina Clapp, C., Arnold, E. , Thebault, S., Díaz-Lezama, N., Arredondo-Zamarripa, D., Vázquez-Membrillo, M., Adán-Castro, E. and Martínez de la Escalera, G
15h15-15h30	Neuroprotective effect of growth hormone against glutamate/BSO-induced cell death in QNR/D cells Martínez-Moreno C.G. , Ávila-Mendoza J., Wu, Y., Arellanes-Licea E., Arámburo C. and Harvey, S.
15h30-15h45	Growth hormone (GH) internalization in embryonic retinal ganglion cells: A synaptogenesis modulator? Fleming, T. , Martínez-Moreno, C.G., Mora, J., Luna, M., Arámburo, C. and Harvey, S.

Poster session

Location: Minto Sports Complex & The Draft pub

**Presenters for posters with odd numbers should be present at their poster 17h45-19h15; those with even numbers should be present 19h15-20h45.

Poster #	Presenter
<i>Presidential symposium: MicroRNAs and endocrine biology</i>	
1	Effects of silencing and overexpressing GH upon chicken embryonic cerebellar cell viability Carranza-Salas, M. , Ávila, J., Martínez-Moreno, CG., Luna, M., Harvey, S. and Arámburo, C.
<i>Symposium 1: Regulation of Energy balance</i>	
2	Fasting increases GH but not IGF-1 expression in the green iguana Ávila-Mendoza, J. , Urban, V., Carranza, M., Luna, M. and Arámburo, C.
3	Defining an ancient neuromuscular-endocrine interaction in the Metazoa: TCAP and its role in glucose metabolism in skeletal muscle D'Aquila, A.L. , Chen, Y., Xu, M., and Lovejoy, D.A.
4	Glycemia in free-ranging birds: No evidence for regulation by glucocorticoids during acute stress Deviche, P. , Bittner, B., Davies, S., Gao, S., Carpentier, E. and Valle S.
5	Teneurin C-terminal associated peptide (TCAP): An independently transcribed peptide involved in stress and cellular metabolism and a possible ancestor to the ligands of the Secretin GPCR family Husić, M. , de Lannoy, L., Michalec, O., D'Aquila, A.L., Lovejoy D.A.
6	The Orexigenic Peptide Ghrelin and its Relationship with Metabolic Challenges Mammals Face During Reproduction Hyland, L. , Murray, E., Woodside, B., and Abizaid, A.
7	Nesfatin-1 modulates ghrelin and leptin in mouse insulinoma (MIN6) cells Pasupuleti, V.K. and Unniappan, S.

8	Adrenergic regulation of hepatic glycogenolysis in the European eel <i>Anguilla anguilla</i> at different silvering stages. Kiwan, A. , Franzellitti, S., Valbonesi, P. and Fabbri, E.
10	<i>In vitro</i> regulation of hepatic Leptin A synthesis and secretion by glucose and stress hormones in a teleost fish, the tilapia (<i>Oreochromis mossambicus</i>) Mankiewicz, J.L. , Taylor, J.D., Douros, J.D., Baltzegar, D.A. and Borski, R.J.
11	Serum lipid levels and oxidative stress parameters in streptozotocin-induced diabetic rats administered aqueous preparation of <i>Kalanchoe pinnata</i> leaves Menon, N. , Sparks, J. and Omoruyi, F.O.
12	Regulation and function of endogenous nesfatin-1/NUCB2 in mice Mohan, H. , Ramesh, N., Le, A., Mortazavi, S., Pasupuletti, V., Iwakura, H., Tsushima, R., Ceddia, R. and Unniappan, S.
13	Enteric hormone regulation of NUCB2/nesfatin-1 expression in mice Mortazavi, S. and Unniappan, S.
14	Characterization of appetite-regulating factors in platyfish, <i>Xiphophorus maculatus</i> (Cyprinodontiformes Poeciliidae) Pitts, P. and Volkoff, H.
15	Tectal corticotropin-releasing factor (CRF) neurons respond to fasting and a reactive stressor in the African clawed frog, <i>Xenopus laevis</i> Prater, C. , Harris, B.N., Garcia, C. and Carr, J.A.
16	Does nesfatin-1 regulate enteric hormone secretion in mice? Ramesh, N. , Mortazavi, S. and Unniappan, S.
17	Insulinotropic actions of a nesfatin-1-like peptide encoded in nucleobindin-1 Ramesh, N. , Mohan, H. and Unniappan, S.
18	Nucleobindin-1 encoded nesfatin-1 like peptide (NLP) decreases food intake and downregulates preproghrelin mRNA expression in fish Sundarrajan, L. and Unniappan, S.
19	Behavioural aspects of locomotion in rodents with teneurin C-terminal associated peptide (TCAP) administration Shrestha, T.C. , Lovejoy, D.A., Ralph, M.R.
20	Sex steroid hormones modulate NUCB2/nesfatin-1 and ghrelin in goldfish Unniappan, S. , Bertucci, J.I. and Canosa, L.F.
21	Circadian pattern of the ghrelinergic system and NUCB2/nesfatin-1 in goldfish Unniappan, S. , Imperiali, A.B. and Delgado Saavedra, M.J.
22	Macronutrient composition of diet modifies tissue specific abundance of endogenous ghrelin and NUCB2/nesfatin-1 in goldfish (<i>Carassius auratus</i>) Unniappan, S. , Imperiali, A.B. and Delgado Saavedra, M.J.
23	An ancient modulator of stress-related metabolism: role of Teneurin C-terminal associated peptide-1 (TCAP-1) and its receptor latrophilin (LPHN) Woelfle, R. , Chen, Y., Trubiani, G., Casatti, C., Barysye-Lovejoy, D. and Lovejoy, D.A.
24	Neuropeptidergic control of feeding in starfish: characterization of the SALMFamide signaling system Zandawala, M. , Egertová, M., Slade, S., Rowe, M., Anderson, S., Semmens, D., Scrivens, J. and Elphick, M.
<i>Symposium 2: Comparative endocrinology of terrestrial arthropods</i>	

