Quantification of Outer Membrane Vesicle Production in *Janthinobacterium* with Arsenic as an Environmental Stressor

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Gram negative bacteria have an outer membrane that produces sac-like structures known as outer membrane vesicles (OMVs). OMVs interact with the environment via their cargo, which are typically active proteins. The mechanisms behind this vesiculation are still relatively unknown, yet studies have shown that environmental stressors can boost OMV biogenesis. *Janthinobacterium* isolate #19 is a genus of Gram negative bacteria isolated from periphyton samples collected from Lake Killarney in Federal Way, WA which has higher arsenic levels than that of other lakes in the area. There is a significant knowledge gap on the *Janthinobacterium* genus, but it does prove to be highly arsenic resistant. To further understand the role of arsenic resistance within *Janthinobacterium* we hypothesized that growing the isolate with the environmental stressor of arsenate (AsV) will result in an increase of OMV production. Supernatant of isolated matrix materials and OMVs were measured using a fluorescent probe assay to indicate the presence of lipid membrane. The results showed no significant change in the production of OMVs in *Janthinobacterium* grown in AsV when compared to our control of *Janthinobacterium* grown on LB medium alone. This indicates that AsV is not acting as a stressor to induce OMV biogenesis supporting the null hypothesis. Future exploration in this research might consider using a minimal medium to identify if AsV uptake competes with the abundance of phosphate found in complex medium. Additionally, because OMV production was not affected using AsV as a stressor, we are looking at the role that *Janthinobacterium* plays in the biofilm community by quantifying the amount of AsV that is taken up into the cell vs the amount of arsenite (AsIII) being reduced and pumped back into the environment.