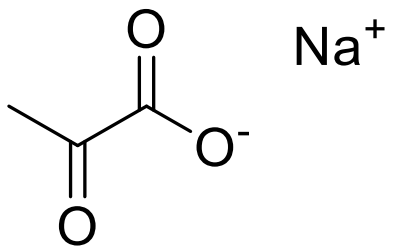
Product data sheet

MedKoo Cat#: 529813 Name: Pyruvate sodium CAS#: 113-24-6 (Sodium) Chemical Formula: $C_3H_3NaO_3$ Molecular Weight: 110.04	
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:
Sodium pyruvate is an antioxidant potentially for the treatment of chronic obstructive pulmonary disease.

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
Water	100.0	908.76

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	9.09 mL	45.44 mL	90.88 mL
5 mM	1.82 mL	9.09 mL	18.18 mL
10 mM	0.91 mL	4.54 mL	9.09 mL
50 mM	0.18 mL	0.91 mL	1.82 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. Zhang XM, Wang YZ, Tong JD, Ning XC, Zhou FQ, Yang XH, Jin HM. Pyruvate alleviates high glucose-induced endoplasmic reticulum stress and apoptosis in HK-2 cells. FEBS Open Bio. 2020 May;10(5):827-834. doi: 10.1002/2211-5463.12834. Epub 2020 Apr 10. PMID: 32150786; PMCID: PMC7193158.
2. Tornin J, Mateu-Sanz M, Rodríguez A, Labay C, Rodríguez R, Canal C. Pyruvate Plays a Main Role in the Antitumoral Selectivity of Cold Atmospheric Plasma in Osteosarcoma. Sci Rep. 2019 Jul 23;9(1):10681. doi: 10.1038/s41598-019-47128-1. PMID: 31337843; PMCID: PMC6650457.

In vivo study

1. Ma R, Wu Y, Zhai Y, Hu B, Ma W, Yang W, Yu Q, Chen Z, Workman JL, Yu X, Li S. Exogenous pyruvate represses histone gene expression and inhibits cancer cell proliferation via the NAMPT-NAD+-SIRT1 pathway. Nucleic Acids Res. 2019 Dec 2;47(21):11132-11150. doi: 10.1093/nar/gkz864. PMID: 31598701; PMCID: PMC6868375.
2. Saito K, Matsumoto S, Devasahayam N, Subramanian S, Munasinghe JP, Morris HD, Lizak MJ, Ardenkjaer-Larsen JH, Mitchell JB, Krishna MC. Transient decrease in tumor oxygenation after intravenous administration of pyruvate. Magn Reson Med. 2012 Mar;67(3):801-7. doi: 10.1002/mrm.23065. Epub 2011 Oct 17. PMID: 22006570; PMCID: PMC3262125.

7. Bioactivity
Biological target:
Pyruvate sodium is a free radical scavenger and has been shown to protect against hydrogen peroxide mediated apoptosis.

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In vitro activity

Pyruvate may be a potential treatment option for diabetic nephropathy. This study investigated the effects of pyruvate on high glucose-induced ER stress and apoptosis in HK-2 cells. Their results suggest that pyruvate treatment ameliorated the effects of high glucose, which can induce ROS production, apoptosis and ER stress in HK-2 cells.

Reference: FEBS Open Bio. 2020 May; 10(5): 827–834. https://pubmed.ncbi.nlm.nih.gov/31598701/

In vivo activity

This study found that pyruvate inhibited the proliferation of various types of cancer cells. Pyruvate administration reduced histone expression and inhibited tumor growth in xenograft mice without significant side effects. Intracellular pyruvate concentrations inversely correlate with histone protein levels in tissues from cervical and lung cancer patients.

Reference: Nucleic Acids Res. 2019 Dec 2; 47(21): 11132–11150. https://pubmed.ncbi.nlm.nih.gov/32150786/

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.