25	The sulfakinin-signalling pathway in <i>Rhodnius prolixus</i> Al-alkawi, H. , Orchard, I. and Lange, A.B.
26	Allatostatin-like neuropeptides in <i>C. elegans</i> regulate locomotion and reproduction Bendena, W.G.
28	Ovarian ecdysteroid rhythms: An ovarian clock or response to rhythmic neuropeptides? Durant, A.D. , Vafopoulou X. and Steel, C.G.H.
29	Isolation and characterization of the corazonin receptor in the kissing bug, <i>Rhodnius prolixus</i> Hamoudi, Z. , Orchard, I. and Lange, A.B.
30	Starfish gonadotropin, relaxin-like gonad-stimulating peptide: the gene and its expression Haraguchi, S., Ikeda, N., Abe, M., Tsutsui, K. and Mita, M.
31	Fusion of testis is beneficial to male reproduction in <i>Spodoptera litura</i> (Lepidoptera) Liu, L. , Ma, Q., Liu, Y., Feng, Q.
32	Expression analysis of the heterodimeric glycoprotein hormone receptor, LGR1, in the dengue fever vector, <i>Aedes aegypti</i> Rocco, D.A. , Kim, D.H. and Paluzzi J.P.
33	Characterization and cloning of the long neuropeptide F (NPF) receptor in the Chagas disease vector, <i>Rhodnius prolixus</i> Sedra, L. and Lange, A.B.
<i>Symposium 3: Environmental gestagens: effects on reproductive biology of aquatic wildlife</i>	
34	Exposure effects of two progestins, gestodene and levonorgestrel, on the reproductive behavior and fitness of the fathead minnow (<i>Pimphales promelas</i>) Frankel, T.E. , Gillis, A.B. and Orlando, E.F.
35	Transgenerational reproductive effects of pharmaceuticals in zebrafish (<i>Danio rerio</i>) raised from chronically exposed parents Galus, M. , Rangaraanjan, S., Lai, A., Shaya, L., Balshine, S. and Wilson, J.Y.
36	Comparing rapid screening bioassays to assess the impacts of progestins on reproduction in the zebrafish McDermid, C. and Van Der Kraak, G.
37	Uncovering novel mechanisms of sex-steroid induced previtellogenic ovarian follicle growth in coho salmon (<i>Oncorhynchus kisutch</i>) using high-throughput sequencing and pathway analysis Monson, C. , Harding, L., Goetz, G., Swanson, P. and Young, G.
38	Physiological roles, molecular regulation, and disruption of the progesterone receptor signaling pathways in amphibians Thomson P. and Langlois, V.S.
<i>Symposium 4: Neuroendocrine Disruptors</i>	
39	An integrated, landscape-based approach to link landuse, endocrine disrupting chemicals and biological effects Bertolatus, D. , Vajda, A.M. and Barber, L.B.
40	Evaluation of the histological and functional effects of estrogen and atrazine on the thymus gland of <i>Xenopus laevis</i> tadpoles Reilly C., Morante, K., Quinde, J., Monhart, M., Marina H., Chavez, A., Fateye, B. and Schreiber, A.M.

