

IV

CELLULAR PROTEINS

BCL	IV-2
BOVATP	IV-4
E6AP	IV-5
ERC55/E6BP	IV-6
IGF	IV-7
IGFR	IV-8
MDM2	IV-10

BCL

LOCUS HUMBCL2A 5086 bp mRNA PRI 31-OCT-1994
DEFINITION Human B-cell leukemia/lymphoma 2 (bcl-2) proto-oncogene mRNA
encoding bcl-2-alpha protein, complete cds.
ACCESSION M13994
KEYWORDS alternative splicing; bcl-2-alpha protein; proto-oncogene.
SOURCE Human pre-B-cell leukemia cell line 380, cDNA to mRNA, clones
B[3,4,10]; and DNA, clone lambda-18-27.
REFERENCE 1 (bases 1 to 5086)
AUTHORS Tsujimoto,Y. and Croce,C.M.
TITLE Analysis of the structure, transcripts, and protein products of
bcl-2, the gene involved in human follicular lymphoma
JOURNAL Proc. Natl. Acad. Sci. U.S.A. 83 (14), 5214-5218 (1986)
MEDLINE 86259760
COMMENT
Clean copy sequence for [1] kindly provided by Y.Tsujimoto,
10-FEB-1987.
The bcl-2 gene is transcribed by alternative splicing into three
mRNAs of different sizes. It consists of at least two exons and
encodes two proteins which only differ at their carboxy-terminal
ends, and it is activated by translocation into proximity with the
Ig heavy chain locus. Both the normal and rearranged bcl-2 gene
products are expressed in the B-cell leukemia/lymphoma 2 cells.
Genomic clone lambda-18-27 contained all the DNA sequences on the
5' of the splice site (position 2044).

HPV persistence appears to be correlated with increased BCL-2
expression (Moscicki and Herman, Abstract 47, 14th International
Papillomavirus Conference, Quebec, 23-28 July, 1995).

NCBI gi: 179366
BASE COUNT 1262 a 1224 c 1287 g 1313 t
ORIGIN 710 bp upstream of SstI site.
1 ggcgccgccc ctccgcgccc cctgcccgcc cgcccgccgc gctcccgccc gccgctctcc
61 gtggccccgc cgcgctgccc ccgcccgcgc tgccagcgaa ggtgocgggg ctccggggccc
121 tcctgcccgg cggccgctcag cgctcggagc gaactcgcgc acgggagggtc cgggaggcga
181 ccgtagtgcg gccgcccgcg aggaccagga ggaggagaaa ggggtgcgcag cccggaggcg
241 ggggtgcgccc gtgggggtgca gcggaagagg ggggtccagg gggagaactt cgtagcagtc
301 atccttttta ggaaaagagg gaaaaaataa aacctcccc caccacctcc ttctccccac
361 cctcgcgccc accacacaca gcgcggggct ctagcgcctc gcaccggcgg gccaggcgcg
421 tcctgccttc atttatccag cagcttttcg gaaaatgcat ttgctgttcg gagttaaattc
481 agaagacgat tcctgcctcc gtccccggct ccttcacgt cccatctccc ctgtctctct
541 cctggggagg cgtgaagcgg tcccgtggat agagattcat gcctgtgtcc gcgcggtgtg
601 ggcgctgctat aaattgcgca gaaggggaaa acatcacagg actctgcga ataccggact
661 gaaaattgta attcatctgc cgcgcccgcg gccaaaaaaa aactcagact cttgagatct
721 ccggttgagg ttctgcgga ttgacatttc tgtgaagcag aagtctggga atcgatctgg
781 aaatcctcct aatttttact ccctctcccc ccgactcctg attcattggg aagtttcaaa
841 tcagctataa ctggagagtg ctgaagattg atgggatcgt tgccttatgc atttgttttg
901 gttttacaaa aaggaaactt gacagaggat catgctgtac ttaaaaaata caagtaagtc
961 tcgcacagga aattggttta atgtaacttt caatggaaac cttgagatt tttacttaa
1021 agtgcattcg agtaaattta atttccaggc agcttaatac attgttttta gccgtgttac
1081 ttgtagtgtg tatgccctgc tttcactcag tgtgtacagg gaaacgcacc tgatttttta
1141 cttattagtt tgtttttct ttaacctttc agcatcacag aggaagtaga ctgatattaa
1201 caatacttac taataataac gtgcctcatg aaataaagat ccgaaaggaa ttggaataaa
1261 aatttctcgc gtctcatgcc aagagggaaa caccagaatc aagtgttccg cgtgattgaa
1321 gacacccctc cgtccaagaa tgcaaagcac atccaataaa atagctggat tataactcct
1381 cttctttctc tggggggcgt ggggtgggag ctggggcgag aggtgccgtt ggccccggtt
1441 gcttttctc tgggaaggat ggcgcacgct gggagaacgg ggtacgaca ccgggagata
1501 gtgatgaagt acatccatta taagctgtcg cagaggggct acgagtggga tgcgggagat
1561 gtggggcggc gcccccggg ggccgcccc gcaccgggca tcttctctc ccagccggg
1621 cacacgcccc atccagccgc atcccgcgac ccggtcgcca ggacctcgcc gctgcagacc
1681 ccggctgccc ccggcgccgc cgcggggcct gcgctcagcc cggtgccacc tgtggtcac
1741 ctggccctcc gccaaagcgg cgacgacttc tcccgcgct accgggcgca ctgcgccgag
1801 atgtccagcc agctgcacct gacgccttc accgcgggg gacgctttgc cacggtgggtg
1861 gaggagctct tcagggacgg ggtgaactgg gggaggattg tggccttctt tgagttcggg
1921 ggggtcatgt gtgtggagag cgtcaaccgg gagatgtcgc ccctgggtgga caacatcgcc

