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Drug pairing for combating infections

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A synergistic pairing is more powerful than just adding two drugs together. It amplifies each drug's effectiveness by at least four-fold.



Researchers at University of Utah Health have developed a rapid screening method to identify beneficial pairs of existing FDA-approved drugs to combat multi-drug resistant (MDR) bacterial infections.

By pairing FDA-approved drugs synergistically, there is a potential to take these pairs to clinic much more quickly than new drugs, which can be expensive and time intensive to create and approve.

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The research identified 14 drugs that could be paired synergistically.

The most promising synergistic pairing in this study combined azidothymidine (AZT), one of the earliest drugs prescribed to treat HIV-AIDS, with floxuridine, a cancer drug with a similar chemical genetic signature as a commonly prescribed antibiotic ¾ trimethoprim.

The team tested the effectiveness of the floxuridine and AZT pair by treating zebrafish infected with trimethoprim-resistant E. coli. The synergistic drug pair reduced the bacterial load by 10,000-fold compared to treating with the traditional antibiotic pair of trimethoprim and sulfamethizole.

For the next step, the researchers want to collaborate with a clinician to take some of the identified drug pairs into clinical trials to examine their effectiveness at combating difficult bacterial infections in people.