41	The role of Triiodothyronine in sex reversal and delay of hatching in medaka embryos Castañeda Cortes, D.C., Langlois, V.S. and Fernandino, J.I.
42	Fluoxetine bioaccumulation and concentration in <i>Daphnia magna</i> – studying toxicity in planktonic food webs Halliwushka, K. and Heyland, A.
43	Pituitary gonadotropins are targets of endocrine disruption in salmon and trout Harding L.B. , Schultz I.R., Young G. and Swanson P.
44	Early-life bisphenol-A (BPA) exposure impairs adult leptin sensitivity and predisposes to obesity MacKay, H. , Patterson, Z.R. and Abizaid, A.
45	Does developmental exposure to the endocrine disrupting chemicals, bisphenol A (BPA) and ethinyl estradiol (EE2) affect growth and learning memory in painted turtles (<i>Chrysemys picta</i>)? Manshack, L.K. , Johnson, S.A., Conard, C.M., Tillitt, D.E., Deem, S.L., Holliday, D.K. and Rosenfeld, C.S.
46	Fish endocrine disruption responses along complex land-use gradients: opportunities and limitations for mitigation by regulation and treatment technology Vajda, A.M.
47	Larval exposure to fluoxetine suppresses the stress response in adult zebrafish Vera Chang, M.N. , Moon, T.W. and Trudeau, V.L.
48	Differential hepatic gene expression profile of male fathead minnows exposed to environmental pollutants individually and in mixture Zare, A. , Henry, D., Chua, G. and Habibi, H.R.
<i>Symposium 5: Cellular and molecular aspects of the hypothalamo-pituitary adrenal/interrenal axis</i>	
49	Regulation of hypothalamic-pituitary-interrenal axis function by serotonin in rainbow trout (<i>Oncorhynchus mykiss</i>) Bélair-Bambrick, M-E. , Dionne-Wilson, L.E. and Gilmour, K.M.
50	Maternal stress-induced behavioural reprogramming in offspring Cortez Ghio, S. , Boudreau-Leblanc, A., Audet, C. and Aubin-Horth, N.
51	DNA methylation patterning in the promoter region of the V1a/oxytocin-type vasotocin receptor in the sea lamprey (<i>Petromyzon marinus</i>) Mayasich, S.A. and Clarke, B.L.
52	Phylogeny of the corticotropin-releasing factor (CRF) family of peptides: The structure of urocortins 2 and 3 as a window into early evolution of the ancestral CRF gene Michalec, O. and Lovejoy, D.A.
53	Demonstration of an ovarian corticotropin releasing factor system in the zebrafish, <i>Danio rerio</i> Partch, T.H. , Bernier, N.J. and Van Der Kraak, G.
54	Effects of maternal social stress on offspring survival, anxiety behaviour, and responsiveness to stress in zebrafish (<i>Danio rerio</i>) Redfern, J.C. , Brown, A. and Gilmour, K.M.
55	Cortisol effects on local GH/IGF signaling in rainbow trout myogenesis Timber Wulff, K. , Latimer, M.N., Galt, N. and Biga, P.R.

