Supporting information for

Marine Roseobacteraceae as Drivers of *Ulva* Growth: From macroalgal-bacterial Interactions to Bioactive Factor Isolation

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Figure S1

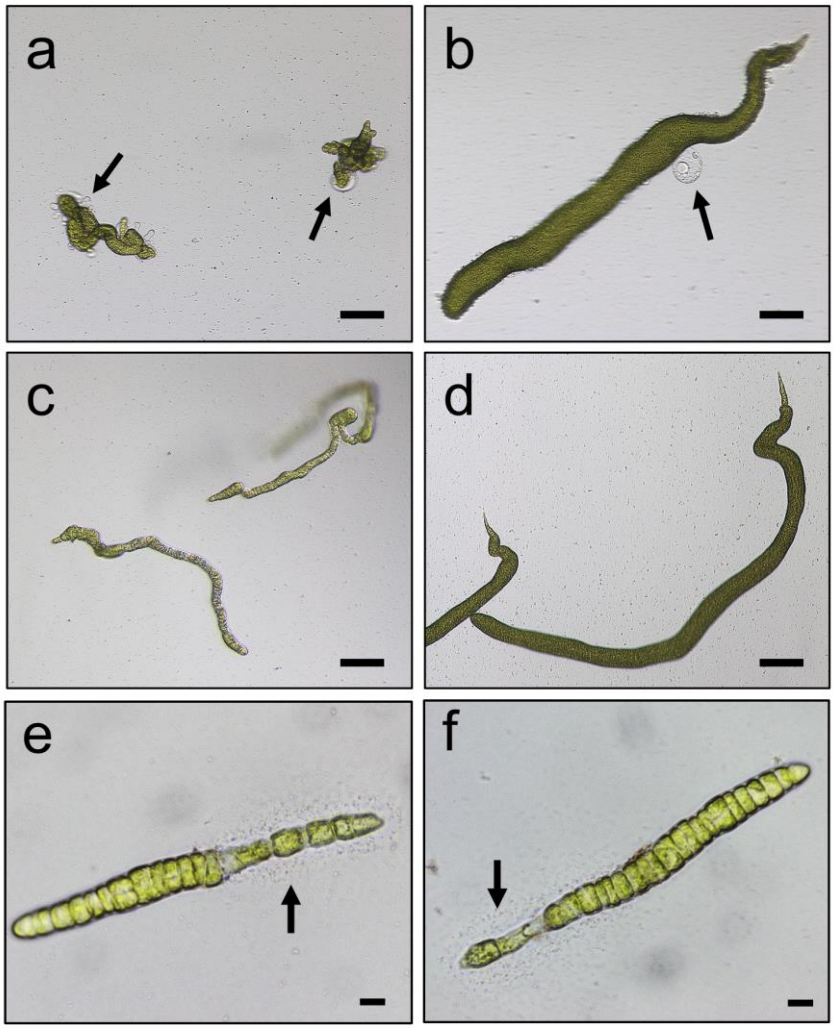

Fig. S1: Standardized morphogenetic bioassay with *Ulva compressa*. Representative morphogenetic phenotypes of *U. compressa* were monitored after 2 weeks of cultivation, magnification bar = 100 µm: (a) axenic cultures with undefined cell aggregations and cell wall protrusions (cell wall protrusions, black arrow); (b) *Roseovarius* activity with typical thallus differentiation but damaged cell walls (cell wall protrusions, black arrow); (c) activity of *Maribacter* or thallusin, with rhizoid and cell wall formation (no cell wall protrusions); (d) tripartite community of *Ulva–Roseovarius–Maribacter* with complete morphogenetic growth; (e, f) representative examples for the accumulation of bacteria in the rhizoidal zone of 1 week old germlings (black arrow), scale bar = 10 µm.

