

## Product Information

### Histone from calf thymus Type III-S

Catalog Number **H5505**  
Storage Temperature 2-8 °C

CAS RN: 9064-47-5

#### Product Description

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 11-21 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>

|                      | Molecular Weight | Bradbury <sup>4</sup> | Johns <sup>2</sup> |
|----------------------|------------------|-----------------------|--------------------|
| 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:

#### Reagent

Lysine-rich fraction as isolated and described by de Nooij, E. and Westenbrink, H.G.<sup>11</sup>

#### Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

#### 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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3. Johns, E., and Butler, J., Further Fractionations of Histones from Calf Thymus, *Biochem. J.*, **82**, 15 (1962).
4. Johns, E. W., Studies on histones. 7. Preparative methods for histone fractions from calf thymus. *Biochem. J.*, **92(1)**, 55-59 (1964).
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).
6. Andrews, A. T., Electrophoresis Theory, Techniques, and Biochemical and Clinical Applications, 2nd ed., Oxford Science Publications, pp. 141-143.
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).

8. Oliver, D., et al., A modified procedure for fractionating histones. *Biochem. J.*, **129(2)**, 349-353 (1972).
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10. Handbook of Biochem. and Mol. Biol., 3rd ed., Proteins, Vol. II, p. 294 (1986).
11. de Nooij, E. and Westenbrink, H.G. *Biochim. Biophys. Acta*, **62**, 608 (1962).

PHC 01/11-1

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