



**Figure S1** Structures of transgenic constructs containing fluorescent markers. (A) Construct 1. This construct includes *Gsd<sup>fY</sup>*, *PG3* and *PG4*. Numbers above the thick bar indicate the length of the upstream, gene coding and downstream regions of the *Gsd<sup>fY</sup>* gene in the fosmid construct. A fragment encoding crystallin-RFP and an ampicillin resistance gene was integrated into the ORF of the chloramphenicol resistance gene. (B) Construct 2. This construct includes only *Gsd<sup>fY</sup>*. Numbers above the thick bar indicate the length of the upstream, gene coding and downstream regions of the *Gsd<sup>fY</sup>* gene. A fragment encoding crystallin-GFP and an ampicillin resistance gene was integrated into the ORF of the chloramphenicol resistance gene.

**Table S1 Sequences of primers**

method	name	primer (5'-3')
genotypic sexing	OluX2-8f	AAGTGAACAGATGAATTA AAAATA
	OluX2-8r	GTTCTTGAGGAACTACGTCC
	OluX2-25f	CTGCCTGAGGCAAATGATGAA
	OluX2-25r	TTTTGACAGGTTGGATCTGT
	OluX3-34f	ACGGTGTTGCCGTTTCTCATTTT
	OluX3-34r	CGTACCTTCTGGGGTCTCATTT
	OluX4-6f	TAATTAACGTGGGTGCATGTGG
	OluX4-6r	GGCCATGTTCAAACATTGT
RT-PCR	OluPG1f	CCAAGGAAAAGCGTACAGGA
	OluPG1r	ATTCCGACAGTTCAGGTTGC
	OluPG2f	CACCCTATCGGAGAAGTTGG
	OluPG2r	TGGAAACGTGTGGA ACTCTG
	OluPG3f	CCATCCGTTGGTCAAGA
	OluPG3r	AAGCGCAGTTCAGAGTCCAT
	OluPG4f	TCCATGAAACTGCCAACTGA
	OluPG4r	GTTCCGATTGTCGGTAGAT
	OluPG5f	TGGAAACTTG TGGGGGAAT
	OluPG5r	GCAATCCCTCGGATCAAACAG
	OluPG6f	AGCCACAGTGATCAACGACA
	OluPG6r	GGAGGCGGAAAATATTGTGA
	OluPG7f	GTGTGAAATCCCTGCCAAAT
	OluPG7r	CGCAGCAGCTCTTTAAATCC
	OluPG8f	ATGACACGGAGATCCTACGC
	OluPG8r	TTCCACCATGGTCACATTG
	OluPG9f	GCTGAAGCAAATCCTCGTC
	OluPG9r	TGCTGGCATCAATGATCTGT
	B-actin3b	CMGTCAGGATCTTCATSAGG
	B-actin4	CACACCTTCTACAATGAGCTGA

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	qGsdFY_F	TCGAATAGAATGAAATCTGACCACTCT
real-time PCR	qGsdFY_R	GGTAAACCCAGGTTGGTCAAAT
	qGsdFX_F	TCGAATAGAATGAAATCTGACCACTTC
	GsdFX_R	GGTAAACCCAGGTTGGTCAAAG
Luciferase assay	Luc In-fusion 1f	TAGGTACCTTAGGCAAGGCCCTTAACGCTAC
	Luc In-fusion 1r	AACAAGCTTCAATGAGTGCCAAAGACATGGTGGA

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