1981 ctgtggatga ctgagtaacct gaaccggcac ctgcacacct ggatccagga taacggaggc
 2041 tgggatgcct ttgtggaact gtaccggcccc agcatgcggc ctctgtttga tttctcctgg
 2101 ctgtctctga agactctgct cagtttggcc ctggtgggag cttgcatcac cctgggtgcc
 2161 tatctgagcc acaagtgaag tcaacatgcc tgcccccAAC aaatatgcaa aaggttact
 2221 aaagcagtag aaataatatg cattgtcagt gatgtacct gaaacaaagc tgcaggctgt
 2281 ttaagaaaaa ataacacaca tataaacatc acacacacag acagacacac acacacacaa
 2341 caattaacag tcttcaggca aaacgtcgaa tcagctatct actgcccAAG ggaatatca
 2401 tttatttttt acattattaa gaaaaaagat ttattttttt aagacagtcc catcaaaact
 2461 ccgtctttgg aaatccgacc actaatggcc aaacaccgct tcgtgtggct ccacctggat
 2521 gttctgtgcc tgtaaacata gattcgcttt ccatgttgtt ggccggatca ccatctgaag
 2581 agcagacgga tggaaaaagg acctgatcat tggggaagct ggctttctgg ctgctggagg
 2641 ctggggagaa ggtgttcatt cacttgcatt tctttgccct gggggcgtga tattaacaga
 2701 gggagggttc ccgtgggggg aagtccatgc ctccctggcc tgaagaagag actctttgca
 2761 tatgactcac atgatgcata cctggtggga ggaaaagagt tgggaacttc agatggacct
 2821 agtaccact gagatttcca cgccgaagga cagcagatgg aaaaatgcc ttaaatcata
 2881 ggaagatatt tttttaagct accaattgtg ccgagaaaag catttttagca atttatacaa
 2941 tatcatccag taccttaaac cctgattgtg tataatcata tttttggat acgcaccccc
 3001 caactcccaa tactggctct gtctgagtaa gaaacagaat cctctggaac ttgaggagt
 3061 gaacatttcg gtgacttccg atcaggaagg cttagagttac ccagagcatc aggccgccac
 3121 aagtgcctgc ttttaggaga ccgaagtccg cagaacctac ctgtgtcca gcttggaggc
 3181 ctggtcctgg aactgagccg ggccctcact ggctcctcc agggatgatc aacagggtag
 3241 tgtggtctcc gaatgtctgg aagctgatgg atggagctca gaattccact gtcaagaaag
 3301 agcagtagag ggggtgtggc gggcctgtca ccctggggcc ctccaggtag gcccgtttc
 3361 acgtggagca taggagccac gacccttctt aagacatgta tcactgtaga gggaaagAAC
 3421 agaggccctg gcccttccta tcagaaggac atggtgaagg ctgggaactg gaggagaggc
 3481 aatggccacg gccattttg gctgtagcac atggcacgtt ggctgtgtgg ccttggccac
 3541 ctgtgagttt aaagcaaggc tttaaatgac tttggagagg gtcaacaatc ctaaaagaag
 3601 cattgaagtg aggtgtcatg gattaattga cccctgtcta tgggaattaca tgtaaaacat
 3661 tatctgtca ctgtagttg gttttatttg aaaacctgac aaaaaaaaaag ttccaggtgt
 3721 ggaatatggg ggttatctgt acatcctggg gcattaaaaa aaaaatcaatg gtggggact
 3781 ataagaagt aacaaaagaa gtgacatctt cagcaataa actaggaat tttttttct
 3841 tccagtttag aatcagcctt gaaacattga tggaaataact ctgtggcatt attgcattat
 3901 ataccattta tctgattaa ctttggaaat tactctgttc aatgtttaat gctgtggtg
 3961 atatttcgaa agctgcttta aaaaaataca tgcatctcag cgtttttttg tttttaattg
 4021 tatttagtta tggcctatac actatttgtg agcaaagggt atcgttttct gtttgagatt
 4081 tttatctctt gattcttcaa aagcattctg agaagggtgag ataagcctg agtctcagct
 4141 acctaagaaa aacctggatg tcaactggcca ctgaggagct ttgtttcaac caagtcatgt
 4201 gcatttccac gtcaacagaa ttgtttattg tgacagttat atctgtgtgc cctttgacct
 4261 tgtttcttga aggtttctct gtccctgggc aattccgcat ttaattcatg gtattcagga
 4321 ttacatgcat gtttggttaa acccatgaga ttcattcagt taaaaatcca gatggcgAAT
 4381 gaccagcaga ttcaaatcta tgggtgtttg acccttagag agttgcttta cgtggcctgt
 4441 ttcaacacag acccaccag agccctcctg ccctcctcc ggggggctt tctcatggct
 4501 gtccttcagg gtcttctga aatgcagtgg tcgttacgct ccaccaagaa agcaggaAAC
 4561 ctgtggtatg aagccagacc tccccggcgg gcctcagggA acagaatgat cagacctttg
 4621 aatgattcta atttttaagc aaaatattat tttatgaaag gtttacattg tcaaagtgat
 4681 gaatatggaa tatccaatcc tgtgctgcta tcctgccaaa atcattttaa tggagtcagt
 4741 ttgcagtatg ctccacgtgg taagatcctc caagctgctt tagaagtaac aatgaagaac
 4801 gtggacgttt ttaataataa gcctgttttg tctttgttg ttgttcaaac gggattcaca
 4861 gagtatttga aaaatgtata tatattaaga ggtcacgggg gctaattgct agctggctgc
 4921 cttttgctgt ggggtttgt tacctggttt taataacagt aaatgtgcc agcctcttgg
 4981 cccagaact gtacagtatt gtggctgcac ttgctctaag agtagttgat gttgcatttt
 5041 ccttattgtt aaaaacatgt tagaagcaat gaatgtatat aaaagc

