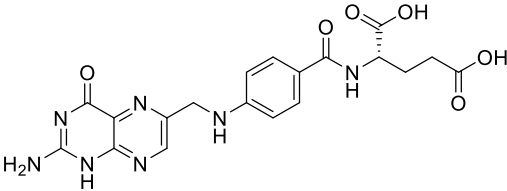


Product data sheet



MedKoo Cat#: 326806 Name: Folic acid CAS#: 59-30-3 Chemical Formula: C ₁₉ H ₁₉ N ₇ O ₆ Exact Mass: 441.1397 Molecular Weight: 441.404		
Product supplied as:		Powder
Purity (by HPLC):		≥ 98%
Shipping conditions		Ambient temperature
Storage conditions:		Powder: -20°C 3 years; 4°C 2 years. In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:

Folic acid, also known as Vitamin B9, is a B vitamin. Folic acid is made and used in fortified foods and supplements on the theory that it is converted into folate. However, folic acid is an oxidized form, not significantly found in fresh natural foods. To be used it must be converted to tetrahydrofolate (tetrahydrofolic acid) by dihydrofolate reductase (DHFR). Vitamin B9 is essential for numerous bodily functions. Humans cannot make folates; therefore, folic acid has to be supplied through the diet to meet their daily requirements. The human body needs folate to make DNA, repair DNA, and methylate DNA as well as to act as a cofactor in certain biological reactions. It is especially important in aiding rapid cell division and growth, such as in infancy and pregnancy. Children and adults both require folate to produce healthy red blood cells and prevent anemia.

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under “QC And Documents” section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	9.33	21.14
DMSO:PBS (pH 7.2) (1:1)	0.5	1.13
DMF	10.0	22.65

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.27 mL	11.33 mL	22.65 mL
5 mM	0.45 mL	2.27 mL	4.53 mL
10 mM	0.23 mL	1.13 mL	2.27 mL
50 mM	0.05 mL	0.23 mL	0.45 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of “Calculator”

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

1. Bagherieh M, Kheirollahi A, Zamani-Garmsiri F, Emamgholipour S, Meshkani R. Folic acid ameliorates palmitate-induced inflammation through decreasing homocysteine and inhibiting NF-κB pathway in HepG2 cells. Arch Physiol Biochem. 2021 Feb 17:1-8. doi: 10.1080/13813455.2021.1878539. Epub ahead of print. PMID: 33596128.
2. Yang H, Qin D, Xu S, He C, Sun J, Hua J, Peng S. Folic acid promotes proliferation and differentiation of porcine pancreatic stem cells into insulin-secreting cells through canonical Wnt and ERK signaling pathway. J Steroid Biochem Mol Biol. 2021 Jan;205:105772. doi: 10.1016/j.jsbmb.2020.105772. Epub 2020 Oct 19. PMID: 33091596.

In vivo study

Product data sheet



1. Zhang L, Li Z, Xing C, Ma X, Xu R. The protective mechanism of folic acid on hyperhomocysteinemia-related arterial injury in spontaneously hypertensive rats: Folic acid against arterial inflammation. *Vascular*. 2021 Aug 6;17085381211036549. doi: 10.1177/17085381211036549. Epub ahead of print. PMID: 34362270.
2. Budni J, Moretti M, Freitas AE, Neis VB, Ribeiro CM, de Oliveira Balen G, Rieger DK, Leal RB, Rodrigues ALS. Behavioral and neurochemical effects of folic acid in a mouse model of depression induced by TNF- α . *Behav Brain Res*. 2021 Aug 3;414:113512. doi: 10.1016/j.bbr.2021.113512. Epub ahead of print. PMID: 34358572.

7. Bioactivity

Biological target:

Folic acid (Vitamin M; Vitamin B9) is a B vitamin; is necessary for the production and maintenance of new cells, for DNA synthesis and RNA synthesis.

In vitro activity

In addition, FA (folic acid) could ameliorate inflammation and decrease ROS production induced by Hcy. Furthermore, FA pre-treatment suppress palmitate -induced (NF- κ B) p65 level in palmitate or Hcy stimulated cells.

Reference: *Arch Physiol Biochem*. 2021 Feb 17:1-8. <https://pubmed.ncbi.nlm.nih.gov/33596128/>

In vivo activity

FA (folic acid) significantly reduced the expression levels of nuclear factor- κ -gene binding (NF- κ B) p65/Rela and interleukin-6 (IL-6) in rat arterial tissues, as well as the levels of plasma HHcy and serum malondialdehyde (MDA) in hypertension associated with HHcy rats ($p < 0.05$).

Reference: *Vascular*. 2021 Aug 6;17085381211036549. <https://pubmed.ncbi.nlm.nih.gov/34362270/>

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.