<i>Symposium 7: Vertebrate reproductive neuroendocrinology</i>	
56	Corticosterone and the regulation of parental care behavior in captive birds Bittner, B. , Hutton, P. and Deviche, P.
57	Identifying brain and gonadal gene expression patterns during natural and induced sex change in black sea bass (<i>Centropristis striata</i>) Breton, T.S. , Kenter, L.W., Luckenbach, J.A., Goetz, F.W. and Berlinsky, D.L.
58	Secretoneurin as a potential regulator of radial glial cell function in neurosteroidogenesis and neurogenesis Da Fonte, D. , Xing, L. and Trudeau, V.L.
59	Physiological and behavioral correlates of reproductive “decisions” in female red-sided garter snakes (<i>Thamnophis sirtalis parietalis</i>) Dayger, C. A. and Lutterschmidt, D. I.
60	Sex steroid regulation of pituitary gonadotropins during primary oocyte growth in coho salmon Harding L.B. , Monson C.A., Young G. and Swanson P.
61	Interactions of nesfatin-1-GnRH-kisspeptin in murine hypothalamic cells <i>in vitro</i> Hatef, A. and Unniappan, S.
62	Brain and plasma oxytocin levels under basal and mating conditions in the female rat Langett, M.L. and Cameron, N.M.
63	Identifying molecular mechanisms underlying crosstalk between the thyroid hormone and androgen axes in the frog <i>Silurana tropicalis</i> Langlois, V.S. and Campbell, DEK
64	Seasonal life-history transitions between reproduction, migration, and foraging in red-sided garter snakes: The role of neuropeptide Y and arginine vasotocin Lucas, A.R. and Lutterschmidt, D.I.
65	A proto-pluritropic cell type and its expression of novel glycoprotein hormones in the pituitary of the basal vertebrate, the sea lamprey Marquis, T.J. , Nozaki, M., and Sower, S
66	Examining the functional roles of gonadotropin-releasing hormone II (GnRH2) in the zebrafish (<i>Danio rerio</i>) Marvel, M.M. , Spicer, O.S., Stubblefield, J.D., Wong, T-T., Xia, W., Zmora, N. and Zohar, Y
67	Estrogen receptor sequence from the brain and gonads of <i>Chirostoma humboldtianum</i> (Atheriniformes: Atherinopsidae). Muñoz-Osnaya G. A. , Chavez M; Cárdenas-Reygadas., R.
68	Teneurin C-terminal associated peptide (TCAP) expression and function in the male reproductive system of chordates Pavlović T. , Chand D., Casatti, C., Colacci, M., Hsieh, A. and Lovejoy D.A.
69	Investigation of a novel endocrine axis in male-pregnant syngnathid fish: the hypothalamic-pituitary-brood pouch axis Scobell, S.K. , Low, M.P., Forlano, P.M. and Wilson, A.B.
70	Expression and functional roles of gonadotropin-inhibitory hormone (GnIH) in the zebrafish (<i>Danio rerio</i>) Spicer, O.S. , Golan, M., Gothilf, Y., Levavi-Sivan, B., Stubblefield, J.D., Wong, T-T., Zmora, N. and Zohar, Y.

71	Primary radial glial cell culture as a model for dopaminergic regulation of neuroestrogen synthesis in the fish forebrain Xing, L. , McDonald, H., Da Fonte, D., Manuel Gutierrez Villagomez and Vance L Trudeau
<i>Symposium 8: Practical applications of comparative endocrinology</i>	
72	Assessment of testicular histology in male Gulf killifish from Barataria Bay Louisiana one year after the Deep Water Horizon oil spill. Carr, D.L. , Smith, E.E., Thiagarajah, A., Davis, A., Dong, M., Garcia, C., Heintzman, L., Vaughn, K., Snodgrass, P. and Carr, J.A
73	The stress response suppresses innate but not adaptive immunity in the house sparrow Gao, S. , Vandrie, A. and Deviche, P.
74	The antagonistic roles of teneurin C-terminal associated peptide (TCAP) and corticotropin-releasing factor (CRF) in stress-related behaviours in the vase tunicate, <i>Ciona intestinalis</i> D'Aquila, A.L. , Hsieh, A., De Almeida, R., Lovejoy, S.R., Sephton, D., Vercaemer, B. and Lovejoy, D.A
75	Do environmental conditions matter? Gonadal androgens have neither direct nor indirect effect on male growth in a captive gecko Kubička, L. , Starostová, Z. and Kratochvíl, L.
76	Timing of stress, not cortisol magnitude, is an important egg viability determinant in female rainbow trout (<i>Oncorhynchus mykiss</i>) Medeiros, L.R. , Elliott, M. and Nagler, J.J.
77	Gut melatonin response to pathogenic stress: A study in relation to the activity of digestive enzymes and antioxidant defense system in carp <i>Catla catla</i> Pal, P.K. and Maitra, S.K.
78	Estrogenicity of captive southern white rhinoceros diets and their association with fertility Tubbs, C. , Moley, L., Ivy1, J., Gerrard, R., Durrant, B. and Milnes, M.
79	Effects of thyroid hormone and dexamethasone on thymocyte cell death and proliferation in <i>Xenopus laevis</i> tadpoles Yee, S. , Monhart, M., Quinde, J., Mauch, E., Fateye, B. and Schreiber, A.M.
<i>Symposium 10: Molecular networks in endocrinology</i>	
80	Nicotine replacement therapy – what's the harm? Boucher, J. , Forbes, H.R., Gill, N.M.K., Anand, S., Holloway, A.C. and Konkle, A.T.M.
81	In silico pathway analysis linking perturbed steroidogenesis with gonad growth in fathead minnows (<i>Pimephales promelas</i>) exposed to 17 α -ethynylestradiol Hala, D. , Petersen, L.H., Martinović, D. and Huggett, D.B.
82	Jab1 is a coregulator of the thyroid hormone receptor beta 1 Hernández-Puga G. , Mendoza A., Villalobos P. and Orozco, A.
83	Characterization of the gonadotropin-releasing hormone receptor in <i>Aplysia californica</i> Kavanaugh, S.I. and Tsai, P.-S.
84	Anti-apoptotic effects of growth hormone (GH) and IGF-I in chicken cerebellar cell cultures during the hypoxia injury.

