

Expression of functional *Carassius auratus* originated novel DNA-binding histone H1 in *Escherichia coli*

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Histones are DNA-binding proteins having function to assist in DNA packaging and protection. In the present work, we cloned novel histone H1 cDNA (638 bp) from goldfish *Carassius auratus* and this histone H1 amino acid sequence was shared 68.1% identity and 73.9% positives with that from rainbow trout *Salmo gairdneri*. We successfully expressed whole length recombinant histone H1 (~20 kDa) using maltose binding protein (MBP) fusion strategy in *Escherichia coli* expression system. We found that this recombinant histone H1 protein had functionality on DNA binding and protection. In addition, the C-terminal domain (~ 6 kDa) of histone H1 with 61 amino acids also maintained same abilities. Based on these results, this novel histone H1 protein, especially its derived C-terminal peptide, could be used as a potential mediator for efficacious gene delivery system.

References

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