

Report Information				
Award Type	Award Number	Prime DUNS	Calendar Year / Quarter	Final Report
Grant	1R21AI076893-01A1	066470972	2010 / 3	No

Award Recipient Information	
Recipient DUNS Number 066470972	Recipient Address 1 107 SAMFORD HALL
Recipient Account Number 381030	Recipient Address 2
Recipient Congressional District 02	Recipient City AUBURN
Parent DUNS Number 066470972	Recipient State AL
Recipient Type 2U.95.G6.M8.OH.VW	Recipient ZIP Code + 4 368490001
Recipient Legal Name AUBURN UNIVERSITY	Recipient Country USA
Recipient DBA Name	

Project / Award Information	
Funding Agency Code 7529	Total Number of Sub Awards less than \$25,000/award 0
Awarding Agency Code 7529	Total Amount Sub Awards less than \$25,000/award 0.00
Program Source (TAS) Code 75-0900	Total Number of Sub Awards to Individuals 0
Sub Account Number for Program Source	Total Amount of Sub Awards to Individuals 0.00
CFDA Number 93.701	Total Number of Payments to Vendors less than \$25,000/award 98
Amount of Award 401500.00	Total Amount of Payments to Vendors less than \$25,000/award 60556.40
Award Date 05/06/2009	
Award Description The overall purpose is to determine the potential roles of the up-regulated genes in insecticide resistance in mosquitoes. We expect that comparison of 1) levels of resistance and the levels of gene expression and 2) the levels of silenced gene expression in resistant mosquitoes and their corresponding levels of resistance will allow us to identify the genes involved in insecticide resistance. Yr. 2 funding of \$255,500 awarded and added to award amount.	

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Project Information

Project Name or Project/ Program Title	Quarterly Activities/ Project Description	Activity Codes (NAICS or NTEE-NPC) (up to 10)
Characterizing the role of the 22 up-regulated genes in mosquito resistance	<p>We have completed the specific Aim of the project 1: Define the relationship between the levels of resistance and the levels of gene expression, enzyme activity, and protein expression in each of the 22 up-regulated genes in the susceptible strains of S-Lab and Ref-S-Lab; the field permethrin resistant strains of HAmCqG0, MAmCqG0, and BAmCqG0; 8 generations of permethrin-selected HAmCqG0 offspring (HAmCqG1 to HAmCqG8); and the 8th generation of the permethrin-selected S-Lab strain (S-Lab-PerG8).</p> <p>Cytochrome P450-activity assays by measuring as ethoxyresorufin-O-deethylase (EROD) activity using a Perkin-Elmer spectrofluorimeter (Auburn U. Research Facility) as described by Pohl and Fouts (1980) have been completed and data have been analyzed for all 14 mosquito strains. Western blot analysis for rhodopsin protein expression in 14 mosquito strains using electrophoresis protein samples on 12.5% sodium dodecyl sulfate?polyacrylamide electrophoresis gels (SDS-PAGE gel, Bio-Rad) have been completed and data have been analyzed. Other Key gene expression in all 14 mosquito samples has been analyzed by Northern blot analysis and real-time PCR.</p> <p>We have started specific Aim 2: Determine the relationship between the silenced expression levels of key genes in HAmCqG8 and their</p>	<p>Activity Code 1 B43 - NTEE</p> <p>Activity Code 2</p> <p>Activity Code 3</p> <p>Activity Code 4</p> <p>Activity Code 5</p> <p>Activity Code 6</p> <p>Activity Code 7</p> <p>Activity Code 8</p> <p>Activity Code 9</p> <p>Activity Code 10</p>

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corresponding levels of insecticide resistance. We have conducted RNA silence studies on resistant HAmCqG8. We have constructed dsRNA for rhodopsin genes and P450 genes and injected dsRNAs complementary to for rhodopsin genes and P450 genes into HAmCqG8 mosquitoes. We have conducted insecticide bioassays to examine the resistance levels in the dsRNA injected mosquitoes and conducted key gene expression to evaluate the knockdown levels of the key genes.

Next, we will characterize the interaction and regulation among the key resistance genes in the mosquitoes.

Project Status Completed 50% or more
Total Federal Amount ARRA Funds Received/ Invoiced 184476.96
Number of Jobs 0.83
Description of Jobs Created Faculty and Professional Non-Faculty
Total Federal Amount of ARRA Expenditure 211069.14
Total Federal ARRA Infrastructure Expenditure 0.00
Infrastructure Purpose and Rationale

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Infrastructure Contact

Name	Street Address 1
Email	Street Address 2
Phone	Street Address 3
Ext	City
	State
	ZIP Code + 4

Primary Place of Performance

Address 1	301 Funchess Hall
Address 2	
City	Auburn University
Country Code	US
State	AL
ZIP Code + 4	36849 - 0001
Congressional District	02

Recipient Highly Compensated Officers

Prime Recipient Indication of Reporting Applicability	No	Officer 3 Name	
Officer 1 Name		Officer 3 Compensation	
Officer 1 Compensation		Officer 4 Name	
Officer 2 Name		Officer 4 Compensation	
Officer 2 Compensation		Officer 5 Name	
		Officer 5 Compensation	

Report Audit Trail

Created By	Cindy Selman
Date Created	10/06/2010 07:02 PM
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