	Luna, M. , Armenta, M.E., Granados, E., Alba-Betancourt, C., Carranza, M. and Arámburo, C
85	Sub-network enrichment analysis as a tool to characterize hormone signaling pathways in the teleostean gonad Martyniuk, C.J. , Feswick, A. and Bahamonde, P.
86	Transcript variability for genes in the fathead minnow ovary: Implications for molecular reproductive studies Martyniuk, C.J. , Loughery, J.R., Wood, R.K., Chishti, Y., Feswick, A. and Cowie, A.M.
87	Structural and functional disruptions of the suprachiasmatic nucleus in fibroblast growth factor-deficient mice. Miller, A.V. , Kavanaugh, S.I. and Tsai, P.-S.
88	T3 and 3,5-T2 regulate expression of different gene sets in the thalamus-pituitary of tilapia (<i>O. Niloticus</i>) Olvera, A. , Navarrete-Ramírez, P., Villalobos, P. and Orozco, A.
89	Chronic social defeat paradigm effects on GHSR and NR3C1 mRNA expression in the PFC, HIPP and VTA of C57/BL6 male mice Park, S. , Rodrigues, T., Patterson, Z.R., Mackay, H. and Abizaid, A.
90	Molecular mechanisms of hormone synergy at the Krüppel-like factor 9 nuclear receptor synergy module Raj, S. , Bagamasbad, P.D., Bonett, R.M., Sachs, L., Buisine, N., Ruan, Y., Ruan, X., Knoedler, J., Kyono, Y. and Denver, R.J.
<i>Symposium 11: Genetic analysis of endocrine signaling in animal development</i>	
91	Specific DNA methylation and mRNA expression patterns of <i>srd5α1</i> , <i>srd5α2</i> , <i>srd5α3</i> , and <i>srd5β</i> during early development in the frog <i>Silurana tropicalis</i> Bissegger, S. and Langlois, V.S.
92	A gene expression screen for genes synergistically regulated by thyroid hormone and glucocorticoid in mouse hippocampal neurons. Harden, A. , Bagamasbad, P.D., Knoedler, J.R. and Denver, R.J.
93	Secretogranin IIb plays an important role in zebrafish cerebral artery development Hu, W. , Tao, B., Hu, H., Trudeau, V. and Zhu, Z.
94	Developmental expression of TR α and TR β in the limb of the direct-developing frog <i>Eleutherodactylus coqui</i> Laslo, M. and Hanken, J.
95	Structural and transcriptomics analysis of IGF ligand, receptor, and binding proteins in a short-lived fish Liu, C. , Vila, A.S., Allard, J., Kamei1, H. and Duan, C.
96	Antiapoptotic effects of growth hormone are mediated by PI3K/Akt pathway in the chicken bursa of Fabricius Luna-Acosta, J.L. , Alba-Betancourt, C., Martínez-Moreno, C., Ramírez, C., Carranza, M., Luna, M. and Arámburo, C.
97	Zebrafish lh β and fsh β transgenic lines for the analysis of hormone-regulated pituitary development Mitchell, K. , Esau, C., Hu, W. and Trudeau, V.L.
98	Genetic analysis of gonadotropin functions in the zebrafish by TALEN-mediated targeted disruption of follicle-stimulating hormone (FSH) and luteinizing hormone

