The nucleotide sequence of *Ly 48* (mouse leukosialin, sialophorin): the mouse homolog of CD43

K.S.Dorfman, W.Litaker, C.M.Baecher and J.G.Frelinger*

Cancer Center Immunology Unit and Department of Microbiology and Immunology, University of Rochester Medical Center, Rochester, NY 14642, USA

Ly 48, also known as mouse leukosialin, is a major sialoglycoprotein on the surface of a number of hematopoietic cells. *Ly 48* is the homolog of the human CD43 gene (1, 2) (also known as large sialoglycoprotein, sialophorin, and leukosialin) and the rat W3/13 gene (3). The precise physiologic role of leukosialin is unknown, however the molecule has been implicated in proliferation, Ca^{+2} signalling, and cell adhesion. Characteristic isoforms of leukosialin are found on different cell types and on activated cells. Defects in CD43 expression have been correlated with Wiskott-Aldrich Syndrome, an X-linked immunodeficiency disease.

We used a partial mouse cDNA clone encoding mouse leukosialin, ML18 (4) to screen a mouse B10.P cosmid library constructed in the Lorist II vector (5). Two independent cosmid clones were isolated. Transfection, PCR and RNA blot analysis indicated that one of the clones encoded *Ly 48*. This clone was then subcloned into Bluescript and M13 and sequenced by the dideoxy method. The predicted protein sequence was analysed using GCG software and found to be 74% identical to rat leukosialin and 53% identical to human leukosialin (6). The predicted coding region, based on similarity to the human, rat and partial mouse cDNA sequences, contained no introns which

is unusual for a mammalian transmembrane cell surface protein and suggests that the alternative molecular weight isoforms of leukosialin are due to post-translational processes.

ACKNOWLEDGEMENT

REFERENCES

1. Pallant,A., Eskenazi,A., Mattei,M., Fournier,R.E.K., Carlsson,S., Fukuda,M. and Frelinger,J.G. (1989) *Proc. Natl. Acad. Sci. USA* **86**, 1328–1332.
2. Shelley,C.S., Remold-O'Donnell,E., Davis III,A.E., Bruns,G.A.P., Rosen,F.S., Carroll,M.C. and Whitehead,A.S. (1989) *Proc. Natl. Acad. Sci. USA* **86**, 2819–2823.
3. Killeen,N., Barclay,A.N., Willis,A.C. and Williams,A.F. (1987) *EMBO J.* **6**, 4029–4034.
4. Baecher,C.M., Dorfman,K.S., Mattei,M.G. and Frelinger,J.G. (1990) *Immunogenetics* (in press).
5. Little,P.F.R. and Cross,S.H. (1985) *Proc. Natl. Acad. Sci. USA* **82**, 3159–3163.
6. Devereux,J., Haebert,P. and Smithies,O. (1984) *Nucleic Acids Res.* **12**, 387–395.

```
atggccttgcaccttctcctcctctttggggcatgctgggtccaggtggcgagcccagacagtctgcagaggacgacgatgctaccatctaccccacatatcacagctccaagt
 M   A   L   H   L   L   L   L   F   G   A   C   W   V   Q   V   A   S   P   D   S   L   Q   R   T   T   M   L   P   S   T   P   H   I   T   A   P   S

acctctgaagcccagaatgccagcccatcagtttctgtggggtcagggacagtggactcgaaggagaccatcagcccctggggggcagaccacaatcccagtttctttgacccc
 T   S   E   A   Q   N   A   S   P   S   V   S   V   G   S   G   T   V   D   S   K   E   T   I   S   P   W   G   Q   T   T   I   P   V   S   L   T   P

ttggaaactactgaattgtcttctttggagacttctgctggtgccagcatgagcacccctgtacctgagcctactgcctctcaggaagtttccagcaagacatcagcactgctt
 L   E   T   T   E   L   S   S   L   E   T   S   A   G   A   S   M   S   T   P   V   P   E   P   T   A   S   Q   E   V   S   S   K   T   S   A   L   L

ccagaaccatcaaatgtagccagtgaccctcctgtcactgcagccaatcctgtgacagacggacctgcagccaatcctgtgacagacggaactgcagcatctacatctatctct
 P   E   P   S   N   V   A   S   D   P   P   V   T   A   A   N   P   V   T   D   G   P   A   A   N   P   V   T   D   G   T   A   A   S   T   S   I   S

aaaggaaccagtgcaccccccaccactgtgacaacaagctctaacgagaccagtggaccctctgtggctacaacagtaagctccaagaccagtggtcccctgtcaccacagct
 K   G   T   S   A   P   P   T   T   V   T   T   S   S   N   E   T   S   G   P   S   V   A   T   T   V   S   S   K   T   S   G   P   P   V   T   T   A

actgggtctctggggccctcgagtgagatgcatggactccctgctaccacagcaaccagttctgtggagagttccagtgtggcccgtggcacctcagtttccagcagaaaaaca
 T   G   S   L   G   P   S   S   E   M   H   G   L   P   A   T   T   A   T   S   S   V   E   S   S   S   V   A   R   G   T   S   V   S   S   R   K   T

tccacgacgtctacccaagatcccataaccaccaggtcaccaagccaagaatcaagtggcatgttactggtgcccatgcttattgccttggtggtggttttgtccctcgtggcg
 S   T   T   S   T   Q   D   P   I   T   T   R   S   P   S   Q   E   S   S   G   M   L   L   V   P   M   L   I   A   L   V   V   V   L   A   L   V   A

ctactgctgttgtggcgccagaggcaaaagcggaggactgggccctgaccctgagcggaggaggaaaacgaaatggggtggtggatgcctgggctgggccagcccgggttcct
 L   L   L   L   W   R   Q   R   Q   K   R   R   T   G   A   L   T   L   S   G   G   G   K   R   N   G   V   V   D   A   W   A   G   P   A   R   V   P

gatgaagaggccacaaccacatcaggggcaggggggcaacaagggctctgaggtactggagacagaaggctccgggcagagacccacgctcactacgttcttcagcagacggaag
 D   E   E   A   T   T   T   S   G   A   G   G   N   K   G   S   E   V   L   E   T   E   G   S   G   Q   R   P   T   L   T   T   F   F   S   R   R   K

tctcgccagggctctttagtactagaagagctgaagcctgggtcgggtcccaacctgaaggggggaggaagagccgcttgtgggcagtgaggatgaagctgtggaaaccccaact
 S   R   Q   G   S   L   V   L   E   E   L   K   P   G   S   G   P   N   L   K   G   E   E   E   P   L   V   G   S   E   D   E   A   V   E   T   P   T

tctgacggtccacaagccaaagatgaggccgcacctcaatctctatga 1188
 S   D   G   P   Q   A   K   D   E   A   A   P   Q   S   L   *
```

---

* To whom correspondence should be addressed