

论著

淡色库蚊对溴氰菊酯抗药性和敏感性相关基因克隆和序列分析

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摘要

目的 获取淡色库蚊对溴氰菊酯抗药性和敏感性相关基因。方法 通过正、反向抑制性差减杂交获取对溴氰菊酯抗药性和敏感性淡色库蚊的差异表达基因,并以基因芯片和逆 Northern对所获基因进行杂交鉴定。结果 正、反向抑制性差减杂交各获得 5 2 3和 2 86个克隆,经芯片鉴定后在抗性品系高表达的基因分别有15 5个(2~ 3倍)和 42个(3倍以上),在敏感品系中高表达的基因分别有 15个(2~ 3倍)和 9个(3倍以上)。对 3倍以上差异表达和特异表达基因进行单向测序,根据最高同源性比对结果,线粒体 r RNA基因、6 0 S核糖体蛋白基因、40 S核糖体蛋白 S4基因、胰蛋白酶前体基因、糜蛋白酶 A前体基因、视蛋白基因等在抗性品系中高表达;而 40 S核糖体蛋白 S2 9基因和肌球蛋白调控轻链 2在敏感品系中高表达;另外,1,4- α-葡聚糖分支酶和核糖体蛋白 46基因在抗性品系中特异表达。结论 所获得的 13个差异表达基因和 2个特异表达基因与淡色库蚊对溴氰菊酯的抗药性和敏感性相关

关键词 [淡色库蚊](#) [杀虫剂抗性](#) [基因克隆](#) [抑制性差减杂交](#) [基因芯片](#) [逆Northern](#)

分类号

Cloning and Identification of Deltamethrin-Resistance or Susceptibility Associated Genes of Culex pipiens pallens

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Abstract

Objective To obtain deltamethrin-resistance or susceptibility associated genes of Culex pipiens pallens. \ Methods\ The differentially expressed genes were obtained by suppression subtractive hybridization (SSH), and identified by cDNA microarray and reverse Northern blotting. \ Results\ 523 and 286 clones were selected respectively in the two directional SSH. 155 and 42 genes were respectively expressed 2-3 and >3 times higher in the insecticide-resistant strain than in the susceptible strain; 15 and 9 genes were respectively expressed 2-3 and >3 times higher in the susceptible strain than in the resistant strain. There were 2 genes only expressed in the insecticide-resistant strain. 51 three times differentially expressed clones and 2 specially expressed clones were sequenced. 44 sequences were obtained which belong to 13 new genes. There were 8 over-expressed genes in resistant strain, 7 of which were similar respectively to mitochondrion rRNA gene, 60S ribosomal protein gene, 40S ribosomal protein S4 gene, trypsin gene, chymotrypsin A gene, opsin gene, and 16S ribosomal RNA gene. There were 5 over-expressed genes in susceptible strain, 2 of them being similar with 40S ribosomal protein S29 gene and myosin regulatory light chain 2 gene. In addition, 2 genes specially expressed in resistant strain were similar respectively to glycogen branching enzyme gene and ribosomal protein 46 gene. \ Conclusion\ The differentially expressed genes may be associated with deltamethrin-resistance or susceptibility of Culex pipiens pallens.

Key words [Culex pipiens pallens](#) [insecticide resistance](#) [gene cloning](#) [suppression subtractive hybridization](#) [cDNA microarray](#) [reverse Northern](#)

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