

**ST2. Summary of nuclear receptor annotation:** BLASTp Best-Hit (BH) from *H. sapiens*-restricted or global nr NCBI database. Automatic protein predictions were manually modified where necessary (alternative ORF, combination of several gene predictions with obviously partial domains or other annotated regions, co-localised transcripts with a better annotation score, etc.). DNA- and Ligand-binding domains were identified with NCBI conserved domains database (CDD): presence/absence, completeness (full vs incomplete in N- or C-terminal region, Ninc and Cinc, respectively). Domain location and other detailed information are specified in Supplementary Table ST3. Abbreviation: <sup>P</sup> = predicted.

<i>L. stagnalis</i> predicted protein	Domain (DBD, LBD)	Gene abbreviation	BH accessio n ( <i>H.</i> <i>sapiens</i> )	BH accessio n (nr)	BH gene name (nr)	BH taxon (nr)
GSLYST00010242001ext	DBD full no LBD	NR1A2 (THRB)	NP_00134 1643.1	Q02965.2	Thyroid hormone receptor beta	<i>Lithobates catesbeianus</i>
GSLYST00002111001	DBD full LBD full	NR1B2 (RARB)	NP_00127 7145.1	XP_0130613 59.1	<sup>P</sup> nuclear receptor subfamily 1 group D member 2-like	<i>B. glabrata</i>
GSLYST00008490001	DBD full LBD full	NR1B2 (RARB)	NP_00127 7229.1	ADF43963.1	Retinoic acid receptor	<i>L. stagnalis</i>
GSLYST00009886001&G SLYST00009887001	DBD full LBD full	NR1B3 (RARG)	NP_00095 7.1	KAH9519321 .1	hypothetical protein Btru_075258	<i>B. truncatus</i>
GSLYST00012932001	DBD full LBD full	NR1C1 (PPARA)	NP_00502 7.2	XP_0130613 59.1	<sup>P</sup> nuclear receptor subfamily 1 group D member 2-like	<i>B. glabrata</i>
GSLYST00020728001	DBD full LBD full	NR1C1 (PPARA)	NP_00502 7.2	XP_0130889 59.1	<sup>P</sup> uncharacterised protein LOC106073033	<i>B. glabrata</i>
Lsta_scaffold719:49114. .65797_ORF30 (same location as GSLYST00019008001)	DBD full no LBD	NR1C1 (PPARA)	EAW7340 3.1	XP_0051056 14.2	Probable serine/threonine-protein kinase DDB_G0282963	<i>A. californica</i>
GSLYST00012709001	DBD full LBD full	NR1C2 (PPARD)	NP_00116 5290.1	XP_0130941 06.1	<sup>P</sup> retinoic acid receptor beta-like	<i>B. glabrata</i>
GSLYST00008467001& ORF2_EX9&10_bpp1E7 5_GALME.1.1	DBD full LBD full	NR1C3 (PPARG)	NP_05695 3.2	XP_0130727 95.1	<sup>P</sup> ecdysone-inducible protein E75-like	<i>B. glabrata</i>
GSLYST00009627001& GSLYST00009626001ext	DBD full LBD full	NR1C3 (PPARG)	KAI25283 16.1	KAH9498600 .1	hypothetical protein Btru_007742	<i>B. truncatus</i>
GSLYST00020475001	DBD full LBD full	NR1C3 (PPARG)	XP_01153 2145.1	XP_0130789 73.1	<sup>P</sup> uncharacterised protein LOC106064881	<i>B. glabrata</i>
GSLYST00021345001	DBD Ninc LBD full	NR1C3 (PPARG)	NP_00502 8.4	XP_0129353 01.1	<sup>P</sup> ecdysone-induced protein 78C-like	<i>A. californica</i>
GSLYST00003246001	DBD full LBD full	NR1D1 (REVERBA)	NP_06837 0.1	XP_0130788 93.1	<sup>P</sup> nuclear receptor subfamily 1 group D member 1-like	<i>B. glabrata</i>
