

Xiphophorus hellerii, Lineatus



Female



Male

Strain code: HeLi

Phenotypes scored: Pigment pattern, Lineatus (Li) and wild-type (+)

Introduction:

The HeLi stock was constructed in Dr. Anders' laboratory by crossing *X. variatus* Lineatus with *X. hellerii* Lancetilla (Anders, et al., 1973). This mating produced hybrid progeny displaying the Lineatus (Li) pigment pattern. These fish were then crossed repeatedly into pure Lancetilla fish, until the resulting stock was relatively pure *X. hellerii* expressing the Li pattern. HeLi is now maintained as a separate *X. hellerii* stock in the Stock Center. The gene for the Li pattern maps to the X-chromosome, and two alleles segregate at this locus in this captive stock, wild-type (++) and Li.

Sex determination / sexing:

The two parental species have different chromosomal sex determination mechanisms: the original *X. variatus* Lineatus and *X. hellerii* Lancetilla strains were $X^+X^{Li} / X^{Li}Y$ and WY / YY , respectively. This cross results in WX^{Li} females and $X^{Li}Y$ males displaying the Lineatus pattern. It is therefore important to identify the parental chromosomal makeup to accurately predict the genotypes of the progeny.

Non-pigmented fish mature much earlier than animals carrying the Li-pattern allele, therefore, non-pigmented fish should be discarded around 1 month. The pigmented (Li) animals generally show sexual differentiation at around 4 to 5 months of age, and reach sexual maturity at about 6 months to one year of age.

Scoring:

Li and + can be scored at about 1 month of age, at which time the + animals can be discarded. Sword color can be scored in fully mature males using the dissecting scope and a black background. Like the Lancetilla stock, sword colorations include orange (or) and green (gr)

Maintenance:

This stock is propagated by out-crossing HeLi animals to *X. hellerii* Lance. About three matings are set up for each generation to ensure offspring production. Only one highly productive mating is required to maintain the line. Mating record data indicates a better production rate resulting from matings that contain a Lance female and a HeLi male.

Stock source:

Prof. Manfred Scharl, The University of Wurzburg, Germany, 10/15/96.