

Genetic analysis to barriers to gene flow between African malaria vectors. Michel Slotman, Alessandra della Torre, and Jeffrey R. Powell.

Anopheles gambiae and *An. arabiensis* can hybridize; F1 female hybrids are fertile, males sterile. We have used backcross progeny of hybrid females mated to parental males to perform QTL mapping of the position of sterility and viability factors in the first backcross generation; microsatellites throughout the genome have been assayed. Because of a fixed inversion difference on the X-chromosome, we detected no recombination for the X, so could only measure effects of the entire X. With regard to viability, we note an almost complete incompatibility of the *gambiae* X (X_g) with the autosomes of *arabiensis*, that is, no backcross progeny from crosses to *arabiensis* males had X_g . This viability incompatibility is due to at least two recessive autosomal factors in the *arabiensis* genome. With regard to male fertility/sterility in the backcross generation, in the cross GAxG (hybrid females formed by female *gambiae* crossed to male *arabiensis*, backcrossed to *gambiae* males) we detected a strong X-effect and four autosomal QTL. Together they explain 80% of the phenotypic variance in fertility. In the cross GAXA we detected a weak X effect and four autosomal QTL that accounted for 56% of the variance. Interestingly the autosomal QTL in the two crosses were not the same. This indicates that parts of *arabiensis* genome in a predominantly *gambiae* genetic background that cause male sterility are not the same as the parts of the *gambiae* genome in a predominantly *arabiensis* background that cause sterility.

Underlined author will present the talk. Addresses: Slotman and Powell; Yale University; della Torre: University of Rome "La Sapienza".