

# L-Carnosine in Biotech Industry



Hamari Chemicals USA  
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## L-Carnosine in Cell Cultures

L-Carnosine is a natural dipeptide composed of two amino acids,  $\beta$ -alanine and L-histidine, and is found in high abundance in muscle, brain and other innervated animal and human tissues.<sup>1-2</sup> L-Carnosine is a naturally occurring antioxidant and transition-metal ion sequestering agent.<sup>3-6</sup> Indeed, L-carnosine was proven to scavenge reactive oxygen species (ROS) as well as alpha-beta unsaturated aldehydes formed from peroxidation of cell membrane fatty acids during oxidative stress. Apart from the function of protecting cells from oxidation-induced stress damage, L-carnosine appears to be able to extend the lifespan of cultured cells, rejuvenate senescent cells, inhibit the toxic effects of malondialdehyde and hypochlorite to cells, inhibit glycosylation of proteins and protein-DNA and protein-protein cross-linking, and maintain cellular homeostasis.<sup>7-9</sup>

## L-Carnosine and your Business

In the bio-pharmaceutical and bio-technology industries, L-carnosine is put in practice as a cell culture additive to improve protein production in mammalian cells,<sup>10-15</sup> as well as to cultivate stem cells.<sup>16-18</sup> Moreover, L-carnosine also has several applications in bioreactions and biosensor devices.<sup>19-21</sup> Interestingly, L-carnosine can be applied as a drug delivery system by utilizing L-carnosine derivatives in Avidin-Biotin Selective Delivery System to construct nanoparticle assemblies.<sup>22</sup>

Hence, L-carnosine should definitively be considered in your work if

- ✓ Your company uses mammalian cells to manufacture proteins
- ✓ Your company cultivates mammalian cells
- ✓ Your company manufactures bioreactor devices
- ✓ Your company is interested in novel drug delivery systems

## The Hamari Advantage

**Hamari Chemicals, Ltd.** is a global provider of active ingredients to the nutraceutical, cosmeceutical and pharmaceutical industries. We are a major Japanese cGMP manufacturer with over 65 years' experience in the industry, following stringent ICH guidelines. Our sites are US-FDA and Korea-FDA inspected and ISO 14001 certified.

**Why would you need our cGMP L-carnosine?** The Regulatory Authority will likely classify L-carnosine as a pharmaceutical necessity for your new biotech product. You can fully rely on us for support when a Regulatory Authority audits your company on your new product application! The manufacture of our synthetic L-carnosine is managed under strict cGMP, which means that *everything* is traceable. Our L-carnosine is rigorously regulated against microbes, impurities and residual solvents according to ICH guidelines. Moreover, we have diligently performed stability studies on our L-carnosine. You can rely on us for high quality L-carnosine at reasonable price, and top quality support services for Regulatory Authority submissions. If you need the very best, come to the very best!

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