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BOVATP

LOCUS BOVATPPLC 1133 bp mRNA MAM 28-MAR-1991
DEFINITION Bovine proteolipid protein of the H⁺-ATPase of chromaffin granules mRNA, complete cds.
ACCESSION J03835 M61709
KEYWORDS proteolipid protein of H⁺-ATPase.
SOURCE Bovine (adult) adrenal medulla chromaffin granule membrane, cDNA to mRNA.
REFERENCE 1 (bases 1 to 1133)
AUTHORS Mandel,M.A., Moriyama,Y., Hulmes,J.D., Pan,Y.-C.E., Nelson,H. and Nelson,N.
TITLE cDNA sequence encoding the 16-kDa proteolipid of chromaffin granules implies gene duplication in the evolution of H⁺-ATPases
JOURNAL Proc. Natl. Acad. Sci. U.S.A. 85, 5521-5524 (1988)
MEDLINE 88289753
COMMENT
Draft entry and printed copy of sequence for [1] kindly provided by N.Nelson, 06/23/88.

The 16 kDa subunit of the vacuolar ATPase binds to the bovine papillomavirus E5 oncoprotein (Goldstein et al., Nature 352:347-349, 1991; Franchini et al., J. Virol. 67:7701-7704, 1993; Andresson et al., J. Biol. Chem. 270:6830-6837, 1995).

NCBI gi: 162714
BASE COUNT 183 a 384 c 314 g 252 t
ORIGIN Unreported.
1 gcggtgtcgc gccgggtgc ttgcgagcct ttgggacaca gcttagcttt cgcgcaagcc
61 gccgcccgcc gcgcccggct tcgcacctcg ccccgccctg gtcogttgaa ctgccccttc
121 ccaaccgcag acatgtccga ggccaagaac ggccccgagt acgcttcctt ttctcggttc
181 atgggtgcct cagccgccat ggtcttcagc gccctgggcg ccgcctacgg tacagccaag
241 agcggcacgg gcatcgcagc catgtctgtc atgcggccag agatgatcat gaagtcctc
301 atcccgggtgg tcatggcggg gatcatcgcc atctatggtc tgggtgggtgc agtctcatt
361 gccaaactccc tgaatgacgg catcagtctc tacaggagtt tccttcagct gggcgcaggc
421 ttgagtgtgg gctgagcgg gctggcggca ggcttcgcca tcggcattgt tggggacgca
481 ggcgtgcgtg gcaccgccca gcagccgcgg ctcttcgtgg gcatgatcct catctcctc
541 ttgcgcgagg tgctcggcct ctacggcttc atcgtgcgcc ttatctctc cacaaagtag
601 ctctgcgggc cgcagccac agaatacaat tgatgtcaag accacccct tctcattcca
661 caacgaacag cctgacacac gcacgggcag ccgcccgcca gtatgcgtc ttgtaaatgc
721 gcagtgtccc agtgcccacc gtctgttgcc ccagcctcgc cctgcccgc cccgcccgt
781 gctgtggaca tctgggccc caagtccc caagcgcct gaccagtgag gacgcccggc
841 tcccgcctcg cccatctgcc cttagagtgt ctgtgtataa ggtggaatta gagttgtcat
901 tttctcttca ctccgatgtt tatttataaa gatttgacct gttcatacgt ctgtggagca
961 gctctcgtct ccaactctat agtaacctta ggtagactgt tgggtgcgtt ggcggttacc
1021 gtttacctg agacccttg gatggaacca cctcttcag cctgggttc cgggcccagt
1081 tgacgggccc ctggcgtggt gccgctccgt gtccaataaa gctctcagat gtg

