

Publication

Definitions and guidelines for research on antibiotic persistence

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Increasing concerns about the rising rates of antibiotic therapy failure and advances in single-cell analyses have inspired a surge of research into antibiotic persistence. Bacterial persister cells represent a subpopulation of cells that can survive intensive antibiotic treatment without being resistant. Several approaches have emerged to define and measure persistence, and it is now time to agree on the basic definition of persistence and its relation to the other mechanisms by which bacteria survive exposure to bactericidal antibiotic treatments, such as antibiotic resistance, heteroresistance or tolerance. In this Consensus Statement, we provide definitions of persistence phenomena, distinguish between triggered and spontaneous persistence and provide a guide to measuring persistence. Antibiotic persistence is not only an interesting example of non-genetic single-cell heterogeneity, it may also have a role in the failure of antibiotic treatments. Therefore, it is our hope that the guidelines outlined in this article will pave the way for better characterization of antibiotic persistence and for understanding its relevance to clinical outcomes.

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