Supplementary Table 1: Genes, gonadal function or localization, accession number of rainbow trout sequences, and qPCR primers

Sequences of the Sigenae contigs can be found at the following address: http://public-contigbrowser.sigenae.org:9090/Oncorhynchus_mykiss/index.html

Most of the information about genes function or localization referred here are based on studies in mammal species.

Gene	Full Name	Gonadal function or localization	Ref.	Accession number	Primer Forward	Primer Reverse
wnt2	*wingless-type MMTV integration site 2*	*- expressed in granulosa cells during folliculogenesis* *- regulates granulosa cells proliferation*	1; 2; 3	Sigenae: FYV3OTN01B98XS.p.om.8	GGAGTGCCAACATCAGTTTCAG	ATACACAAAGGCTGCTTCACGA
wnt3	*wingless-type MMTV integration site 3*	*- detected in mouse ovary at birth*	15	Sigenae: GB5RBPX01DPZJD.p.om.8	CTGTGGTCCATCATTCTGTCC	ATCTTCCACTGGTGCTGCTAC
wnt4a1	*wingless-type MMTV integration site 4a1*	*- expressed in differentiating gonads of various vertebrates species* *- key gene in ovarian differentiation in mammals* *inhibits testosterone synthesis, and testicular vasculature formation* *- implicated in folliculogenesis in mammals* *- required for testis development*	4; 5; 6; 7; 8 4; 9; 10; 11; 12 13	Genbank: JF815553	CCACGGAGTCAGTCCAGAA	TACTCCTCTCCCTCACATCAACA
wnt5a	*wingless-type MMTV integration site 5*	*- expressed in both male and female embryonic gonads in mouse* *- in granulosa cells*	14 15	Genbank: CU074815	GCATCAGGGAGTGTCAGTATCA	CTGCTTCCTATCTGCATGACC
wnt6	*wingless-type MMTV integration site 6*	*- expressed in both male and female genital ridges in mouse*	16	Genbank: JN187949	CTCAACTTGCCCTGTTTTTCAT	GCTTGGTCTTCCTGCAGATACT
wnt7b	*wingless-type MMTV integration site 7b*	*- expressed in mouse developping ovary*	15	Genbank: JN187950	AAGGATGAGGAAGATCTGTGGA	AGAAAGCGGACATTTGTTCAAT
wnt9b	*wingless-type MMTV integration site 9b*	*- expressed in mouse developping ovary*	15	Genbank: CU066549	ACTAGCAAAGGCTTGCAGCTC	TATTTCAAGTTGTCACCGCAGA
wnt11	*wingless-type MMTV integration site 11*	*- expressed in granulosa cells and in oocytes*	15; 17	Genbank: CU063997	GAGACGTTGAGTGGCAGTGA	AAAGCTGCAGTGGCATTTCT

rspo1	*r-spondin 1*	*- over-expressed in differentiating ovary of various vertebrates* *- key gene in ovarian differentiation in mammals* *- positively regulates Wnt4 signaling*	5; 18; 19 20; 21; 22; 23	Genbank: JN187947	GGTCAGCACCAGGGACTATG	CTGTCCCTTTGAGAGATTGAGG
fzd1	*frizzled 1*	*- expressed in granulosa cells during late folliculogenesis* *- in theca cells*	11	Sigenae: CA381602.p.om.8	ATGACTCTGATCGTGGGGATAA	CAGACCATTCACACTGTGGTCT
fzd2	*frizzled 2*	*- expressed in human cumulus cells*	2	Sigenae: CB498179.p.om.8	CAACAGCCTGAACCCCATAC	AAGGAGGTACCGATGAAGAGGT
fzd3	*frizzled 3*	*- expressed in human cumulus cells*	2	Sigenae: GAY7CUQ01A5IU3.p.om.8	GATGTCCCTCTGGACTTCCTC	GCAAAGATAGTGTGGTGAACGA
fzd4	*frizzled 4*	*- expressed in granulosa cells* *- implicated in corpus luteum formation*	1; 11; 24	Genbank: BX875207	CGACGAGACAGAGGAGATGAC	CGTCTGACTGCAGGACGTT
fzd7	*frizzled 7*	*- expressed in mouse developping ovary and oocytes*	15	Genbank: CX030042	CAGAGTTGGTGCAGGTTTTACA	TCCTCCACATTAAACTTCCACA
fzd8	*frizzled 8*	*unknown*		Genbank: CA363645	AATTGCTGGACATGAACAAGTG	AAGTAGAAAAACAATGGTACAAAGC
lrp5	*low density lipoprotein receptor-related protein 5*	*- expressed in mouse developping ovary and oocytes*	15	Genbank: CX033605	TGGAGACAAGAGGAGGGAGA	ACTGCAGGGAGTTTGGATGT
lrp6	*low density lipoprotein receptor-related protein 6*	*- expressed in mouse developping ovary and oocytes* *- in granulosa cells*	15	Genbank: BX879658	ACCCGGGAAGAGGGTACAT	TTGTCAATGATCATGGCTCTGT
tcf7	*t-cell factor 7*	*- over-expressed in differentiating ovary in rainbow trout*	25	Genbank: JN187948	GCATCATTCACCCAGGTTCT	TTCAGTGTGAGGCAGTCCAG
tcf7l2	*transcription factor 7-like 2 (T-cell specific, HMG-box)*	*unknown*		Genbank: CA343767	CCCTAACACGAGAGGAGCAG	CTGGGTAGAGCTGCATGTGA
lef1	*lymphoid enhancer-binding factor 1*	*- expressed in granulosa cells*	15	Genbank: CX036511	TTACAGGACGGAATTAAATTGG	CCTGTATTGTGGCAGTGACATT
axin2	*axin2*	*- target gene of the canonical Wnt pathway, over-expressed in differentiating ovary*	20; 26	Genbank: CU071534	GTGGATCCTGGAGAGTGACC	GCCACCATACGCCTTCTTAG

ctnnb1	*beta-catenin*	*- implicated in ovarian differentiation* *- expressed in granulosa cells during folliculogenesis* *- promotes preovulatory follicular development* *- activated during testis development* *- promotes proliferation and stemness regulation of spermatogonial stem/progenitor cells*	27; 28 29 30	Genbank: CA341830	CACAGAGCTGCTTCACTCCA	GTGAGCTCCACAGACAGACG
fst	*follistatin*	*- implicated in ovarian differentiation, acts downstream of Wnt4* *- expressed in rainbow trout differentiating ovary*	20; 28; 31 32	Genbank: CA364762	ACAAAGACGAGTGCGCGTTGCT	CGGCAGGTCTTCTTGCATTTGC

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