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LOCUS E6AP 2625 bp mRNA PRI 16-FEB-1993
 DEFINITION Homo sapiens papillomavirus E6 oncogenic protein-associated protein (E6AP) mRNA, 3' end.
 ACCESSION L07557
 KEYWORDS oncogenic protein-associated protein.
 SOURCE Homo sapiens foreskin cDNA to mRNA.
 REFERENCE 1 (bases 1 to 2625)
 AUTHORS Huibregtse,J.M., Scheffner,M. and Howley,P.M.
 TITLE Cloning and expression of the cDNA for E6-AP, a protein that mediates the interaction of the Human Papillomavirus E6 oncoprotein with p53
 JOURNAL Mol. Cell. Biol. 13, 775-784 (1993)
 MEDLINE 93140775
 COMMENT The sequence was isolated from normal primary human foreskin keratinocytes. The 100 kD protein corresponding to the ORF shown here was shown to bind to wild-type p53 in the presence of HPV16 E6 protein (but not in the presence of HPV11 E6 protein) and to be necessary for E6 binding to and degradation of wild-type p53. E6AP also binds to HPV16 and HPV18 E6 protein in the absence of p53.

NCBI gi: 178744

BASE COUNT 875 a 457 c 569 g 724 t

ORIGIN

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1 tcaggagaac ctcagctcga cgacattgaa gctagccgaa tgaagcgagc agctgcaaaag
E6AP orf ->
61 catctaataag aacgctacta ccaccagtta actgagggct gtggaaatga agcctgcacg
121 aatgagtttt gtgcttcctg tccaactttt cttcgtatgg ataataatgc agcagctatt
181 aaagccctcg agctttataa gattaatgca aaactctgtg atcctcatcc ctccaagaaa
241 ggagcaagct cagcttaact tgagaactcg aaagggtgcc ccaacaactc ctgctctgag
301 ataaaaatga acaagaaagg cgctagaatt gattttaaag atgtgactta cttaacagaa
361 gagaaggat atgaaattct tgaattatgt agagaaagag aggattatc cctttaatc
421 cgtgttattg gaagagtttt ttctagtgtc gaggcattgg tacagagctt ccggaaagtt
481 aaacaacaca ccaaggaaga actgaaatct cttcaagcaa aagatgaaga caagatgaa
541 gatgaaaagg aaaaagctgc atgttctgct gctgctatgg aagaagactc agaagcatct
601 tcctcaagga taggtgatag tccacagggg gacaacaatt tgcaaaaatt aggcctgat
661 gatgtgtctg tggatattga tgcatttaga agggcttaca ccagattgct ctctaatagaa
721 aaaattgaaa ctgcctttct caatgcactt gtatatgtgt cacctaactg ggaatgtgac
781 ttgacgtatc acaatgtata ctctcgagat cctaattatc tgaattgtgt cattatcgga
