

N-(1,3,4-oxadiazol-2-yl)benzamide

antibacterial agents

Novel compounds demonstrate potent activity against drug-resistant Gram-positive bacteria, including MRSA and VRE, without observed resistance development in MRSA.

The discovery and development of antibiotics revolutionized health care in such a way that bacterial infections, which were otherwise deadly, could be treated; however, this was met with a rapid development of resistant bacterial strains that rendered many antibiotics ineffective. Consequently, millions of people are infected with drug-resistant bacterial strains yearly resulting in thousands of deaths. Efforts need to be directed towards identifying and developing novel structures as antibacterial agents with possibly novel mechanisms of action.

Researchers at Purdue University have identified compounds with potent antibacterial activities. The most potent compounds inhibited growth of various-resistant Gram-positive bacterial pathogens. Some compounds were active against clinical isolates of methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-intermediate and vancomycin-resistant *Staphylococcus aureus* (VISA and VRSA respectively), and vancomycin-resistant *Enterococcus faecalis* (VRE). Through resistance generation experiments it was revealed that MRSA could not develop resistance to one of these compounds.

Advantages:

- Compounds can kill methicillin and vancomycin-resistant bacteria
- No resistance from MRSA
- Potent activity against drug-resistant Gram-positive pathogens

Potential Applications:

- Pharmaceuticals/biotech companies
- Animal medicine

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-Bacterial burden in skin wound infections

Related Publications:

Clement Opoku-Temeng et al., N-(1,3,4-oxadiazol-2-yl)benzamide analogs, bacteriostatic agents against methicillin- and vancomycin-resistant bacteria

European Journal of Medicinal Chemistry, 2018

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Intellectual Property:

Provisional-Patent, 2018-04-12, United States | PCT-Patent, 2019-03-29, WO
| NATL-Patent, 2020-10-12, United States | NATL-Patent, 2020-10-12, Japan |
CON-Patent, 2023-08-21, United States | CON-Patent, 2025-11-04, United
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