	(LH) subunit genes (fshb and lhb) Zhang, Z. , Zhu, B. and Ge, W.
<i>Symposium 12: Puberty: A critical period for sex and environmental influences on the brain</i>	
99	Effect of LPS on dopamine and Parkinsonian-like behaviours Girard-Joyal, O. and Ismail, N.
100	Age and sex differences in the effect of chronic partial sleep disruption on the corticosterone response to a novel stressor in mice Latus, O. , Trudeau, V. and Ismail, N.
101	Age and sex differences in serum cytokine levels following exposure to a bacterial endotoxin Rooke, J. , Kolmogorova, D., Weng, R., Kane, L., Liang, J. and Ismail, N.
102	Age and sex differences in c-fos expression following Poly I:C treatment in pubertal and adult CD1 mice Sarr, F. , Sharma, R. and Ismail, N.
103	Effects of Poly(I:C) on thermoregulation in CD1 mice Sharma, R. and Ismail, N.
104	Age and sex differences and programming effects of LPS treatment on thermoregulation, sickness behaviour, cytokine levels, and arginine-vasopressin expression. van Mil, S. , Cai, K.C. and Ismail, N
<i>Symposium 13: Neuroendocrine regulation of ionic, osmotic, and acid-base balance in fish</i>	
105	Acidic water acclimation stimulates ionocyte proliferation by activating the IGF signaling pathway via the Trpv5/6 channel in larval zebrafish Bai, Y. , Dai, W., Liu, C., Liu, J. and Duan, C.
106	Can dietary 18 β -glycyrrhetic acid supplementation ameliorate the effects of an abrupt ionoregulatory challenge in a freshwater teleost fish? Chen, C.C. , Kolosov, D. and Kelly, S.P
107	A role for cortisol in altering the molecular physiology of the tight junction complex of adult rainbow trout integument Gauberg, J. , Kolosov, D. and Kelly, S.P
108	Involvement of parathyroid hormone in calcium regulation and gill cartilage development in zebrafish Kwong, R.W.M. and Perry, S.F
109	Differential stimulation of the hypothalamus-pituitary-interrenal axis during smolt development of landlocked and anadromous Atlantic Salmon McCormick, S.D. , Regish, A.M. and Bernier, N.J.
110	The role of cortisol in osmoregulation and thermal tolerance in brook trout (<i>Salvelinus fontinalis</i>) during seawater acclimation Shaughnessy, C. A. and McCormick, S.D.
111	The effects of 11-deoxycortisol on the molecular physiology of the tight junction complex in an extant agnathan Zimina, A. , Kolosov, D., Wilkie M.P. and Kelly S.P.
<i>Symposium 14: Mechanism of evolution for hormone mediated phenotypes</i>	
112	Habitat-associated behavioural, hormonal and transcriptional evolutionary divergence in sticklebacks Di-Poi, C. , Bélanger, D., Amyot, M., Rogers, S. and Aubin-Horth, N.

113	The synthesis of steroids by <i>Taenia crassiceps</i> WFU cysticerci and tapeworms is related to the developmental stages of the parasites Patricio-Gómez, J.M., Valdez R., Aguilar-Vega, 2, Zurabian, R., Romano, M.C.
114	Postnatal vanishing testis-like syndrome in a 38XX/38XY agonadic hog (<i>Sus scrofa</i>) Ramos, L. , Chávez, B., Paredes, A. and Vilchis, F.
115	Hormone regulation of maternal care in the mouth brooding cichlid <i>Astatotilapia burtioni</i> Renn, S.C.P. and O'Rourke, C.
<i>Other</i>	
116	Multiplex detection of KRAS mutations in colorectal cancer FFPE samples using droplet digital PCR Yang, W., Shelton, D.N., Berman, J.R., Zhang, B., Cooper, S., Tzonev, S., Hefner, E., Regan, J.F. (Presented by Sean Taylor)

Wednesday, June 24th
Summary of events

	Events	Location
09h00-10h00	Plenary: Yun-Bo Shi Chromatin remodeling and histone modification underlying the regulation of <i>Xenopus</i> growth and development by thyroid hormone receptor	DMS 1160
10h00-10h30	Coffee	DMS lobby
10h30-12h15	Symposium 10: Molecular networks in endocrinology Co-chairs: Valérie Langlois & Chris Martyniuk	DMS 1160
10h30-12h15	Symposium 11: Genetic analysis of endocrine signalling in animal development Co-chairs: Yun-Bo Shi & Cunming Duan	DMS 1140
10h30-12h15	Symposium 12: Puberty: a critical period for sex and environmental influences on the brain Co-chairs: Melissa Holmes & Russ Romeo	DMS 1120
12h15-	Excursions/free afternoon	

