

## Product Information

### Histone from calf thymus

Product Number **H 4255**  
 Storage Temperature 2-8 °C

#### Product Description

CAS Number: 37244-51-2

Histones are a group of basic proteins which form reversible complexes with DNA. Histones are characterized by relatively high levels of lysine and arginine.<sup>1</sup> The molecular weight of histones are approximately 11 to 21 kDa depending on the fraction.<sup>2</sup> Five different fractions have been isolated and characterized.<sup>2,3,4,5</sup>

Special precautions should be taken when running electrophoresis gels of basic proteins such as histones. Normal SDS-PAGE conditions give anomalous results. An acid-urea-detergent system should be used and the polarity of the poles reversed.<sup>6</sup> A method for the purification of the five main histone fractions from calf thymus by gel exclusion chromatography<sup>7</sup> has been published as well as other methods.<sup>8</sup>

	<b>Molecular Weight</b>	<b>Bradbury<sup>4</sup></b>	<b>Johns<sup>2</sup></b>
Lysine Rich	21.5 kDa	H1	f <sub>1</sub>
Slightly Lysine Rich	14.0 kDa	H2a	f <sub>2a</sub>
Slightly Lysine Rich	13.8 kDa	H2b	f <sub>2b</sub>
Arginine Rich	15.3 kDa	H3	f <sub>3</sub>
Arginine Rich	11.3 kDa	H4	f <sub>2a1</sub>

The lysine rich fraction (H1) is thought to act as a link between "beads" (nu bodies) on the chromatin chain.<sup>1</sup> A review of histones<sup>9</sup> and their characterization and amino acid sequences<sup>10</sup> have been published. Histone preparations offered by Sigma include:

Product No. H 6005 is a heterogenous mixture of all the histone fractions prepared slightly differently from Product No. H 7755.  
 Product No. H 7755 is a heterogenous mixture of all the histone fractions prepared slightly differently from Product No. H 6005.  
 Product No. H 9250 is unfractionated whole histone.  
 Product No. H 5505 is an isolated<sup>11</sup> lysine rich fraction of mainly subfraction f<sub>1</sub> in character.  
 Product No. H 4524 is an isolated<sup>11</sup> lysine rich fraction of mainly subfraction f<sub>1</sub> in character. It is tested and found suitable as a substrate for protein kinase C.  
 Product No. H 4255 is a slightly lysine rich fraction with the predominant form similar to subfraction f<sub>2b</sub>.  
 Product No. H 4380 is an arginine rich fraction with the predominant form similar to subfraction f<sub>3</sub>.

#### Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

#### Preparation Instructions

Histones are soluble in water (10 mg/ml) or 0.5 N HCl (10 mg/ml), yielding a clear to hazy solution depending on the fraction. They are soluble in 6 M urea (4-10 mg/ml), but this will denature the histones.

Histones dissolved or suspended in water should be stable for at least 6 months when frozen in single use aliquots.

#### References

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5. Bradbury, E. M. Histone Nomenclature in The Structure and Function of Chromatin, (Fitzsimmins, D. W., and Wolstenholme, G. E. W., eds.) pg. 4, CIBA Foundation Symposium 28, American Elsevier, New York (1975).
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7. Bohm, E.L., et al., Purification of the five main calf thymus histone fractions by gel exclusion chromatography. *FEBS Letters*, **34(2)**, 217-221 (1973).
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7/03

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