

**ORIGINS OF THE TAD LOCUS Jordan Aldersley, Sarah Greene,
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The Widespread Colonization Island (WCI), a genomic island made mostly of the tad (tight adherence) genes, enables its host bacteria to generate biofilms, auto-aggregate, and adhere to surfaces (either environmental or living, as in pathogenic examples). This is accomplished by the formation of pili. The WCI is found in a diverse assortment of species, including Gram-negative, Gram positive and even Archeal varieties. The region has been shown to be inherited not only vertically but also by horizontal transfer. One such event in particular seems to suggest that the locus was transferred into the Pasteurellaceae, a group including human pathogens like *Yersinia pestis*, from the Rhizobiaceae, mostly comprised of plant pathogens and environmental bacteria. In an effort to further examine this single horizontal transfer event, a phylogeny of tadA (homologous to cpaF) genes in the Alpha proteobacteria (encompassing the Rhizobiaceae) and Gamma proteobacteria (encompassing the Pasteurellaceae) was created and examined to determine more specifically where the event had originated.