Agrivectors.org

A Systems Biology resource for Vector Biologists

Data to Disease Management

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Open source toolkit

VAGRANT

CHADO

Web Apollo

Pathway Tools

docker

JBrowse

MAKER

Citrus Greening

USDA NIFA Project

SGN

CassavaBase

YamBase

SweetPotatoBase

MusaBase

https://solgenomics.net

https://cassavabase.org

https://yambase.org

https://sweetpotatobase.org

https://musabase.org
Citrusgreening.org: Portal for the HLB disease complex
Omics resources and databases are required for identification of targets for interdiction.
Citrusgreening.org

https://citrusgreening.org/

- Host, Vector and Pathogen(s)
- Blast Databases
- Genome browser – Jbrowse
- Metabolic pathway database
- Annotation Editor – Apollo
- Psyllid Expression Network (PEN)
- FTP site for download

Disease background
News, Publications, Links
Social Media
DiaphorinaCyc Pathways overlaid with Gut RNAseq results
Proteomics results in Psyllid Expression Network

Tree Hosts: *C. medica* and *C. sinensis*
Treatment: Percoll gradient fractionation
**Insect Stages:** Nymph and adult
Conditions: Clas+ and healthy

Genes correlated with XP_00847050 ATP synthase subunit beta

Colored by level of expression
Outreach

- News
- Events
- Blog
- Publications
Portal for all Agricultural Disease Vector Systems

AgriVectors Home Page

Pathogens: Bacteria, virus and fungi

Citrusgreening

Zebra chip

Pierce’s disease

Andrew Jensen

Alex Wild

www.agrivectors.org
Data types

Omics data sets
- Genome assembly and official annotation
- Transcriptomes
- Mass spectrometry proteomics

Population biology
- Insecticide resistance
- SNPs and Indels
- Variants
- Simple Sequence Repeats
- Mitochondrial genes
Data types

**Integrated pest management pathosystem-wide data**

- Inclusive of Vector, pathogen, host, environment and beyond...
- Gene family based data sets (P450, RNAi pathway)
- E.g. Virus, Bacteria, or fungal infection assays
- Electrical Penetration Graph (EPG) feeding data
- Phenotyping data from disease trials
- Ecological and climactic data
- Behavioral assays
- Toxicology, Insecticide resistance, etc.

**Genes (structural and functional curation)**

Publications, notes, posters, videos and abstracts............
Project ideas and Preliminary data

Salivary gland transcriptomics of hemipterans
  • Host range based on orthologous enzymes and proteins
  • Pathogen acquisition/transmission/...replication?
  • Chemical and pathogen response

Host immunity based on pathogen exposure

Fecundity and development assays

Microbiome characterization
AgriVectors Roadmap

2018
- Build research, government and industry partnerships
- Design Citrusgreening.org as a model system
- Generate preliminary data sets

2019
- Establish primary and secondary consortia members
- Present to community at scientific meetings
- Fundraising for sub-projects
- Integrate and mine novel data types at Citrusgreening.org

2020+
- Fundraising for AgriVectors umbrella project
- Apply for research coordination network (RCN) funding for AgriVectors community meetings
Agricultural Vectors Consortium

United States Department of Agriculture
Wayne Hunter (Ft. Pierce, FL)
Michelle Heck (Ithaca, NY)
Rodney Cooper (Wapato, WA)
Lucy R. Stewart (Wooster, OH)

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Oklahoma State University
Astri Wayadande

University of Florida
Jawwad Qureshi

You??
Thank you!!

@Citrusgreening // @SahaSurya

#MakeDataGreatAgain