

*Vibrio coralliilyticus*: Comparison of Anti-Microbial and Antibiotic Resistance with Sister Phylotypes Isolated from Puerto Rico

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*Vibrio coralliilyticus* ATCC BAA-450, a temperature-dependent coral pathogen first isolated from the Indian Ocean, induces bleaching in *Pocillopora damicornis* at temperatures greater than 24.5°C. Currently, we are comparing the anti-microbial and antibiotic resistance and susceptibility profiles of this *V. coralliilyticus* strain and possible sister phylotypes isolated from the southern coast of Puerto Rico. We hypothesize that *V. coralliilyticus* ATCC BAA-450 and the sister phylotypes will display similar anti-microbial and antibiotic resistance. We have several lines of evidence to support this hypothesis. First, five bacterial isolates, obtained from the surface mucopolysaccharide layer of visually-diseased *Pseudopterogorgia americana*, showed 97-99% 16S rDNA homology to *V. coralliilyticus*. Genomic profiling through repetitive element PCR (REP-PCR) demonstrated that one isolate had a similar profile to ATCC BAA-450, while the other four were different (but similar to one another). Second, we examined whether bacteria isolated from healthy and diseased *P. americana* colonies were able to inhibit *V. coralliilyticus* grown at 24 and 27°C. We observed that twelve (12/140) isolates inhibited *V. coralliilyticus* at 24°C, while only five strains inhibited growth at 27°C. Third, four of the homologous strains were screened against a subset of the coral isolates that exhibited bioactivity in anti-microbial tests. Three of the homologous strains responded similarly to the ATCC strain and showed a high level of resistance to the anti-microbial compounds produced by the coral isolates. Lastly, *V. coralliilyticus* ATCC BAA-450 and the three sister phylotypes were screened against 26 known antibiotics; they all exhibited similar resistance and susceptibility profiles (resistant to 10-14 antibiotics). To summarize, both *V. coralliilyticus* ATCC BAA-450 and three of the Caribbean phylotypes showed similar levels of resistance in our anti-microbial (temperature-dependent) and antibiotic assays. This study will further contribute to our understanding of the pathogenicity of *V. coralliilyticus* and the similarity among sister phylotypes in a broader ecological context.

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