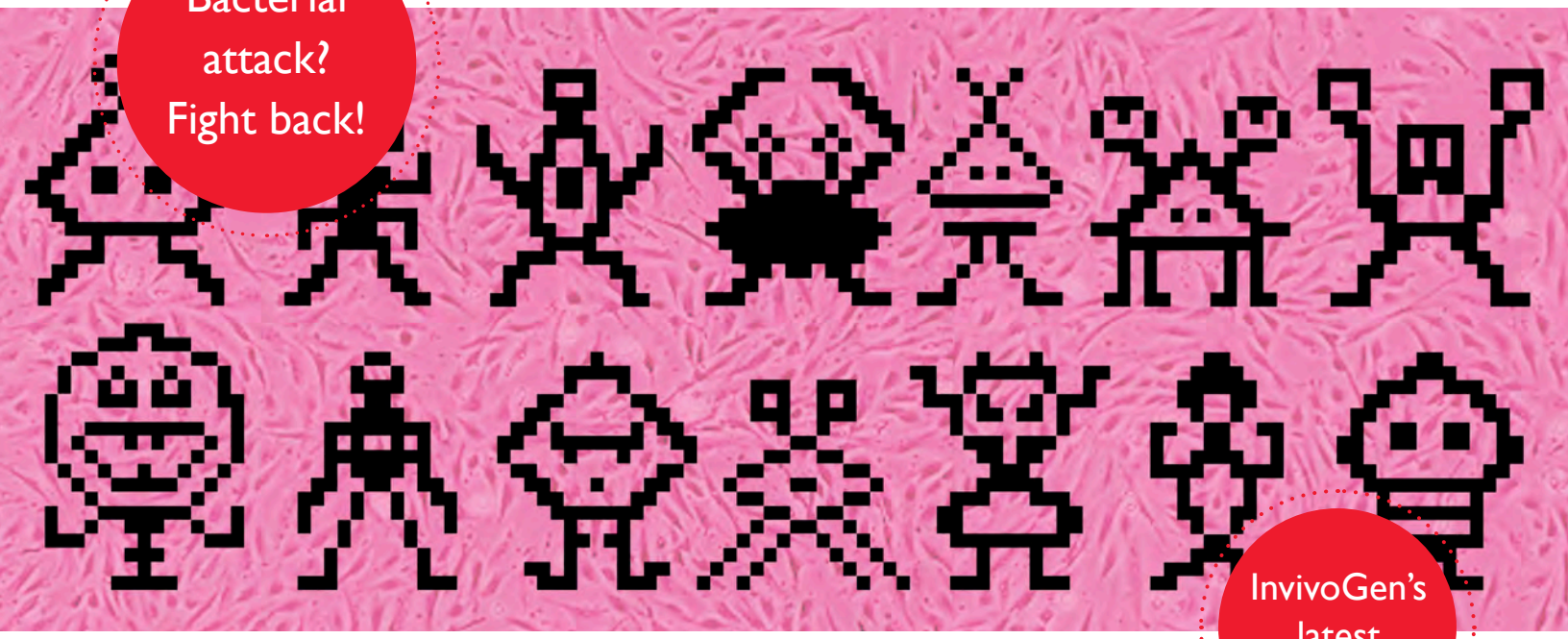
NORMOCURE™

Bacterial attack? Fight back!



InvivoGen's latest weapon

The Antibacterial Super Agent

Save Your Valuable Cell Lines from Invaders

Bacterial contamination of precious cell cultures can be devastating. Unfortunately, common antibiotic treatments, such as Penicillin/Streptomycin, cannot always protect cells, especially against non-fermenting Gram⁻ bacteria, a group of environmental bacteria, that are often multidrug resistant and thus very difficult to eliminate. InvivoGen can help! We introduce Normocure™, a novel very potent antibiotic cocktail for the elimination of virtually all the bacteria in cell cultures.

Broad-spectrum antibacterial agent

Staphylococcus sp.

Pseudomonas sp.

Bacillus sp.

Alcaligenes sp.

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To learn more, visit:
www.invivogen.com/normocure

- Highly potent antibiotic cocktail
- Active against multidrug resistant bacteria
- Visible results in as little as 3 to 4 days

InvivoGen

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Normocure™

Broad-spectrum antibacterial agent

Normocure™ is highly effective against Gram$^+$ and Gram$^-$ bacteria, including those resistant to penicillin/streptomycin.

