

Open Innovation Systems for Citrus Research

By Tom Turpen



The mission of the Citrus Research and Development Foundation (CRDF) is to protect the profitability of citrus production from infectious disease loss. Florida is very fortunate to have two of the world's best citrus research institutions, UF/IFAS and USDA, as partners. This base of expertise and infrastructure allows collaborators from all over the world to contribute. Right now we are seeking new molecules to combat the spread of Citrus Greening disease by the psyllid insect vector and to treat or protect trees from infection from the bacteria.

Suppose you had a great idea and wanted to test this yourself. Before you even begin an experiment, you would need a method of propagating a bacterium that can't be cultured. You would need colonies of psyllids. You would need a greenhouse of citrus cultivars ready to use. This challenge of biological research is one reason we value our core research partners so highly. Research sponsored by CRDF has discovered new molecules in the form of antibiotics and RNAi. Rather than declare success too early, we have helped to open the lab to compare these findings with any other compounds that might be submitted for testing. We intend to do our best at finding solutions that are highly effective and most likely to be registered for commercial use as quickly as possible.

CRDF engaged an experienced promotion partner, InnoCentive™ to solicit ideas and will award small cash prizes to the “winners” selected for development. Even though we already work with the world's citrus experts, we also know that a diversity of opinion from the scientific community at large will bring a better outcome. It turns out most of these “solvers” are not primarily motivated by the cash but rather the satisfaction that comes from being engaged in a meaningful intellectual challenge. In May we formed Evaluation Committees selected from a combination of volunteer experts from our network and from our Scientific Advisory Board and selected a first set of new molecules for testing.

Our Evaluation Committees used an “approval-voting” process to prioritize the submissions for testing. Committee members are given a fixed number of votes that are tabulated in advance of the meeting. Some ideas receive no votes, a few are unanimously popular, and the rest are in between. For the antibiotic contest, 238 registered solvers have submitted 48 compounds to test and screening of 21 of these are in progress. For antibiotics, we have the capacity to test any reasonable and available compound. For the RNAi contest, 295 registered solvers have submitted 59 unique genes from the psyllid genome to target for new control activity. Twenty RNAi targets are currently under evaluation. The Evaluation Committee struggled to make confident predictions for many of the targets. In their opinion, the best approach in a frontier of science applications like this is to do the experiment and continue to stay abreast of the progress from other insect control discoveries using RNAi. CRDF has extended the contest deadline for submissions to Sept. 1 at www.innocentive.com.

Dr. Turpen is the Program Manager of the Citrus Research and Development Foundation. The foundation is charged with funding citrus research and getting the results of that research to use in the grove.



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