841 atggagaata gaaatctcca cagtctgaa tatctggaaa tggctttgcc attattttgc
901 aaagcagatg gcaagctacc ccttgcagcc caaggaaaac tgatcagact gtggcttaaa
961 tacaatgcag accagattcg gagaatgatg gagacatttc agcaacttat tactataaa
1021 gtcataagca atgaatttaa cagtcgaaat ctagtgaatg aatttaacag tcgaaatcta
1081 gtgaatgatg atgatgcatc tgttgctgct tcgaaagtgc tgaaaatggt ttactatgca
1141 aatgtagtgg gaggggaagt ggacacaaat cacaatgaag aagatgatga agagccatc
1201 cctgagtcca gcgagctgac acttcaggaa cttttgggag aagaaagaag aaacaagaaa
1261 ggtccttcgag tggacccctt ggaaactgaa cttgggtgta aaaccctgga ttgtcgaaaa
1321 ccacttatcc cttttgaaga gtttataat gaaccactga atgaggttct agaatggat
1381 aaagattata ctttttcaa agtgaaaaca gagaacaaat tctctttat gacatgtccc
1441 tttatattga atgctgtcac aaagaatttg ggattatatt atgacaatag aatcgcgatg
1501 tacagtgaac gaagaatcac tgttctctac agcttagttc aaggacagca gttgaatcca
1561 tatttgagac tcaaaagttag acgtgacct atcatagatg atgcacttgt ccggctagag
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1681 gaacaaggag ttgatgaggg aggtgtttcc aaagaatttt ttcagctggt tgtggaggaa
1741 atcttcaate cagatattgg tatgtcaca tacgatgaat ctacaaaatt gttttggttt
1801 aatccatctt cttttgaaac agagggctcag tttactctga ttggcatagt actgggtctg
1861 gctatattaca ataactgtat actggatgta cattttccca tggttgtcta caggaagcta
1921 atggggaaaa aaggactttt cgtcgacttg ggagactctc acccagttct atatcagagt
1981 ttaaaagatt tattggagta tgttgggaat gtggaagatg acatgatgat cactttccag
2041 atatcacaga caaatctttt tggtaaccca atgatgatg atctaaagga aaatggtgat
2101 aaaattccaa ttacaaatga aaacaggaag gaatttgta atctttatc tgaactacat
2161 ctcaataaat cagtagaaaa acagttcaag gcttttcgga gaggttttca tatggtgacc
2221 aatgaatctc ccttaaagta cttattcaga ccagaagaaa ttgaattgct tatatgtgga
2281 agccgcaatc tagatttcca agcactagaa gaaactacag aatatgacgg tggctatacc
2341 agggactctg tctgtattag ggagttctgg gaaatcgttc attcatttac agatgaacag
2401 aaaagactct tcttgagtt tacaacgggc acagacagag cacctgtggg aggactagga
2461 aaattaaaga tgattatagc caaaaatggc ccagacacag aaaggttacc tacatctcat
2521 acttgcttta atgtgctttt acttcgggaa tactcaagca aagaaaaact taagagaga
2581 ttgttgaagg ccatcacgta tgccaaagga tttggcatgc tgTAA

