Product Information

# Vitamin Mix Ready-Made Solution

Microbial Growth Medium Supplement

**MBD0063**

## Product Description

Vitamin mixtures are used regularly in promoting growth of bacteria and fungi from different types of microbiomes, such as from gut, rumen, soil, and water.[1,3-8] The use of vitamin mixtures helps scientists reduce time spent on creating the optimal conditions for microbial growth of a specific bacteria as well as diversified culturing of microbial samples.

Different types of bacteria (aerobic, anaerobic, extremophiles, etc.) require different combinations of a variety of vitamins to improve their cultivability. These include water-soluble vitamins, such as the B vitamins, which are a broad category of small molecules that are important for cell metabolism but otherwise do not necessarily share structural or functional characteristics.[9] In microbial studies the use of sequencing techniques is very common for identification of microorganisms in a certain habitat or niche. However, there is a discrepancy between the diversity that one can identify by culture techniques and by sequencing techniques. While the diversity of bacterial species identified by NGS techniques is very high, the number of culturable bacteria and fungi is much lower. With the growth of microbial research, new efforts to optimize culture-based techniques now allow the cultivation of previously uncultivated microbiome bacteria.[1,2]

## Features and Benefits

- Convenient ready-made solution to speed up media preparation
- Sterile solution
- Optimal mixture for growth of fastidious bacteria as well as diversified culturing of microbial samples

## Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

## Reagent

| 10 mL vitamin mix solution | mg/L |
|---|---|
| Biotin | 2 |
| Folic acid | 2 |
| Pyridoxine-HCl | 10 |
| Thiamine-HCl × 2 $H_2O$ | 5 |
| Riboflavin | 5 |
| Nicotinic acid | 5 |
| D-Ca-pantothenate | 5 |
| Cyanocobalamine | 0.1 |
| *p*-Aminobenzoic acid | 5 |
| Lipoic acid | 5 |
| $KH_2PO_4$ | 900 |

## Storage/Stability

Store this product at -20 °C. Protect from light.

## Preparation Instructions

Concentration 100×

## References


1. Sommer, M.O.A., Advancing gut microbiome research using cultivation. *Curr. Opin. Microbiol.* **27**, 127-132 (2015).
2. Lagier, J.-C. *et al.*, Culturing the human microbiota and culturomics. *Nat. Rev. Microbiol.*, **16**, 540-550 (2018).
3. Steinert, R.E. *et al.*, Vitamins for the Gut Microbiome. *Trends Mol. Med.*, **26(2)**, 137-140 (2020).
4. de Raad, M. *et al.*, A Defined Medium for Cultivation and Exometabolite Profiling of Soil Bacteria. *Front. Microbiol.*, **13**, 855331 (2022).
5. Bird, L. J. *et al.*, Serpentinimonas gen. nov., Serpentinimonas raichei sp. nov., Serpentinimonas barnesii sp. nov. and Serpentinimonas maccroryi sp. nov., hyperalkaliphilic and facultative autotrophic bacteria isolated from terrestrial serpentinizing springs. *Int. J. Syst. Evol. Microbiol.* **71(8)**, 004945 (2021).
6. Agostino, V. *et al.*, Environmental electroactive consortia as reusable biosensing element for freshwater toxicity monitoring. *N. Biotechnol.* **55**, 36-45 (2020).
7. Xu, X. *et al.*, Purification and characterization of anti-phytopathogenic fungi angucyclinone from soil-derived Streptomyces cellulosae. *Folia Microbiol. (Praha)*, **67(3)**, 517-522 (2022).
8. Peng, X. *et al.*, Genomic and functional analyses of fungal and bacterial consortia that enable lignocellulose breakdown in goat gut microbiomes. *Nat. Microbiol.* **6(4)**, 499-511 (2021).
9. Putnam, E. E., and Goodman, A.L., B vitamin acquisition by gut commensal bacteria. *PLoS Pathog.*, **16(1)**, e1008208 (2020).


## Notice

We provide information and advice to our customers on application technologies and regulatory matters to the best of our knowledge and ability, but without obligation or liability. Existing laws and regulations are to be observed in all cases by our customers. This also applies in respect to any rights of third parties. Our information and advice do not relieve our customers of their own responsibility for checking the suitability of our products for the envisaged purpose.

The information in this document is subject to change without notice and should not be construed as a commitment by the manufacturing or selling entity, or an affiliate. We assume no responsibility for any errors that may appear in this document.

### Technical Assistance

Visit the tech service page at SigmaAldrich.com/techservice.

### Terms and Conditions of Sale

Warranty, use restrictions, and other conditions of sale may be found at SigmaAldrich.com/terms.

### Contact Information

For the location of the office nearest you, go to SigmaAldrich.com/offices.




MBD0063pis Rev 08/23