Symposium 10: Molecular networks in endocrinology

Location: DMS 1160

Co-chairs: Valérie Langlois & Chris Martyniuk

	Speaker
10h30-10h55	Sniffing out endocrine disruption from complex mixtures with a new genome, metagenomics, and systems approaches Helbing, C.C. , Birol, I., Brinkman, F., Hall, E.R., Lesperance, M.L., Parker, W., Pyle, G., van Aggelen, G., Behsaz, B., Brown, L.Y., Griffiths, E., Hammond, S.A., Heerema, J., Kuçuk, E., Manek, A., Miliano, R.C., Unverferth, C., Van Rossum, T., and Veldhoen, N.
10h55-11h20	A global ovary gene regulatory network derived from a large-scale analysis of chemical effects on the fathead minnow Garcia-Reyero, N. , Habib, T., Villeneuve, D., Escalon, L., Ankley, G., Perkins, E.J.
11h20-11h45	Toxicogenomics analysis of liver responses in rats and mice exposed to the food contaminant furan: applications in risk assessment Yauk, C.L. , Dong, H., Webster, A.F., Curran, I.H., Recio, L., Williams, A., Kuo, B., Gill, S., Wade, M.G.
11h45-12h00	The molecular basis of skin-specific modifications associated with metamorphosis in Atlantic halibut (<i>Hippoglossus hippoglossus</i>) Power, D.M. , Alves, R.N., and Gomes, A.S.
12h00-12h15	Mineralocorticoid receptor is associated with cellular membranes and may mediate cortisol-stimulated CREB phosphorylation in rainbow trout brain Dindia, L. and Vijayan, M.M

Symposium 11: Genetic analysis of endocrine signalling in animal development

Location: DMS 1140

Co-chairs: Yun-Bo Shi & Cunming Duan

	Speaker
10h30-10h55	Efficient targeted gene disruption in <i>Xenopus</i> embryos using TALEN and CRISPR/Cas9 Zhao, H. , and Chen, Y.
10h55-11h20	Unliganded thyroid hormone receptor regulates developmental timing Buchholz, D.R. , Choi, J., Suzuki, K.-I.T.
11h20-11h45	Dissecting oxygen-dependent and -independent actions of hypoxia-inducible factors in early development using CRISPR/Cas9 gene editing Zhang, P. and Duan, C
11h45-12h00	Generating and characterizing nuclear progesterin receptor (Pgr) knockouts in zebrafish Zhu, Y. , Liu, D., Wan, C.L., Chen, S. and Hong, W.
12h00-12h15	Disruption of zebrafish FSH receptor (fshr) but not LH receptor (lhcr) gene by

	TALen leads to failed follicle activation in females followed by sexual reversal to males Zhang, Z. , Lau, S.-W. and Ge, W.
--	---

Symposium12: Puberty: a critical period for sex and environmental influences on the brain

Location: DMS 1120

Co-chairs: Melissa Holmes & Russ Romeo

	Speaker
10h30-10h55	Hypothalamic-pituitary-adrenal (HPA) responses to stressors in pre- and post-pubertal adolescent rats compared with adult rats McCormick, C.M. , Green, M.R. and Hodges, T.E.
10h55-11h20	Adolescence and the shaping of the stress response Romeo, R.D
11h20-11h45	Hypothalamic gene expression and gonadal steroid hormone levels during transitions in reproductive status in naked mole-rats Holmes, M.M. , Swift-Gallant, A., Mo, K. and Monks, D.A.
11h45-12h00	The impact of pubertal immune stress on learning and memory between the sexes Kolmogorova, D. , Paré, C., Kostuck, S. L. and Ismail, N.
12h00-12h15	Programming effects in the adult immune response following a pubertal immune challenge Melanson, B. , Rooke, J., Liang, J., Schwarz, J. and Ismail, N.

