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## An unusual distribution of the *kdr* gene among populations of *Anopheles gambiae* on the island of Bioko, Equatorial Guinea

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### Abstract

In West Africa, *Anopheles gambiae* exists in discrete subpopulations known as the M and S molecular forms. Although these forms occur in sympatry, pyrethroid knock-down resistance (*kdr*) is strongly associated with the S molecular form. On the island of Bioko, Equatorial Guinea we found high frequencies of the *kdr* mutation in M form individuals (55.8%) and a complete absence of *kdr* in the S form. We also report the absence of the *kdr* allele in M and S specimens from the harbour town of Tiko in Cameroon, representing the nearest continental population to Bioko. The *kdr* allele had previously been reported as absent in populations of *An. gambiae* on Bioko. Contrary to earlier reports, sequencing of intron-1 of this sodium channel gene revealed no fixed differences between M form resistant and susceptible individuals. The mutation may have recently arisen independently in the M form on Bioko due to recent and intensive pyrethroid application.

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