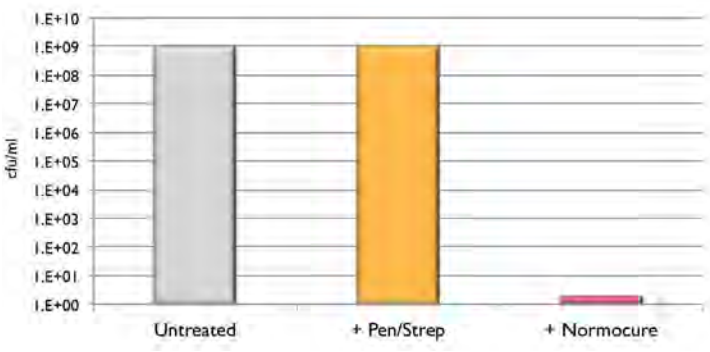
Potent antibiotic cocktail

Normocure™ contains three bactericidal components from different antibiotic families. They inhibit protein synthesis and disrupt membrane integrity, by acting against different targets that are absent in eukaryotic cells.

Low cytotoxicity

Upon treatment with Normocure™, cells might exhibit slowed growth. However, once Normocure™ has been removed from the culture medium at the end of treatment, the cells will rapidly return to their normal growth rate.

Normocure™ is provided as a ready-to-use solution at 50 mg/ml. Simply add it to bacteria contaminated cell cultures at the concentration of 100 µg/ml for 2 weeks. After the first passage, >99% of bacterial contaminants are eradicated. After 3 passages, the bacterial contamination is totally eliminated.



HEK293 cells (3 10^5 cells/ml) were spiked with a mixture of Gram$^-$ non-fermenting bacilli (*Pseudomonas aeruginosa, Alcaligenes xylosodans, Achromobacter sp. and Stenotrophomonas maltophilia*) at the concentration of 10^5 colony forming units (cfu)/ml, and were then either left untreated, or treated with 100 U/ml penicillin and 100 µg/ml streptomycin or with 100 µg/ml Normocure™. After 4 days at 37°C, 5% CO_2, the bacteria were quantified (cfu per ml).

Bacterial Contamination of Cell Cultures

Although microbial contamination of cell cultures has been known for over 50 years, it remains a widespread cause of erroneous research results, reduced reproducibility and even of unusable therapeutic products. Bacteria are found virtually everywhere, in the air, the soil, and water, and in and on plants and animals, including humans. These organisms can usually be readily detected in a cell culture within a few days of contamination, either directly, by microscopic observation, or indirectly, by their effects on the cell culture (pH shifts, turbidity [visible by naked eye from 10^5 cfu/ml], and cell destruction).

There are two major sources of bacterial contaminants: the animate environment (e.g. man) represented by *Staphylococcus species*, and the inanimate environment, represented by saprophytic and particularly by waterborne organisms, such as *Pseudomonas species* and *Flavobacterium species*[1]. The latter two bacterial species, as well as *Achromobacter sp., Alcaligenes sp.* and *Bordetella sp.*, are nonfermenting gram-negative bacilli, a heterogenous group of environmental opportunistic bacteria. Bacteria from this group have been reported to infect cell cultures[1-3] and to be very difficult to eliminate[4], as they are resistant to most antibiotics used to treat cell cultures, including penicillin/streptomycin.

1. Fogh J., 1973. Contamination in Tissue Culture, published by Academic Press Inc. **2. McGarrity GJ. & Coriell LL., 1971.** Procedures to reduce contamination of cell cultures. In Vitro. 6(4):257-65. **3. Gray JS. et al., 2010.** Got black swimming dots in your cell culture? Identification of Achromobacter as a novel cell culture contaminant. Biologicals. 38(2):273-7. **4. McGowan JE Jr., 2006.** Resistance in nonfermenting gram-negative bacteria: multidrug resistance to the maximum. Am J Med. 119(6 Suppl 1):S29-36; discussion S62-70.

PRODUCT	CATALOG CODE
Normocure™	ant-noc

Also Available

PRODUCT	APPLICATION	WORKING CONCENTRATION	QUANTITY	CAT. CODE
Fungin™	Treatment of fungal contaminations	10-50 µg/ml	5 x 1.5 ml (10 mg/ml)	ant-fn-1
Normocin™	Prevention of contamination by mycoplasmas, bacteria, and fungi	100 µg/ml	10 x 1 ml (50 mg/ml) 1 x 20 ml (50 mg/ml)	ant-nr-1 ant-nr-2
Plasmocin™ Prophylactic	Prevention of contamination by mycoplasmas	2.5 µg/ml	10 x 1 ml (2.5 mg/ml)	ant-mpp
Plasmocin™ Treatment	Treatment of mycoplasma contaminations	25 µg/ml	2 x 1 ml (25 mg/ml)	ant-mpt
Plasmocure™	Alternative treatment of mycoplasma contaminations	50 µg/ml	1 x 1 ml (100 mg/ml)	ant-pc
Primocin™	Prevention of contamination by mycoplasmas, bacteria, and fungi in primary cells	100 µg/ml	10 x 1 ml (50 mg/ml) 1 x 20 ml (50 mg/ml)	ant-pm-1 ant-pm-2

For more information, visit www.invivogen.com/cell-culture-contamination