

IDENTIFICATION OF SEX-SPECIFIC TRANSCRIPTS OF THE *ANOPHELES GAMBIAE* *DOUBLESEX* GENE

Christina Scali^{1*}, Flaminia Catteruccia^{1*}, Qiuxiang Li¹ and Andrea Crisanti^{1,2}

¹Imperial College London, Department of Biological Sciences, Imperial College Road, London SW7 2AZ.

Running Title: *Doublesex* in *Anopheles gambiae*

Progress in elucidating the molecular mechanisms of sex differentiation in the mosquito *Anopheles gambiae* could identify important candidate genes for inducing selective male sterility in transgenic lines or for sex-controlled expression of lethal genes. In many insects *doublesex* (*dsx*) is the double-switch gene at the bottom of the somatic sex-determination cascade that determines the differentiation of sexually dimorphic traits. We report here on the identification of the *dsx* homologue in *A. gambiae*, and on the characterization of its sex-specific transcripts. *Agdsx* consists of 7 exons distributed over an 85 kb region on chromosome 2R, which are sex-specifically spliced. The female-specific transcript contains a 795 bp ORF, coding for a protein of 265 amino acids, while the male-specific transcript contains a much longer (1866 bp) ORF, coding for a 622 aa protein. Differences in the exon/intron organization suggest that *Agdsx* splicing pattern results from a mechanism different from *Drosophila melanogaster dsx*. These findings represent an important step towards the understanding of sex differentiation in *Anopheles* and will facilitate the use of gene transfer technologies to manipulate sex ratios for vector control programs based on the Sterile Insect Technique.

