

The complete nucleotide sequences of cDNA clones coding for human myosin light chains 1 and 3

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Full length clones for human fast fiber type myosin light chains 1 and 3 were isolated from a fetal skeletal muscle cDNA library cloned in lambda GT 11. The nucleotide sequences were determined in M13 subclones and proven to be identical except for 201 and 79 nucleotides at the 5' end of LC1 and LC3, respectively. The coding sequences are approximately 80 % homologous to chicken (1), mouse (2) and rat (3). For these organisms it had been shown that both mRNAs are generated from two separate transcripts of one gene by an alternative splicing pathway which utilizes two different exons each for the N-terminus and five common exons for the body and C-terminus of the proteins. A similar arrangement is suggested for man by the presented cDNA sequences.

<p>1 MLC 1 TCAAAGCCAGTGTCCCTGAAGATGGACCCCTTTAAAAAAGGACCCAAA 55 GAAAGACGTGAAGAAACCTGTGGCTGCGGCTGCGGCTGCCACGCCCCGACACCGCCACCC 115 TGCACCTGCGCCCTGCCCCAGGCCAAACCCAAAGAAGAAAATTAAGCCCTCTGCACTTAA 1 MLC 3 GAGCCTAACTACTCTTAGCCTCCCTGCTGTGTGCTGCCACGCCCTCCAT 175 GATGGAGTTCTCTAAGGAAACAGCAGGATGAATTAAGGAGGCAATTCCTCCTTTGACAG 53 CATGTCTCTCAGTCTGACAGATTGCTGAATTAAGGAGGCAATTCCTCCTTTGACAG 235 AACAGGTGATCCCAAGATCACTTAAAGCCAGGTCGGTGAATCTCTCGAGCCCTGGGCAC 113 AACAGGTGATCCCAAGATCACTTAAAGCCAGGTCGGTGAATCTCTCGAGCCCTGGGCAC 295 AAAATCCCAACCAATTCAGAGGTCAGGAAAGTTCTGGAAAACCCCAACCAATGAAGAGCTCAA 173 AAAATCCCAACCAATTCAGAGGTCAGGAAAGTTCTGGAAAACCCCAACCAATGAAGAGCTCAA 355 TGGCAGAAAAATGAGCTTGAACAATTTCTGCCTATGATGCAAGCCATTCGCCAACAA 215 TGGCAGAAAAATGAGCTTGAACAATTTCTGCCTATGATGCAAGCCATTCGCCAACAA 415 GGAACGAGCCACCTATGAAAGCTTTCTGAGGCTCTGCGCTGTCTTGAAGGAAGGCAAA 293 GGAACGAGCCACCTATGAAAGCTTTCTGAGGCTCTGCGCTGTCTTGAAGGAAGGCAAA 475 TGGCAGCATCTATGGCTGCTGAACTCCGCCATGCTTACGCCACCCCTGGTGAAGAAATGAA 555 TGGCAGCATCTATGGCTGCTGAACTCCGCCATGCTTACGCCACCCCTGGTGAAGAAATGAA</p>	<p>535 AGAGGAAGAAGTGGAAAGCCCTGATGGCAGGTCAAGAAAGCTCCAAATGGCTGCATCAACTA 413 AGAGGAAGAAGTGGAAAGCCCTGATGGCAGGTCAAGAAAGCTCCAAATGGCTGCATCAACTA 695 CGAAGCTTTTGTCAAGCACATCACTCTAATCTGAAATGGAGCTCTCAAGAAACAGCATTT 473 CGAAGCTTTTGTCAAGCACATCACTCTAATCTGAAATGGAGCTCTCAAGAAACAGCATTT 655 TTAGGAAGACTGGCTGGAAACTTATTTAAATCAACCCATGACAAACTTCCAGATCTGT 593 TTAGGAAGACTGGCTGGAAACTTATTTAAATCAACCCATGACAAACTTCCAGATCTGT 715 TTACCATCATTCAGGAAAAAACAAGCAATCTGGACGTTCAAGACTCAGCAACTCCCTGAA 593 TTACCATCATTCAGGAAAAAACAAGCAATCTGGACGTTCAAGACTCAGCAACTCCCTGAA 775 TTTTATACATCTTCAGTTTCTCTGAAATGAAATTCATACACAAACAATGTCTCC 653 TTTTATACATCTTCAGTTTCTCTGAAATGAAATTCATACACAAACAATGTCTCC 835 TGCTCTAGATGAGAAATAAATAATGACAACTCAAATCAAAGCAGCCCTCTTTATTA 713 TGCTCTAGATGAGAAATAAATAATGACAACTCAAATCAAAGCAGCCCTCTTTATTA 895 TCTACCATGAATCAAGAAACCTTCTTAAACAATAAATAAACAATTTGGTCACT 773 TCTACCATGAATCAAGAAACCTTCTTAAACAATAAATAAACAATTTGGTCACT 955 CTGAAAAAAAAA 833 CTGAAAAAAAAA</p>
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References:

- 1) Nabeshima, Y., Fuji-Kuriyama, Y., Musamatsu, M. and Ogata, U., (1984) *Nature* 308, 333-338
- 2) Robert, B., Daubas, P., Akimenko, M.-A., Chohen, A., Garner, J., Guenet, J.-L. and Buckingham, M. (1984), *Cell* 39, 129-140
- 3) Periasamy, M., Strehler, E.E., Garfinkel, L.J., Gubits, R.M., Ruiz-Opazo, N. and Nadal-Ginard, B. (1984), *J. Biol. Chem.* 259, 13595-13604