

Antibiotic-Producing Bacteria Associated with Sharks of St. Helena and Port Royal Sound

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Elasmobranchs possess the ability to heal quickly from wounds yet, limited research has been done to explore the roll of beneficial bacterial associations in this healing process (Ritchie et al., 2017). Our objectives were to identify antibiotic producing bacteria associated with sharks as a measure of potential beneficial roles. Three Tiger Sharks (*Galeocerdo cuvier*), two Bull Sharks (*Carcharinus leucas*), five Blacktip Sharks (*Carcharinus limbatus*) one Blacknose Shark (*Carcharhinus acronotus*) and one Lemon Shark (*Negaprion brevirostris*) were captured by the use of drumlines and rod and reel in the St. Helena and Port Royal Sound area off the coast of South Carolina. Bacteria was subcultured from sharks and cryopreserved into 96-well culture libraries. Libraries were screened for antibiotic production against six human and four marine pathogenic bacterial test strains. In previous work, Ritchie et al. (2017) showed that up to 21% of cultured bacteria from skates and rays produce antibiotic activity against one or more test strain. In the present study, we show that up to 35% of cultured shark bacteria produce antibiotic activities against one or more test strain.

Keywords: Elasmobranch, beneficial microbes, antibiotics, immunity, bacteria, wound healing