

# Functional Sperm of the Yellowtail (*Seriola quinqueradiata*) Were Produced in the Small-Bodied Surrogate, Jack Mackerel (*Trachurus japonicus*).

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1 Table 1. Survival of jack mackerel recipients and colonization of PKH26-positive cells in recipient  
 2 genital ridges at 20 days after the xenogeneic transplantation of the yellowtail spermatogonia.

dph at transplantation	Total length (mm)	Group	No. transplanted	No. survived (%)	No. observed <sup>b</sup>	No. colonized <sup>c</sup>
10	3.96	Transplanted	250	134 (53.6)	10	8
		Control <sup>a</sup>	300	238 (79.3)	3	0
12	4.32	Transplanted	273	177 (64.8)	7	7
		Control <sup>a</sup>	300	263 (87.7)	3	0

3 <sup>a</sup> Control means non-transplanted fish group.

4 <sup>b</sup> Number of recipient fish whose genital ridges were observed under fluorescent microscopy.

5 <sup>c</sup> Number of recipient fish whose genital ridges were found to possess the PKH26-labeled cells.

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7 Table 2. Results of progeny tests and appearance proportions of donor-derived larvae.

Male	Female	No. eggs used for tests	No. eggs fertilized (%) <sup>c</sup>	No. hatchlings (%) <sup>d</sup>	No. donor- derived larvae (%) <sup>e</sup>
Recipient 28	Yellowtail F1	18887	10706 (56.7)	3 (0.028)	1 (0.009)
Recipient 82	Yellowtail F1	21745	9269 (42.6)	3 (0.032)	0 (0.000)
Non transplanted 1 <sup>a</sup>	Yellowtail F1	22700	6965 (30.5)	0 (0.000)	
Yellowtail M1 <sup>b</sup>	Yellowtail F1	5375	4329 (80.5)	3702 (68.9)	
Recipient 28	Yellowtail F2	11385	2980 (26.2)	2 (0.067)	1 (0.033)
Recipient 82	Yellowtail F2	12000	1344 (11.2)	0 (0.000)	0 (0.000)
Non transplanted 2 <sup>a</sup>	Yellowtail F2	11402	4280 (37.5)	0 (0.000)	
Yellowtail M2 <sup>b</sup>	Yellowtail F2	7129	5396 (75.7)	2825 (39.6)	

8 <sup>a</sup>Wild type male fish of jack mackerel for non-transplanted control.9 <sup>b</sup>Yellowtail male fish for positive control.10 <sup>c</sup>Fertilization (%) = number of eggs with cleaved blastodisc/number of eggs used for test × 100.11 <sup>d</sup>Hatching (%) = number of newly hatched larvae/number of eggs fertilized × 100.12 <sup>e</sup>Germline transmission (%) = number of donor-derived larvae/number of eggs fertilized × 100.

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14 Table 3. Genotype pattern of three microsatellite loci in offspring obtained by the progeny tests.

Cross (female × male)	Fish	Microsatellite locus		
		sequ-56	sequ-57	sequ-77
	Donor	94/108	150/161	148/156
	Recipient 28	ND <sup>a</sup>	ND <sup>a</sup>	180/195
Yellowtail F1 × Recipient 28	Yellowtail F1	100/114	125/148	152/156
	Larvae 1	94/100	148/150	148/152
	Larvae 2	100/	148/	152/
	Larvae 3	100/114	125/148	152/156
Yellowtail F2 × Recipient 28	Yellowtail F2	100/	135/	167/210
	Larvae 4	94/100	135/161	156/167
	Larvae 5	100/	135/	167/

15 <sup>a</sup>Genotype were not determined.

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