Table 2. Size (standard length, millimeters) of adult male platyfish with different genotypes.

Birth date	P^cP^c Y-*Ir* Y-*Ir*			P^cP^l Y-*Ir* Y-*Br*			P^lP^l Y-*Br* Y-*Br*		
	Mean	Range	*N*	Mean	Range	*N*	Mean	Range	*N*
				Pedigree 2828					
2/27/71	28		1	32	30–34	4			
				Pedigree 2918					
6/25/71	24.5	23–26	2	31	28–33.5	6			
9/30/71	22.1	19–25	5	27.3	24.5–30	2			
				Pedigree 3030					
2/15/72	25		1	29.3	28.5–31	3			
3/17/72	22.7	21–23.5	8	27.4	27–29	4			
				Pedigree 2964					
9/20/71				30.5	29.5–31	3	36.6	35–38	3
10/20/71				25.5	22.5–27	3	31.8	28–34.5	5
1/26/72 a				25.8	24–28	6	28.3	24.5–32	6
1/26/72 b				24.1	22–26	6	29	27.5–30.5	6
	X-Y-*Ir*			X-Y-*Br*					
				Pedigree 2974					
11/1/71	24.7	23–26.5	13	29.9	27.5–32	15			

P^l may specify two proteins differing in their efficiency in initiating morphogenic changes. The *P* locus probably exerts its effect directly on the pituitary gland, although the role of the hypothalamus should also be evaluated.

The *P* gene also has an indirect effect on the adult size of male platyfish. Since growth rate decreases with increasing androgen production (*9*), early maturing males are significantly smaller than late maturing ones. Size differences between the two classes of males were absolute within seven broods, whereas in one (9/30/71) the largest *IrIr* male surpassed the smallest *IrBr* male by 0.5 mm (Table 2). The exceptional *BrBr* male (2964-11) that matured at 18 weeks (Table 1), is also the smallest homozygous *Br* male obtained so far. Small and large fish grow at the same rate, but the former stop at an earlier age when they become sexually mature. Since these observations did not differ throughout the year, natural daylight, which was not controlled, cannot account for the differences in growth and age of sexual maturity.

The *P* factors have manifested themselves both in the offspring of intra- and interstrain crosses. This polymorphism is a natural component of wild populations and is apparently widespread. We have found it in platyfish stocks collected from four river systems (*10*). The sex chromosome constitution of the males, XY or YY, has nothing to do with adult size and age of sexual maturation. P^c and P^l can be both X- and Y-linked. An X chromosome with P^l has recently been identified from the Belize population (*10*).

Similar variations in size and age of sexual maturation have been reported for a number of other species of *Xiphophorus* (*11*), but little is known about the genetics of these differences. The polymorphism at this locus may have been important for the evolution of the genus, since various body parts show allometric growth and large males, for example, those of *X. pygmaeus*, not only assume a different habitus, but also develop structures not present in the smaller morphs (*12*). The allele for early gonadotrop differentiation has become fixed in *X. pygmaeus pygmaeus* inhabiting the Rio Axtla, and has led to a uniform population of small males. However, *X. pygmaeus nigrensis* in the Rio Choy is polymorphic at the *P* locus resulting in two kinds of males (*13*). Elmination of P^c from the Rio Choy would leave two populations: *X. pygmaeus pygmaeus* homozygous for P^c (small size) and *X. pygmaeus nigrensis* homozygous for P^l (large size), differing completely in breeding structure and appearance.

The *P* locus of *X. maculatus* is of general significance not only for pituitary gland function in teleosts, but for all vertebrates including man. This system may become an important model for studying the genetic control of endocrine structure and function.

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Perfluorocarbons Having a Short Dwell Time in the Liver

Abstract. *Perfluorinated organic liquids are useful as high capacity oxygen and carbon dioxide solvents. After intravenous infusion most of these perfluorinated emulsions are deposited in the liver and spleen in a matter of days, where they remain for the lifetime of the animal. Hence, while they may be useful as isolated organ perfusion media their value as artificial blood is limited. A family of perfluorocarbons has now been discovered, which, although deposited in the liver after circulation in the blood, leave the liver to be excreted via the lungs and skin in a matter of days without apparent harm to the animal.*

Since 1966, when organic liquid breathing was first reported, there have been over 100 publications concerning the use of inert fluorochemicals (*1*) in physiological research. These include reports of liquid breathing (*2*), of organ perfusion (*3*), of infusion in whole animals (*4*), and as radiographic