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<- E6AP end

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ERC55/E6BP

LOCUS HSERC55R 1700 bp RNA PRI 27-SEP-1994
 DEFINITION H.sapiens ERC-55 mRNA.
 ACCESSION X78669
 KEYWORDS calcium binding; ERC-55 gene.
 SOURCE human.
 REFERENCE 1 (bases 1 to 1700)
 AUTHORS Weis,K., Griffiths,G. and Lamond,A.I.
 TITLE The endoplasmic reticulum calcium-binding protein of 55 kDa is a novel EF-hand protein retained in the endoplasmic reticulum by a carboxyl-terminal His-Asp-Glu-Leu motif
 JOURNAL J. Biol. Chem. 269 (29), 19142-19150 (1994)
 MEDLINE 94308182
 REFERENCE 2 (bases 1 to 1700)
 AUTHORS Weis,K.
 TITLE Direct Submission
 JOURNAL Submitted (07-APR-1994) to the EMBL/GenBank/DDBJ databases. K. Weis, EMBL, Meyerhofstr 1, 69117 Heidelberg, FRG
 COMMENT ERC-55 (endoplasmic reticulum calcium-binding protein of 55 kDa) is unusual insofar as it is retained in the ER by an HDEL motif, rather than KDEL. It appears to be related to 1) a reticulocalbin protein (Ozawa and Miramatsu, J.B.C. 268:699,1993) and 2) an HPV E6 binding protein, E6BP (Chen et al., Science 269:529, 1995). The latter is identical to the ERC-55 over the C-terminal 210 amino acids; 107 residues are missing from the E6BP cDNA clone. E6BP binds to the E6 oncoprotein in vitro, and apparently in the ER in vivo, with consequences for transformability that are p53 independent.

