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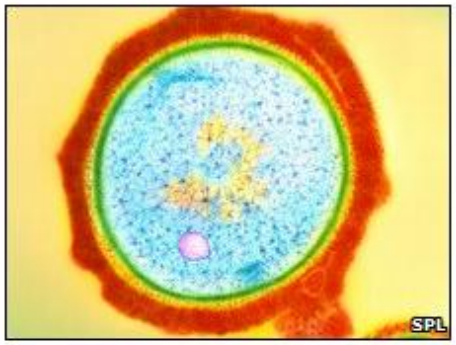
Bacteria - Antibiotics

Antibiotic resistance clue found

US scientists have uncovered a defence mechanism in bacteria that allows them to fend off the threat of antibiotics.



MRSA highlights the problem of antibiotic resistance

It is hoped the findings could help researchers boost the effectiveness of existing treatments.

The study published in Science found that nitric oxide produced by the bacteria eliminates some key effects of a wide range of antibiotics.

One UK expert said inhibiting nitric oxide synthesis could be an important advance for tackling tricky infections.

Antibiotic resistance, for example with MRSA, is a growing problem and experts have long warned of the need to develop new treatments.

The latest research, done by a team at New York University, showed that in bacteria the production of nitric oxide - a small molecule made up of one nitrogen and one oxygen atom - increased their resistance to antibiotics.

> **"Here, we have a short cut, where we don't have to invent new antibiotics"**
>
> Dr Evgeny Nudler, study leader

They found the enzymes responsible for producing nitric oxide were activated specifically in response to the presence of the antibiotics.

They also showed that nitric oxide alleviates damage caused by the drugs as well as helping to neutralise many of the toxic compounds within the antibiotic.

The researchers then showed that eliminating nitric oxide production in the bacteria allowed the antibiotics to work at lower, less toxic doses.

More effective

Study leader, Dr Evgeny Nudler, said developing new medicines to fight antibiotic resistance, such as that seen with MRSA is a "huge hurdle".

"Here, we have a short cut, where we don't have to invent new antibiotics.

"Instead we can enhance the activity of well-established ones, making them more effective at lower doses.

Dr Matthew Dryden, consultant in microbiology and communicable disease at Royal Hampshire County Hospital and general secretary of the British Society for Antimicrobial Chemotherapy, said if the enzyme which creates nitric oxide could be inhibited, it could suppress the ability of the bacteria to counteract antibiotics.

"This would be a useful therapeutic advance, especially as we are running out of new classes of antibiotics and there is less antibiotic development in general."

Summarize the following article

http://news.bbc.co.uk/2/hi/health/8248020.stm