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### Host sanctions and the legume-rhizobium mutualism.

Kiers ET, Rousseau RA, West SA, Denison RF

*Nature* 2003 Sep 4 **425**(6953):78-81 [[abstract on PubMed](#)] [[related articles](#)] [[order article](#)]

**Selected by** | Richard Lenski

Evaluated 11 Sep 2003

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#### Richard Lenski

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Hypothesis

New Finding

**This elegant study shows that the mutualism between legumes and rhizobia is maintained, in part, by sanctions that host plants can exert against bacteria that do not fix nitrogen.** The authors supplied nitrogen-free air to whole soybean plants, half-root systems, and individual nodules. At each scale, nitrogen-deprived Bradyrhizobium populations declined in numbers relative to control populations that had received normal air and could thus supply their hosts with nitrogen. Further experiments seemed to indicate that the non-performing rhizobia were deprived of oxygen, rather than of carbon, by their host plant. Whatever the precise mechanism, sanctions imposed by the host plant should prevent 'cheaters' (mutants that fail to fix nitrogen) from taking over and destroying the mutualism.

Evaluated 11 Sep 2003

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