Figure S2

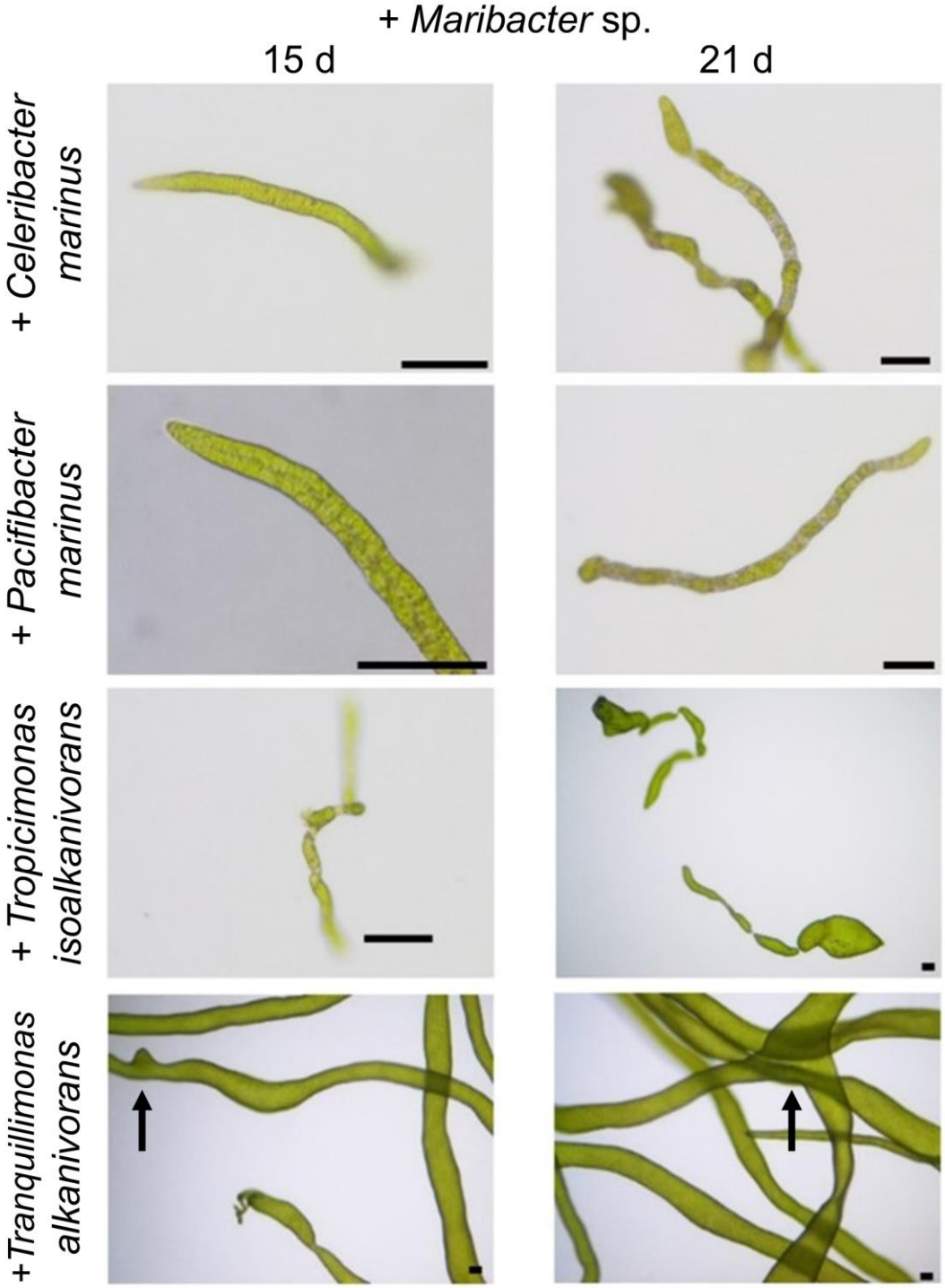

Fig. S2**: *Ulva compressa* morphogenetic bioassay screening with selected bacterial strains showing novel morphotypes.** The combination of the thallusin-producing *Maribacter* sp. MS6 with the respective test strains resulted in either algicidal effects or delayed development after 2–3 weeks of cultivation. Inoculation with *Tranquillimonas alkanivorans*, for instance, led to additional branching during thallus development (black arrow). Scale bar = 100 µm.

Figure S3

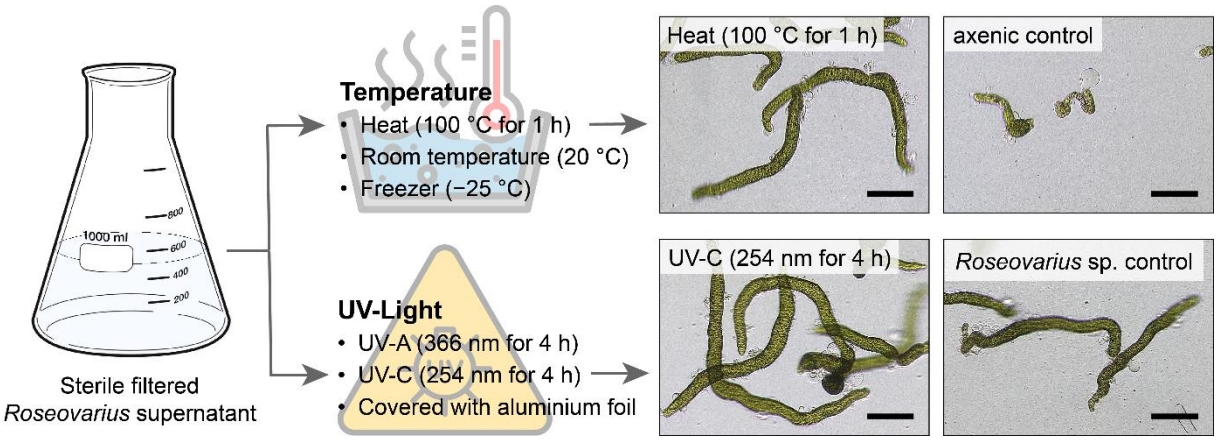

Fig. S3: Morphogenesis-guided Ulva bioassays to characterize the thermal and UV stability of the *Roseovarius* factor**.** The sterile-filtered *Roseovarius* supernatant was subjected to various physical treatments to assess its stability. To test thermostability, the supernatant was boiled in a water bath at 100 °C for one hour. As a reference and negative control, one sample was maintained at room temperature (20 °C), and another was frozen at −25 °C. The supernatant was exposed to UV-C (254 nm) for four hours for UV stability, while UV-A radiation (366 nm) was also tested. Negative control was kept in darkness, covered with aluminum foil. All treated samples were tested in *Ulva* bioassays and retained their biological activity. The *Ulva* cultures were grown for 14 days in microwell plates. Scale bar = 100 µm.