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Cooperation and competition in pathogenic bacteria.

Griffin AS, West SA, Buckling A

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 Confirmation

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Comments

Hamilton's theory of kin selection explained numerous aspects of the evolution and maintenance of cooperative, altruistic behaviour. Here, the authors confirm and extend these observations by finding a strong correlation between relatedness and the scale of competition in pathogenic bacteria. However, advantages of cooperation will vary not only as a consequence of relatedness, but also as a function of the spatial scale of competition for limiting resources -- because stronger competition among relatives may reduce advantages of cooperation. This study uses a pathogenic bacterium to independently manipulate relatedness and spatial scale of competition in a factorial fashion to determine how these parameters interact to affect the proportion of competitors and cheaters. The authors show not only increased cooperation with increased relatedness, but also that increased local competition also selects decreased cooperation and that there is a significant interaction between relatedness and the scale of competition, with relatedness having less effect when the scale of competition is more local.

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