GSLYST00003376001	DBD full LBD full	NR1D2 (REVERBB)	NP_00113 8897.1	XP_0130777 61.1	<sup>P</sup> flocculation protein FLO11-like	<i>B. glabrata</i>
GSLYST00005611001	no DBD LBD full	NR1D2 (REVERBB)	NP_00113 8897.1	XP_0130808 16.1	<sup>P</sup> thyroid hormone receptor alpha-like isoform X2	<i>B. glabrata</i>
GSLYST00003356001	DBD1 full DBD2 full LBD full	NR1D2 (REVERBB) 2DBD-NR	NP_00113 8897.1	XP_0130654 55.1	<sup>P</sup> nuclear receptor subfamily 1 group D member 2-like	<i>B. glabrata</i>
GSLYST00002203001	DBD full LBD full	NR1F1 (RORA)	XP_011520 176.1	XP_013063 338.1	<sup>P</sup> nuclear receptor ROR- beta-like isoform X3	<i>B. glabrata</i>
GSLYST00003481001	DBD full LBD full	NR1F1 (RORA)	NP_599023 .1	XP_005111 322.2	<sup>P</sup> uncharacterised protein LOC101857528	<i>A. californica</i>
GSLYST00003724001	DBD full LBD full	NR1F1 (RORA)	XP_011520 176.1	XP_005104 642.1	<sup>P</sup> flocculation protein FLO11-like isoform X1	<i>A. californica</i>
GSLYST00012703001	DBD full LBD full	NR1F1 (RORA)	XP_005254 641.1	KAI878362 0.1	Nuclear receptor ROR- beta-like isoform X3	<i>B. glabrata</i>
GSLYST00007099001	DBD full LBD full	NR1F2 (RORB)	NP_008845 .2	XP_013094 161.1	<sup>P</sup> probable nuclear hormone receptor HR3	<i>B. glabrata</i>
GSLYST00019331001	DBD full LBD full	NR1F3 (RORC)	NP_001001 523.1	XP_012935 014.1	<sup>P</sup> nuclear receptor ROR- gamma-like	<i>A. californica</i>
GSLYST00000602001	DBD full LBD full	NR1H3 (LXRA)	XP_011518 108.1	XP_013079 217.1	<sup>P</sup> nuclear hormone receptor HR96-like isoform X1	<i>B. glabrata</i>

## ST2 (cont.)

<i>L. stagnalis</i> predicted protein	Domain (DBD, LBD)	Gene abbreviation	BH accession ( <i>H. sapiens</i> )	BH accession (nr)	BH gene name (nr)	BH taxon (nr)
GSLYST00000926001	DBD full LBD full	NR1H3 (LXRA)	NP_001123 574.1	RUS8288 9.1	Hypothetical protein EGW08_009354	<i>E. chlorotica</i>
GSLYST00003412001	DBD full LBD full	NR1H3 (LXRA)	NP_001123 574.1	XP_0051 06455.2	<sup>P</sup> nuclear hormone receptor HR96-like	<i>A. californica</i>
GSLYST00019008001	no DBD LBD full	NR1H3 (LXRA)	XP_011518 110.1	KAH9504 298.1	Hypothetical protein Btru_064571	<i>B. truncatus</i>
GSLYST00021927001	DBD full LBD full	NR1H4 (FXRA)	NP_001193 922.1	XP_0129 40090.1	<sup>P</sup> peroxisome proliferator- activated receptor alpha- like	<i>A. californica</i>
GSLYST00016253001	DBD full LBD full	NR1I1 (VDR)	NP_000367 .1	XP_0130 74086.1	<sup>P</sup> vitamin D3 receptor A- like	<i>B. glabrata</i>
GSLYST00020495001& GSLYST00020494001ext	DBD full LBD full	NR1I1 (VDR)	NP_000367 .1	XP_0130 73965.1	<sup>P</sup> nuclear hormone receptor HR96-like isoform X1	<i>B. glabrata</i>
GSLYST00006772001	DBD full LBD full	NR2A1 (HNF4A)	NP_001025 174.1	XP_0129 39974.1	<sup>P</sup> hepatocyte nuclear factor 4-gamma-like	<i>A. californica</i>
GSLYST00014050001	DBD full LBD full	NR2B1 (RXRA)	NP_002948 .1	Q5I7G2.1	Retinoid X receptor (LymRXR)	<i>L. stagnalis</i>
