Volume 16 Number 3 1988 Nucleic Acids Research

The nucleotide sequence of chicken smooth muscle myosin light chain two

Paul J.Zavodny, Mary E.Petro, C.Chandra Kumar[1], Stephen H.Dailey, Herinder K.Lonial, Satwant K.Narula* and Paul J.Leibowitz[1]

Departments of Biotechnology-Molecular Biology and [1]Tumor Biology, Schering Corporation, Bloomfield, NJ 07003, USA
Submitted November 23, 1987 Accession no.X06387

Chicken smooth muscle regulatory, phosphorylatable myosin light chain (MLC_2) was isolated from a chicken gizzard cDNA library constructed in lambda gt10. The 1075 base pair clone (including poly A tail) was obtained by screening the library with a rat aorta smooth muscle MLC_2 cDNA obtained from Dr. Mark Taubman(1). Prior to obtaining this cDNA, two sequences had been published from amino acid analysis of chicken smooth muscle MLC_2 tryptic peptides which differed at the amino terminus(2,3). The coding region (deduced from the cDNA sequence presented here, initiation and termination codons boxed) predicts a 171 amino acid MLC_2, which is identical to that obtained by Pearson et al.(2) from analysis of the purified chicken gizzard protein over the first seventeen amino acids containing the phosphorylation site. The remainder of the predicted protein is identical to that obtained by Maita et al.(3). Although the DNA sequence for the MLC_2 coding region shares 82% homology with the rat cDNA(1), the proteins encoded by the DNAs are 94% homologous. Since most of the DNA changes are at third base positions (and the untranslated regions are divergent) there is a strong evolutionary conservation pressure to maintain the smooth muscle MLC_2 protein sequence.

```
                                                                    100
GCTGTCACCT TCCCCCCAAC GCACTGAGGC CGGATCCCCC CCCCGAGGTA CCACCCCAGC TGCCAACATG TCCAGCAAAC GTGCCAAAGC CAAGACCACC
                                                                    200
AAGAAGCGCC CGCAGCGCGC CACCTCCAAT GTCTTCGCTA TGTTCGACCA GTCACAGATC CAGGAGTTCA AGGAAGCTTT CAACATGATC GACCAGAACC
                                                                    300
GTGACGGGTT CATTGACAAG GAGGATCTGC ATGACATGCT GGCTTCCATG GGGAAAAACC CCACCGACGA GTACCTGGAG GGGATGATGA GTGAGGCACC
                                                                    400
GGGGCCCATC AACTTCACCA TGTTCCTCAC CATGTTTGGG GAGAAGCTGA ATGGCACCGA CCCGGAGGAT GTAATCCGCA ATGCCTTTGC CTGCTTTGAC
                                                                    500
GAGGAGGCGT CAGGGTTCAT TCACGAGGAC CATCTGCGTG AACTGCTGAC CACCATGGGA GACAGGTTCA CTGACGAGGA GGTGGACGAG ATGTACCGGG
                                                                    600
AGGCGCCCAT CGACAAGAAG GGCAACTTCA ACTATGTGGA GTTCACCCGC ATCCTGAAGC ACGGAGCTAA GGACAAGGAC GATTAGAGCT GAGAGCCGCC
                                                                    700
CCCCTGCCTT CCCGCACGTG CCACCCACGC TCCCGCACGT GCCACCCACG CCCCTGCCCC TCGCTGCCCA GCCCCACCAT AGGCTCCCCC TGCCGGGACA
                                                                    800
GCCCTGCTCC GTGCTGGTGC TGCCATCGCG TGCCTGCCTG TCCTCTCCCA TTGCCCCGGG ATCCCAGCCA GGCTCCCCCC CACGACGACC GCTGGCTCAC
                                                                    900
CCTGCTCAGC AGAGGGTCCA GACAGGGGCA GGCAGCCGGG GAGTGCTGGC CGGGGGAGTT CCGGCTGGCT CAAAGCAGTG CAACCTCTCC AGAGGACCTA
                                                                   1000
ACACAGAAGG AAGCTCTCCC TTTCTCCACA CTCCCTTCCT TAGGAAAGAA AGAAAAGAAC TTTTGTTTCC TCCTCTTTGG CTGTTTTATG GCTTTAGAGC

CTGTGATCTA CGGGATTCAG AAAGCTGAAG CAGCCTATAA AGTCTGATGG GTGTGACAAA AAAAAAAAAA AAAAA
```

ACKNOWLEDGEMENTS

We are grateful to Drs. Mark Taubman and B. Nadal-Ginard for providing us with the rat MLC_2 clone and Ms Rita Cunniff for typing the manuscript.

*To whom correspondence should be addressed

REFERENCES

1. Taubman, M. B., Grant, J. W. and Nadal Ginard, B. (1987) J. Cell. Biol 104:1505-1513.
2. Pearson, R. B., Jakes, R., John, M., Kendrick-Jones, J. and Kemp, B. E. (1984) FEBS Lett. 168:108-112.
3. Maita,T., Chen, J. I. and Matsuda, G. (1981) Eur. J. Biochem 117:417-424.

