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Pseudomonas switch to resistance

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Tudor Toma

Email: t.toma@ic.ac.uk

Pseudomonas aeruginosa grows as biofilms in the lungs of patients with cystic fibrosis (CF) but it remains unclear whether the bacteria persist because the biofilms are antibiotic-resistant or if resistant variants are selected by antimicrobial therapy itself. In the April 18 *Nature*, Eliana Drenkard and Frederick Ausubel of [Harvard Medical School](#) show that biofilm formation and antibiotic resistance in *Pseudomonas* are linked to phenotypic variation and are switched on together.

Drenkard & Ausubel observed that antibiotic-resistant phenotypic variants of *P. aeruginosa* with enhanced ability to form biofilms arise at high frequency both *in vitro* and in the lungs of people with CF. They also identified a regulatory protein (PvrR) that controls the conversion between antibiotic-resistant and antibiotic-susceptible forms (*Nature* 2002, **416**:740-743).

"Drenkard and Ausubel have described a general mechanism - environment-driven phenotypic switching - that explains how antibiotic-resistant biofilm variants of *P. aeruginosa* arise," wrote George O'Toole of [Dartmouth Medical School](#) in the accompanying [News and Views](#) article.

"Compounds that affect PvrR function could have an important role in the treatment of CF infections", conclude Drenkard and Ausubel.

References

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