ODL - A New Class of Anti-biotic

What is the issue?

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- Researchers have reported the discovery of a new class of antibiotics called ODLs, whose operational mechanism is very unique.
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- This also offers hope for overcoming the menace of drug resistance.
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How does the new drug function?

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- This new class of anti-biotic is unique and promising on two fronts - its unconventional source and its distinct way of killing bacteria.
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- Both of this suggests that the compound may be effective at treating drug-resistant or hard-to-treat infections.
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- **The Study -** Odilorhabdin (or ODL) are antibiotics that are produced by special bacteria that are found inside the soil-dwelling “nematode worms”.
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- These bacteria live inside the said worms and are engaged in a symbiotic relationship with the insect for food.
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- They are said to secrete antibiotics to keep competing bacteria away – of which, 80 cultured secretion strains were analysed by researches.
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- Active compounds were also isolated and studied for engineering enhanced versions of the secretions for bettering their effectiveness.
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- **The Mechanism -** ODLs were found to act on the ribosome of other bacteria, which is the molecular machine that makes the vital proteins.
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- While many clinically useful antibiotics also target ribosome, ODLs are unique because they bind to a place on the ribosome that has never been

used by other known antibiotics.
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- When bound to the ribosome, ODL antibiotics disrupts the ribosome's ability to read, interpret and translate genetic code and thereby hinders reproduction.
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- This leads to miscoding of proteins, which make newer bacterial off-springs to be born defective - thereby they die out soon and get annihilation.
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How does its potency fare?

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- Researchers tested ODL compounds against bacterial pathogens, including many known to develop resistance.
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- ODL compounds were found to cure mice infected with several pathogenic bacteria and demonstrated very positive results.
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- Many antibiotics can slow bacterial growth, but antibiotics like ODL that kill bacteria are rare - thereby making this discovery a major breakthrough.
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Source: Indian Express

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