

High doses of antibiotics may have the potential to promote increased cross-resistance

June 24 2014

Antibiotic resistance has become an increasing public health concern, with MRSA infections and last lines of antibiotic drug treatments having to be increasingly deployed in hospitals and clinics.

In the advanced online edition of *Molecular Biology and Evolution*, Oz, et. al., utilized an experimental evolution approach to evolve 88 different *E. coli* populations against 22 antibiotics, under "strong" and "mild" selection conditions. After 21 days, they isolated bacterial clones, measured the resistance to each antibiotic, and performed whole-genome sequencing of resistance clones to tease out the genetic changes that could be responsible for [antibiotic resistance](#).

Their results demonstrate that the evolution of cross-resistance depends on selection strength. Overall, they found evidence for higher cross-resistance in the strongly selected strains and higher numbers of pathway-specific mutations. The study yielded important new insights into the increased emergence of [drug resistance](#) with the use of high doses of antibiotics, as well as hypersensitivities to exploit for new antibiotic therapies.

Provided by Oxford University Press

Citation: High doses of antibiotics may have the potential to promote increased cross-resistance

(2014, June 24) retrieved 18 April 2024 from <https://medicalxpress.com/news/2014-06-high-doses-antibiotics-potential-cross-resistance.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.