

Coalescing red algae exhibit noninvasive, reversible chimerism

Santelices, Bernabé

González, Alejandra V.

Beltrán, Jessica

Flores, Verónica

© 2016 Phycological Society of America Chimerism is produced by the somatic fusion of two or more genetically distinct conspecific individuals. In animals, the main cost of fusion is competition between genetically different cell lineages and the probability of original cell line replacement by more competitive invasive lines, which limits its natural frequency (3%–5%). In red and brown seaweeds, chimerism is widespread (27%–53%), seemingly without the negative outcomes described for animals. The rigidity of cell walls in macroalgae prevents cell motility and invasions. In addition, in moving waters, most somatic fusions involve the holdfast. Histological observations in laboratory-built bicolor macroalgal chimeras indicated that upright axes emerge from the base of plants by proliferation and vertical growth of discrete cell groups that include one or just a few of the cell lineages occurring in the holdfasts. Laboratory experiments showed growth competition between cell lineages, thu