NCBI gi: 469884

BASE COUNT 506 a 295 c 387 g 512 t

ORIGIN

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1 gcagccgccc gggccccgc cagcctccct cctcgcgtcc ctcggtgtcc tccgcgggcc
ERC-55
orf ->
61 ggcgcgATGc ggctgggccc gaggaccgcg gcgttggggc tgctgctgct gtgcgccgcc
ERC-55 cds ->
121 gcggccggcg ccggcaaggc cgaggagctg cactaccgca tgggcgagcg ccgcagcgac
181 tacgaccgcg aggcgctgct gggcgccag gaagatgtgg atgaatatgt taaactcggc
241 cacgaagagc agcaaaaaag actgcaggcg atcataaaga aaatcgactt ggactcagat
301 ggctttctca ctgaaagtga actcagttca tggattcaga tgtcttttaa gcattatgct
361 atgcaagaag caaaacaaca gtttgttgaa tatgataaaa acagtgatga tactgtgact
421 tgggatgaat ataacatca gatgtatgat cgtgtgattg accttgatga gaacactgct
481 ctggatgatg cagaagagga gtccttagg aagcttcact taaaggacaa gaagcgattt
541 gaaaaagcta accaggattc aggtcccggg ttgagtcttg aagaatttat tgcttttgag
601 catcctgaag aagttgatta tatgacggaa tttgtcattc aagaagcttt agaagaacat
661 gacaaaaatg gtgatggatt tgttagtttg gaagaatttc ttggtgatta caggtgggat
721 ccaactgcaa atgaagatcc agaatggata cttgttgaga aagacagatt cgtgaatgat
781 tatgacaaaag ataacgatgg caggcttgat cccaagagc tgttaccttg gtagtagcct
841 aataatcagg gcattgcaca agaggaggcg cttcatctaa ttgatgaaat ggatttgaat
901 ggtgacaaaa agctctctga agaagagatt ctggaaaacc cggacttgtt tctcaccagt
961 gaagccacag attatggcag acagctccat gatgactatt tctatcatga tgagcttTAA
ERC-55 cds <-
1021 tctccgagcc tgtctcagta gagtactggc tccttttata atttgttacc agctttactt
1081 ttgtgataaa atattgatgt tgtattttac actcttaagt ctttaaccaca gtcagaatta
1141 tcttaatgta gaattataat tttggctcct ttaggaaaaa acaaaatctg atatttttcc
1201 aaacgtattg agcaacaaaa tattaatatt gtgccatag acaacaaagt ctttcctaaa
1261 tactccatct gtttagtact gtattgtgga atatttgagt tctatttcca gacttgaaaa
1321 catggaggat ttagagatg cctgaacaat attatttaag tagtatgtga ccgagctata
1381 aattttttgt ttttgttcta agtagattta atttgggaac tgacaggaca atgtttttag
1441 gtttagcatt ttgtttaaaa acctttaaag aaacctttag aaggacttag acctcacata
1501 ttaatgttga gaagttctgc ttaattttaa aatggtttct ataagggtt ttattgtatg
1561 aaatagaact ttatattttt gcatatgtat agaggataat tatatttaat gtataactat
1621 agcattatgg tgagtggaa ttgacattgt ccaaactttt ttcatttttg agtgattaaa
1681 aatgaaatgt cttttgtaaa

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LOCUS HSIGF1A 616 bp RNA PRI 29-NOV-1993
 DEFINITION H.sapiens mRNA for IGF-1a.
 ACCESSION X56773 S61841
 KEYWORDS IGF-1 gene.
 SOURCE human.
 REFERENCE 1 (bases 1 to 616)
 AUTHORS Sandberg-Nordqvist,A.C., Stahlbom,P.A., Lake,M. and Sara,V.R.
 TITLE Characterization of two cDNAs encoding insulin-like growth factor 1 (IGF-1) in the human fetal brain
 JOURNAL Brain Res. Mol. Brain Res. 12 (1-3), 275-277 (1992)
 MEDLINE 92186627
 REFERENCE 2 (bases 1 to 616)
 AUTHORS Sandberg Nordqvist,A.C.
 TITLE Direct Submission
 JOURNAL Submitted (19-NOV-1990) to the EMBL/GenBank/DDBJ databases.
 A.C.Sandberg Nordqvist, KAROLINSKA INST'S DEPT OF PATHOLOGY, KAROLINSKA HOSPITAL, BOX 605 00, S-104 01 STOCKHOLM, SWEDEN
 REFERENCE 3 (bases 1 to 616)
 AUTHORS Sandberg-Nordqvist,A.C., Stahlbom,P.A., Reinecke,M., Collins,V.P., von Holst,H. and Sara,V.
 TITLE Characterization of insulin-like growth factor 1 in human primary brain tumors
 JOURNAL Cancer Res. 53 (11), 2475-2478 (1993)
 MEDLINE 93265440
 COMMENT
 NCBI gi: 32989
 BASE COUNT 159 a 158 c 160 g 139 t
 ORIGIN
 1 atgggaaaaa tcagcagtct tccaacccaa ttatttaagt gctgcttttg tgatttcttg
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 121 accttcacca gctctgccac ggctggaccg gagacgctct gcggggctga gctgggtggat
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 601 atacacaagt aaacat

