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Corrigendum: Why Quorum Sensing Controls Private Goods

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A corrigendum on

Why Quorum Sensing Controls Private Goods

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Here we intend to clarify the function of *rbsD*, a conserved gene involved in bacterial ribose utilization. As stated in the original article, *rbsD* is absent in *P. aeruginosa*, which is the likely cause for its slow growth rate on adenosine as a carbon source. Adenosine is cleaved into ribose and adenine by a periplasmic, quorum sensing-dependent nucleoside hydrolase (Nuh). In the section "The case of Nuh," we suggested that *rbsD* contributes to ribose uptake, based on the original characterization of an *rbsD* mutant in *E. coli* (Oh et al., 1999). However, subsequent biochemical studies have revealed a more specific function. *E. coli rbsD* encodes a ribose mutarotase that catalyzes the conversion between the pyranose and furanose forms of D-ribose immediately after cytoplasmic uptake by the ribose transporter RbsABC (Kim et al., 2003; Ryu et al., 2004). While ribose primarily exists as a pyranose in solution, the furanose is the preferred substrate in the ensuing phosphorylation by the ribokinase RbsK (Sigrell et al., 1998). Thus, the intracellular level of the furanose as a substrate for RbsK may be the growth-limiting factor in *rbsD*-deficient *P. aeruginosa*.

Irrespective of these biochemical details, however, our main conclusions drawn in the original article remain the same: Adenosine is a relevant nitrogen but not carbon source in the ecology of *P. aeruginosa*. As a carbon source, adenosine does not constrain cheating in native *P. aeruginosa* but rather promotes non-social adaptation during long-term cultivation.

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