Thursday, June 25th
Summary of events

	Events	Location
09h00-10h00	Plenary: Olivier Kah Neuropeptides in vertebrate reproduction: many players at the table	DMS 1160
10h00-10h30	Coffee	DMS lobby
10h30-12h15	Symposium 7: Vertebrate reproductive neuroendocrinology Part II Co-chairs: Stacia Sower & Hamid Habbibi	DMS 1160
10h30-12h15	Symposium 13: Neuroendocrine regulation of ionic, osmotic, and acid-base balance in fish Co-chairs: Katie Gilmour & Steve McCormick	DMS 1140
10h30-12h15	Symposium 14: Mechanism of evolution for hormone mediated phenotypes Co-chairs: Nadia Aubin-Horth & Suzy Renn	DMS 1120
12h15-14h00	Lunch	
12h30-13h45	NASCE Council meeting	FSS 4006
14h00-15h00	Plenary: Raúl Paredes Neurogenesis and sexual behaviour	DMS 1160
15h00-15h15	Best presentation awards	DMS 1160
17h30-	Closing ceremony and banquet (Museum visits from 17h00)	Canadian Museum of Nature

Symposium 7: Vertebrate reproductive neuroendocrinology Part II

Location: DMS 1160

Co-chairs: Stacia Sower & Hamid Habbibi

	Speaker
10h30-10h55	Gonadotropin-Inhibitory Hormone, stress and reproduction in birds Bentley, G. , Ernst, D. and Dickens, M.
10h55-11h20	5 α -dihydrotestosterone in female sablefish (<i>Anoplopoma fimbria</i>) Guzmán, J.M. , Luckenbach, J.A., Da Silva, D.A.M., Middleton, M.A., Masse, K., Jensen, C., Curles, E., Ylitalo, G.M., Young, G., Goetz, F.W., Swanson, P.
11h20-11h45	A closer look into the roles played by Kiss1, Kiss2 and NKB in the network controlling reproduction in the striped bass, <i>Morone saxatilis</i> Zmora, N. , Wong, T.T., Stubblefield, J., Levavi-Sivan, B., Millar, R.P. and Zohar, Y.
11h45-12h00	Characterization of nestin protein in the goldfish brain Venables, M. , Navarro-Martín, L., Zhang, D., Basak, A., and Trudeau, V.L.
12h00-12h15	Maternal care programs estrous cycle-mediated affective behaviours in the female rat Borrow, A.P. and Cameron, N.M

Symposium 13: Neuroendocrine regulation of ionic, osmotic, and acid-base balance in fish

Location: DMS 1140

Co-chairs: Katie Gilmour & Steve McCormick

	Speaker
10h30-10h55	Neuroendocrine control of ionic balance in larval zebrafish (<i>Danio rerio</i>) Perry, S.F. , Kumai, Y. and Kwong, R.W.M.
10h55-11h20	Prolactin and cortisol direct branchial aquaporin 3 expression in euryhaline tilapia Breves, J.P. , Inokuchi, M., Yamaguchi, Y., Seale, A.P., Watanabe, S., Lerner, D.T., Kaneko, T. and Grau, E.G.
11h20-11h45	Endocrine regulation of ion transport in marine fish: intestinal mineralization supports osmoregulation Fuentes, J.
11h45-12h00	Autocrine regulation of prolactin release from tilapia prolactin cells: modulation

	of hormonal responses by extracellular osmolality Yamaguchi, Y. , Moriyama, S., Lerner, D.T., Grau, E.G. and Seale, A.P.
12h00-12h15	Claudin-8 tight junction protein isoforms and cortisol-mediated alterations of teleost fish gill epithelium paracellular permeability Kolosov, D. and Kelly S.P.

Symposium 14: Mechanism of evolution for hormone mediated phenotypes

Location: DMS 1120

Co-chairs: Nadia Aubin-Horth & Suzy Renn

	Speaker
10h30-10h55	Answering big questions in evolutionary endocrinology: combining field and lab research, high-throughput molecular genetics tools, and modeling. Swanson, E.M. and Snell-Rood, E.C.
10h55-11h20	Exploring the genetic and neuroendocrine mechanisms underlying behaviour and reproductive success in a species with male alternative reproductive tactics Nugent, B.M. , Stiver, K.A., Hofmann, H.A. and Alonzo, S.A.
11h20-11h45	The regulation of metamorphic development in a marine environment revisited – Exogenous cues and endogenous modulators Heyland, A. and Lutek, K
11h45-12h00	Prolactin and parental care in the zebra finch (<i>Taeniopygia guttata</i>) Smiley, K.O. and Adkins-Regan, E.
12h00-12h15	Phylogenetic-based analyses of endocrine pathway evolution: inferences and challenges Bonett, R.M.