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IGFR

LOCUS HSIGFIRR 4989 bp RNA PRI 09-MAY-1995
 DEFINITION Human mRNA for insulin-like growth factor I receptor.
 ACCESSION X04434 M24599
 KEYWORDS glycoprotein; insulin receptor;
 insulin-like growth factor I receptor; membrane glycoprotein;
 receptor; tyrosine kinase.
 SOURCE human.
 REFERENCE 1 (bases 1 to 4989)
 AUTHORS Ullrich,A., Gray,A., Tam,A.W., Yang-Feng,T., Tsubokawa,M.,
 Collins,C., Henzel,W., Bon,T.L., Kathuria,S., Chen,E., Jakobs,S.,
 Francke,U., Ramachandran,J. and Fujita-Yamaguchi,Y.
 TITLE Insulin-like growth factor I receptor primary structure: comparison
 with insulin receptor suggests structural determinants that define
 functional specificity
 JOURNAL EMBO J. 5 (10), 2503-2512 (1986)
 MEDLINE 87053815
 COMMENT The IGF-1R (insulin-like growth factor-1 receptor) protein has been
 implicated in fibroblast transformation. A specific requirement for
 IGF-1R in E7-mediated transformation is reported by Zou et al.,
 14th International Papillomavirus Conference, Quebec, 23-28 July,
 Abstract 150.
 NCBI gi: 33058
 BASE COUNT 1216 a 1371 c 1320 g 1082 t
 ORIGIN
 1 tttttttttt ttttgagaaa ggaatttca tcccaaataa aaggaatgaa gtctggctcc
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 4981 tgaaccggc

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MDM2

LOCUS MMDM2 1710 bp RNA ROD 04-OCT-1993
DEFINITION Murine mdm2 mRNA for mdm2 protein.
ACCESSION X58876
KEYWORDS DNA-binding protein; mdm2 gene; transforming capacity.
SOURCE house mouse.
REFERENCE 1 (bases 1 to 1710)
AUTHORS George,D.L.
TITLE Direct Submission
JOURNAL Submitted (03-APR-1991) to the EMBL/GenBank/DDBJ databases. D.L. George, University of Pennsylvania, Dept of Human Genetics, 422 Curie Blvd, Philadelphia PA 19104-6145, USA
REFERENCE 2 (bases 1 to 1710)
AUTHORS Fakharzadeh,S.S., Trusko,S.P. and George,D.L.
TITLE Tumorigenic potential associated with enhanced expression of a gene that is amplified in a mouse tumor cell line
JOURNAL EMBO J. 10 (6), 1565-1569 (1991)
MEDLINE 91224107
COMMENT MDM2, in addition to E6, interacts with p53 (Marston et al., Oncogene 9:2707-2716, 1994).
NCBI gi: 53038
BASE COUNT 477 a 397 c 465 g 371 t
ORIGIN
1 gaggagccgc cgccttctcg tcgctcgagc tctggacgac catggtcgct caggccccgt
61 ccgcggggcc tccgcgctcc ccgtgaaggg tcggaagatg cgcgggaaagt agcagccgctc
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