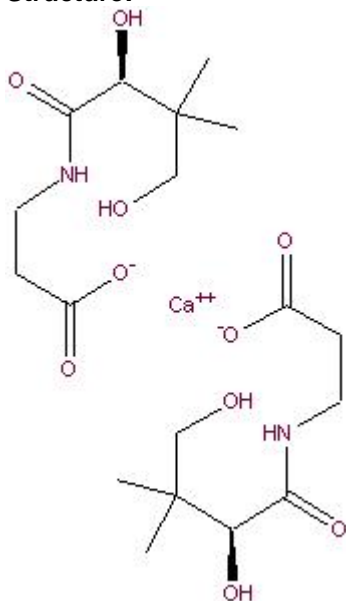


## TECHNICAL INFORMATION

Catalog Number: 101228, 194721

### D-Pantothenic acid calcium salt

#### Structure:



**Molecular Formula:** C<sub>18</sub>H<sub>32</sub>N<sub>2</sub>O<sub>10</sub>Ca

**Molecular Weight:** 476.53

**CAS # :** 137-08-6

**Synonyms:** D-Calcium pantothenate; Vitamin B5; (R)-(+)-N-(2,4-Dihydroxy-3,3-dimethyl-1-oxobutyl)-b-alanine hemicalcium salt; Chick antidermatitis factor

**Physical Description:** White to off-white powder

**Solubility:** Soluble in water (1 g/2.8 ml; pH of a 5% aqueous solution is 7.2-8.0; CO<sub>2</sub> free water: 8.7), glycerol; slightly soluble in ethanol or acetone.<sup>1</sup>

**Description:** An essential vitamin (except in horses, ruminants).<sup>1</sup> Pantothenic acid is involved in a number of biological reactions including:<sup>2</sup>

- A precursor in the biosynthesis of [coenzyme A](#).
- The production of energy.
- The catabolism of fatty acids and amino acids.
- The synthesis of fatty acids, phospholipids, sphingolipids, cholesterol and steroid hormones.
- The synthesis of heme and the neurotransmitter acetylcholine.
- Involved in the regulation of gene expression and in signal transduction.

The principal biologically active forms of pantothenic acid are [coenzyme A \(CoA\)](#) and acyl carrier protein (ACP). In both CoA and ACP, the business center of the molecule is the pantothenic acid metabolite 4'-phosphopantetheine. [Coenzyme A](#) is comprised of 4'-phosphopantetheine linked by an anhydride bond to the nucleotide adenosine 5'-monophosphate.

4'-Phosphopantetheine itself is comprised of pantothenic acid linked at one end, via an amide bond, to beta-mercaptoethylamine, derived from L-cysteine, and at the other end to a phosphate group. The sulfhydryl group of 4'-phosphopantetheine, which is the business end of the coenzyme, forms thioesters with acyl groups producing acyl-CoA derivatives, including [acetyl-CoA](#).<sup>2</sup>

Pantothenic acid and its derivatives, 4'-phosphopantothenic acid, pantothenol and pantethine, have been shown, in vitro, to protect cells against lipid peroxidation. This protective effect is thought to be due to its stimulation of increased cellular levels of coenzyme A. It has also been shown to increase levels of cellular reduced glutathione.<sup>2</sup>

#### Availability:

Catalog Number	Description	Size
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101228	D-Pantothenic acid calcium salt	5 g 25 g 100 g 500 g
194721	D-Pantothenic acid calcium salt, cell culture reagent	100 g 500 g

#### References:

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