Sequence of MyD116 cDNA: a novel myeloid differentiation primary response gene induced by IL6

Kenneth A.Lord, Barbara Hoffman-Liebermann and Dan A.Liebermann*

Department of Biochemistry and Biophysics, University of Pennsylvania School of Medicine, Philadelphia, PA 19104, USA

cDNA clones of myeloid differentiation primary response (MyD) genes activated in the absence of protein sysnthesis in M1 myeloblastic leukemia cells induced for terminal differentiation by IL6, have been isolated (1). Here we report the full length nucleotide and deduced amino-acid sequences of MyD116, a novel MyD gene, which exhibits biphasic kinetics of expression, with an early peak (1 hr) and a decline followed by increased levels of steady state mRNA in terminally differentiated M1 cells (1). MyD116 expression was observed also in murine bone-marrow, but not in non-myeloid tissues (1). MyD116 encodes for a 2.5 kb mRNA, having a very short 3' untranslated region with multiple AT₃ motifs (underlined), implicated in mRNA destabilization (2). The MyD116 encoded protein (657aa) harbors 419 almost perfect 38aa long repeats (underlined), each containing a PEST region, characteristic of short lived proteins (3). The

MyD116 protein does not contain protein secretory signals, transmembrane domains or known protein-DNA binding motifs; it contains, however, potential protein kinase phosphorylation sites (position 4, 181), amidation site (position 653), and 19 casein kinase II phosphorylation sites, including 3 in each repeat.

