

The Biology of Persister Cells and Antibiotic Resistance

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Abstract : The discovery and production of new antibiotics is unavoidable in the fight against drug-resistant bacteria. However, this is only part of the problem; we have never really had medications that could completely eradicate an infection. All pathogens create a limited number of dormant persister cells that are resistant to antibiotic treatment. When the concentration of antibiotics decreases, surviving persisters repopulate the population, resulting in a recurrent chronic infection. Bacterial populations have an alternative survival strategy to withstand harsh conditions or antibiotic exposure, in addition to the well-known methods of antibiotic resistance and biofilm formation. Persister cells are a limited subset of transiently antibiotic-tolerant phenotypic variations capable of surviving high-dose antibiotic therapy. Persisters that flip back to a normal phenotype can restart growth when antibiotic pressure drops, assuring the bacterial population's survival. Persister cells have been found in every major pathogen, and they play a role in antibiotic tolerance in biofilms as well as the recalcitrance of chronic infections. Persister cells has been implicated to play a role in the establishment of antibiotic resistance, according to growing research. Thus the need to basically elucidate the biology of persisters and how they are linked to antibiotic resistance, and as well it's link to diseases.

Keywords : persister cells, phenotypic variations, repopulation, mobile genetic transfers, antibiotic resistance

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