BPPAALocus_8214_Transcr ipt_1/1_1/ORF17 (same location as GSLYST00001311001)	DBD1 DBD2 full LBD full	NR2B2 (RXRB) 2DBD-NR	NP_001278 918.1	KAI87889 05.1	Ecdysone-induced protein 75B, partial	<i>B. glabrata</i>
GSLYST00009203001	DBD full LBD full	NR2B3 (RXRG)	NP_008848 .1	XP_0130 76268.1	<sup>P</sup> retinoic acid receptor RXR-alpha-B-like	<i>B. glabrata</i>
GSLYST00005434001&74A A&GSLYST00005433001	DBD full LBD full	NR2C2 (TR4)	NP_001278 623.1	XP_0130 80569.1	<sup>P</sup> orphan steroid hormone receptor 2-like isoform X4	<i>B. glabrata</i>
GSLYST00007009001	DBD full LBD Cinc	NR2E1 (TLL)	NP_003260 .1	XP_0130 64092.1	<sup>P</sup> nuclear receptor subfamily 2 group E member 1-like	<i>B. glabrata</i>
GSLYST00012340001	DBD full LBD full	NR2E1 (TLL)	NP_003260 .1	XP_0130 96601.1	<sup>P</sup> nuclear receptor subfamily 2 group E member 1-like	<i>B. glabrata</i>
GSLYST00013111001&GSL YST00013110001	DBD full LBD full	NR2E1 (TLL)	NP_003260 .1	XP_0130 68647.1	<sup>P</sup> nuclear receptor subfamily 2 group E member 1-like	<i>B. glabrata</i>
GSLYST00020139001_ALT ORF	DBD full LBD full	NR2E3 (PNR)	NP_055064 .1	KAH9500 942.1	Photoreceptor-specific nuclear receptor	<i>B. truncatus</i>
GSLYST00022416001	DBD Ninc no LBD	NR2E3 (PNR)	NP_057430 .1	XP_0130 71146.1	<sup>P</sup> photoreceptor-specific nuclear receptor-like	<i>B. glabrata</i>
GSLYST00018763001	no DBD LBD full	NR2F1 (COUP-TFI)	NP_005645 .1	XP_0130 70030.1	<sup>P</sup> photoreceptor-specific nuclear receptor-like	<i>B. glabrata</i>
GSLYST00002895001	DBD full LBD full	NR2F2 (COUP-TFII)	NP_066285 .1	XP_0130 80128.1	<sup>P</sup> COUP transcription factor 2-like isoform X1	<i>B. glabrata</i>
GSLYST00006228001&GSL YST00006227001& GSLYST00006226001	DBD full LBD full	NR3A1 (ESR1)	NP_000116 .2	XP_0130 94385.1	<sup>P</sup> probable nuclear hormone receptor HR38	<i>B. glabrata</i>
GSLYST00013137001	DBD full LBD full	NR3B1 (ERRA)	XP_016872 802.1	XP_0130 84015.1	<sup>P</sup> uncharacterised protein LOC106069003	<i>B. glabrata</i>
ORF5/bpp1T00019575001 /bpp1LOC100704106_ORE NI.2.3 (same location as GSLYST00020047001)	DBD full LBD full	NR3B3 (ERRG)	XP_011507 576.1	XP_0130 80350.1	<sup>P</sup> steroid hormone receptor ERR2-like isoform X2	<i>B. glabrata</i>
GSLYST00017058001	DBD Ninc LBD full	NR4A2 (NURR1)	NP_006177 .1	XP_0090 45078.1	Hypothetical protein LOTGIDRAFT_136520, partial	<i>L. gigantea</i>
GSLYST00000165001	DBD full LBD full	NR5A2 (LRH1, FTZ-F1)	NP_001263 393.1	XP_0130 68514.1	<sup>P</sup> nuclear receptor subfamily 5 group A member 2-like	<i>B. glabrata</i>
GSLYST00015414001	DBD full LBD full	NR5A2 (LRH1, FTZ-F1)	NP_003813 .1	XP_0130 64317.1	<sup>P</sup> nuclear hormone receptor FTZ-F1 beta-like	<i>B. glabrata</i>
GSLYST00018899001&GSL YST00018898001	DBD full LBD full	NR6A1 (GCNF)	XP_005251 975.1	XP_0130 73570.1	<sup>P</sup> hormone receptor 4-like isoform X1	<i>B. glabrata</i>