ACKNOWLEDGEMENTS

REFERENCES

1. Lord,K. et al. (1990) Oncogene in press.
2. Shaw,G. and Kamen,R. (1986) Cell 46, 659.
3. Rechsteiner,M. et al. (1987) TIBS 12, 390.

```
GCTCTGAGTTTGTGGAAGATTACATGCGATATCCCGCGCGACCCCGCATCCCTTTGCCGGCCGGGACAGCCTTTGCTACAGCCTGTGAAACATTGCGTCCCCGA 104
GCCCCACGCCTGAGGGCGACATGAACCCGCTGGCTTCGCGAGCAGTCCGGACCCACGATCGCTTTTGGCAACCAGAACCGGCGCTTCAGCCCCCGGGGTGACGT 208
             M  A  P  S  R  P  Q  H  V  L  H  W  R  D  A  H  N  F  Y  L  L  S  P  L  M  G  L
GCAGCCCGCCGCCCAGACACATGGCCCCGAGCCCAAGACCCCAGCATGTCCTGCACTGGAGGGACGCCCACAACTTCTATCTCCTGTCCCCACTGATGGGCTTG 312
 L  S  R  A  W  S  R  L  R  G  P  E  V  P  E  A  W  L  A  K  T  V  T  G  A  D  Q  I  E  A  A  A  L  L  T
CTCAGTCGGGCCTGGAGCCGCCTGAGGGGCCCAGAAGTCCCAGAGGCATGGCTGGCAAAAACAGTAACAGGAGCAGATCAGATAGAAGCTGCGGCTCTGCTGAC 416
 P  T  P  V  S  G  N  L  L  P  H  G  E  T  E  E  S  G  S  P  E  Q  S  Q  A  A  Q  R  L  C  L  V  E  A
ACCTACCCCTGTCTCTGGTAACCTCCTCCCTCATGGGGAGACTGAAGAAAGTGGATCTCCTGAACAGAGTCAAGCAGCCCAGAGGCTCTGCCTTGTGGAAGCTG 520
 E  S  S  P  P  E  T  W  G  L  S  N  V  D  E  Y  N  A  K  P  G  Q  D  D  L  R  E  K  E  M  E  R  T  A  G
AAAGTTCCCCTCCTGAAACTTGGGGACTTTCAAATGTTGATGAGTACAATGCAAAGCCAGGACAAGATGACCTTAGAGAGAAGGAAATGGAACGCACAGCTGGC 624
 K  A  T  L  Q  P  A  G  L  Q  G  A  D  K  R  L  G  E  V  V  A  R  E  E  G  V  A  E  P  A  Y  P  T  S  Q
AAGGCCACACTACAGCCCGCTGGCCTGCAAGGGGCTGATAGAGGCTTGGGGAGGTGGTGGCTAGAGAGAGGGAGTGGCTGAGCCCGCTTATCCCACATCACA 728
 L  E  G  G  P  A  E  N  E  E  D  G  E  T  V  K  T  Y  Q  A  S  A  A  S  I  A  P  G  Y  K  P  S  T  P
GCTGGAGGGTGGTCCAGCTGAGAATGAAGAGGATGGAGAAACAGTGAAGACTTACCAAGCTTCTGCTGCTTCCATAGCTCCGGGATACAAACCCAGCACCCCTG 832
 V  P  F  L  G  E  A  E  H  Q  A  T  E  E  K  G  T  E  N  K  A  D  P  S  N  S  P  S  S  G  S  H  S  R  A
TGCCTTTCTTGGGGGAGGCAGAACATCAAGCCACGGAAGAAAAAGGAACAGAAAACAAGGCTGACCCCTCCAACTCTCCTTCTTCAGGCTCCCACTCCAGAGCC 936
 W  E  Y  Y  S  R  E  K  P  K  Q  E  G  E  A  K  V  E  A  H  R  A  G  Q  G  H  P  C  R  N  A  E  A  E  E
TGGGAGTACTACTCTAGAGAGAAGCCTAAGCAGGAGGGAGAAGCCAAGGTAGAGGCACACAGGGCAGGGCAGGGTCACCCTTGTCGGAATGCTGAGGCTGAGGA 1040
 G  G  P  E  T  T  F  V  C  T  G  N  A  F  L  K  A  W  V  Y  R  P  G  E  D  T  E  E  E  D  N  S  D  S
AGGAGGACCTGAGACAACTTTTGTCTGTACTGGAAATGCCTTCCTGAAGGCCTGGGTGTATCGCCCAGGAGAGGACACAGAGGAAGAAGACAACAGCGATTCGG 1144
 D  S  A  E  E  D  T  A  Q  T  G  A  T  P  H  T  S  A  F  L  K  A  W  V  Y  R  P  G  E  D  T  E  E  D
ATTCAGCTGAGGAAGACACAGCTCAGACCGGTGCCACCCCCCATACAAGTGCCTTCCTGAAGGCCTGGGTGTATCGCCCAGGAGAGGACACAGAGGAAGAAGAC 1248
 S  D  S  D  S  A  E  E  D  T  A  Q  T  G  A  T  P  H  T  S  A  F  L  K  A  W  V  Y  R  P  G  E  D  T  E
AGCGATTCGGATTCAGCTGAGGAAGACACAGCTCAGACCGGTGCCACCCCCCATACAAGTGCCTTCCTGAAGGCCTGGGTGTATCGCCCAGGAGAGGACACAGA 1352
 E  E  N  S  D  L  D  S  A  E  E  D  T  A  Q  T  G  A  T  P  H  T  S  A  F  L  K  A  W  V  Y  R  P  G
GGAAGAAAACAGCGATTTGGATTCAGCTGAGGAAGACACAGCTCAGACCGGTGCCACCCCCCATACAAGTGCCTTCCTGAAGGCCTGGGTGTATCGCCCAGGAG 1456
 E  D  T  E  E  E  N  S  D  L  D  S  A  E  E  D  T  A  Q  T  G  A  T  P  H  T  S  P  F  L  K  A  W  V  Y
AGGACACAGAGGAAGAAAACAGCGATTTGGATTCAGCTGAGGAAGACACAGCTCAGACCGGTGCCACCCCCACATACAAGTCCCTTCCTGAAGGCCTGGGTGTAT 1560
 R  P  G  E  D  T  E  D  D  T  E  E  E  D  S  E  N  V  A  P  G  D  S  E  T  A  D  S  S  Q  S  P  C  L
CGCCCAGGAGAGGACACAGAAGATGACACAGAAGAGGAAGGAGGACAGTGAGAATGTGGCCCCAGGTGACTCAGAAACAGCTGACTCAAGCCAGAGTCCCTGCCT 1664
 Q  P  Q  R  C  L  P  G  E  K  T  K  G  R  G  E  E  P  P  L  F  Q  V  A  F  Y  L  P  G  E  K  P  E  S
TCAGCCCCAGCGTTGTCTACCAGGAGAGAAGACCCAAGGGACGTGGGGAAGAGCCCCCTCTCTTCCAGGTGGCCTTCTATTTACCCGGAGAGAAGCCAGAATCAC 1768
 P  W  A  A  P  K  L  P  L  R  L  Q  R  R  L  R  L  F  K  A  P  T  R  D  Q  D  P  E  I  P  L  K  A  R  K
CTTGGGCTGCACCTAAGCTGCCCCTTCGACTGCAGAGGCGGCTCAGATTGTTCAAAGCCCCCACCCGGGATCAGGACCCCGAGATTCCTCTAAAAGCTCGGAAG 1872
 V  H  F  A  E  K  V  T  V  H  F  L  A  V  W  A  G  P  A  Q  A  A  R  R  G  P  W  E  Q  F  A  R  D  R  S
GTACACTTCGCTGAGAAAGTCACAGTCCATTTCCTTGCTGTCTGGGCAGGACCAGCCCAAGCTGCCCGTCGAGGTCCCTGGGAGCAGTTTGCACGAGATCGAAG 1976
 R  F  A  R  R  I  A  Q  A  E  E  K  L  G  P  Y  L  T  P  D  S  R  A  R  A  W  A  R  L  R  N  P  S  L
CCGCTTTGCTCGACGCATTGCCCAGGCAGAGGAGAAGCTGGGTCCCTACCTTACCCCTGATTCCAGGGCCAGAGCATGGGCACGCCTTAGAAACCCATCTCTTC 2080
 P  Q  S  E  P  R  S  S  E  A  T  P  L  T  Q  D  V  T  T  P  S  P  L  P  S  E  T  P  S  P  S  L  Y  L
CACAGTCCGAGCCTCGCTCTTCCTCTGAGGCCACTCCCTTGACCCAAGATGTGACCACACCCTCTCCCCTTCCCAGTGAAACCCCTTCGCCCAGCCTGTACTTG 2184
 G  G  R  R  G  ***  657
GGAGGGAGGCGGGGCTAAGCCTGAGTAGTTTCCTATTATTTATTTATTTATTTATTTGAATAAGAAATAAAGCCTTTTAATTTGTAGTGATAAAAAAAAAAAA 2288
AAAAAAA                                                                                                  2295
```