

## List of inbred strains of the medaka, *Oryzias latipes*, maintained in the Division of Biology, National Institute of Radiological Sciences

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In the first paper on the inbred strains of medaka published by Hyodo-Taguchi (1980), five inbred strains of medaka, i.e., two pedigrees of the orange-red variety and three pedigrees of wild-type fish, were established. Since then, we have been maintaining these inbred strains by full sister × brother mating for 57–62 generations. Moreover, a continuing effort has been made to establish the other inbred strains from the medaka with different allozymic characteristics. Two inbred strains of medaka, designated Hd-rR and HNI, were newly established from d-rR strain in 1988 and from wild medaka in 1989 which were collected at Niigata (NI), respectively.

The following is a description of the inbred strains of the medaka maintained in our laboratory at the National Institute of Radiological Sciences.

### Wild Type (brown or black) Strains

HB32C: Derived from offspring of fish obtained from a stock at Chiba University, which had been collected near Chiba City around 1970; inbred for 57 generations. Substrains HB32D and HB32F were separated from HB32C at the 16th and 6th generations and have been inbred for 40 and 51 generations, respectively.

HB12A: Derived from a different pair in the same stock from which HB32C was derived, and inbred for 58 generations.

HB11A: Derived from a pair of offspring of the original pair from which HB12A was derived and inbred for 58 generations. The eggs are characterized by an unusual pattern of oil globule fusion after fertilization. This trait is under single locus control. The symbol for the gene *of* (oil globule fusion delay) has been proposed, and the gene is recessive and autosomal (Hyodo-Taguchi, 1979). Substrains HB11B and HB11C were separated from HB11A at the 17th and 16th generations and have been inbred for 40 and 41 generations, respectively.

HNI-II: Derived from offspring of fish obtained from a stock (NI) at the University of Tokyo,

which had been collected from Niigata City in 1980 (Sakaizumi *et al.*, 1980; 1983); inbred for 31 generations.

HNI-I: Derived from a different pair in the same stock from which HNI-II was derived and inbred for 31 generations. HNI has alleles different from those of HO4, HB32 and HB12 at many protein loci as described later.

### Orange-Red Strains

HO4C: Derived from a stock in our institute which was obtained originally from a dealer in Chiba prefecture; inbred for 62 generations. Substrain HO4B was separated from HO4C after 7 generations and has been inbred for 51 generations.

HO5: Derived from a different pair in the same stock from which HO4C derived and inbred for 59 generations.

### White and Orange-Red Strain

Hd-rR: Derived from offspring of fish obtained from a stock (d-rR strain) at Nagoya University. The females are white (*bb, X<sup>r</sup>X<sup>r</sup>*) and males orange-red (*bb, X<sup>r</sup>Y<sup>R</sup>*); inbred for 37 generations. The d-rR strain has been used in experiments on sex differentiation (Yamamoto, 1953; 1975).

In recent years, we began to inbred one of stocks of Korean medaka, which was collected in Sokcho City (Sakaizumi and Jeon, 1987). They have now been inbred for 16 generations. In addition, inbreeding of albino strains which were given by Dr. Tomita from the stocks at Nagoya University was started in 1990. They are now 8 inbred generations.

Polymorphism in several protein loci has been detected among the inbred strains of medaka, as revealed by electrophoresis (Table 1, Sakaizumi *et al.*, 1983). The polymorphic variants in the inbred strains are useful for genetic monitoring to prevent unexpected genetic contamination.

**Table 1.** Strain distribution of polymorphic variants

Strain	Origin	Mutant genes	Protein locus							
			<i>ACP</i>	<i>ADH</i>	<i>IDDH</i>	<i>ODH</i>	<i>PGM</i>	<i>SOD</i>	<i>AMY</i>	<i>LDH-A</i>
HO4C	Cultivated	<i>b R</i>	<i>b</i>	<i>a</i>	<i>a</i>	<i>c</i>	<i>b</i>	<i>b</i>	<i>a</i>	<i>c</i>
HO5	Cultivated	<i>b R</i>	<i>b</i>	<i>a</i>	<i>a</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>a</i>	<i>c</i>
HB11	Wild (Chiba)	<i>B R of</i>	<i>b</i>	<i>a</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>a</i>	<i>a</i>
HB12	Wild (Chiba)	<i>B R</i>	<i>b</i>	<i>a</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>a</i>	<i>a</i>
HB32C	Wild (Chiba)	<i>B R</i>	<i>b</i>	<i>a</i>	<i>a</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>a</i>	<i>c</i>
HNI	Wild (Niigata)	<i>B R</i>	<i>a</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>a</i>	<i>a</i>	<i>a</i>	<i>c</i>
Hd-rR	Stock in Nagoya University	<i>b r</i> (female) <i>b R/r</i> (male)	<i>b</i>	<i>a</i>	<i>a</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>a</i>	<i>d</i>

*ACP*, acid phosphatase; *ADH*, alcohol dehydrogenase; *IDDH*, L-idoitol dehydrogenase; *ODH*, octanol dehydrogenase; *PGM*, phosphoglucomutase; *SOD*, superoxide dismutase; *AMY*, amylase; *LDH-A*, lactate dehydrogenase, *a*, *b*, *c*, and *d* represent arbitrary classification of bands on electrophoresis according to the electrophoretic mobility.

### References

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