

Molecular cloning of mouse cathepsin D

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In order to identify those gene products involved in T cell-mediated cystolysis, we have recently described the generation and screening of a cDNA library prepared from the murine cytotoxic T lymphocyte CT.4R (1). We report here the complete nucleotide and deduced amino acid sequences of one clone isolated from this library. The cDNA contains 1979 bp and contains a single long open reading frame encoding a protein of 410 residues. This cDNA shows 81% amino acid identity with the previously reported sequence for human cathepsin D (2, 3). Cathepsin D is a lysosomal protease thought to be present in all mammalian cells. Northern blot analysis of various mouse tissues demonstrated that the clone reported herein is expressed ubiquitously (data not shown). Interestingly, cathepsin D has recently been shown by immunoelectron microscopy to be present in elevated amounts extralysomally in cytotoxic T cells (4), suggesting an additional role for this molecule in these cells. The availability of this cDNA will allow further examination of this hypothesis.

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   1  CGTCATCCTGCCTATAAGCCGGCGACCTCTGGCTTTAAGCTTTGCTCTCTTCGGGCCGCCGCGACCATGAAGACTCCCGGC
                                                                  M  K  T  P  G
  82  GTCTTGCTGCTCATTCTCGGCCTCCTGGCTTCGTCCTCCTTCGCGATTATCAGAATCCCTCTGCGCAAGTTCACATCTATC
       V  L  L  L  I  L  G  L  L  A  S  S  S  F  A  I  I  R  I  P  L  R  K  F  T  S  I
 163  CGTCGGACTATGACGGAGGTGGGCGGCTCTGTGGAAGACCTGATCCTCAAAGGCCCCATCACCAAGTACTCCATGCAGTCA
       R  R  T  M  T  E  V  G  G  S  V  E  D  L  I  L  K  G  P  I  T  K  Y  S  M  Q  S
 244  TCGCCTAAGACCACGGAGCCAGTGTCAGAGTTACTCAAAAACTACCTGGATGCCCAGTACTATGGCGATATCGGCATCGGA
       S  P  K  T  T  E  P  V  S  E  L  L  K  N  Y  L  D  A  Q  Y  Y  G  D  I  G  I  G
 325  ACCCCGCCGCAGTGTTTCACAGTCGTCTTTGATACTGGCTCCTCTAACCTGTGGGTCCCCTCCATTCATTGCAAGATACTT
       T  P  P  Q  C  F  T  V  V  F  D  T  G  S  S  N  L  W  V  P  S  I  H  C  K  I  L
 406  GACATAGCCTGCTGGGTCCACCATAAGTACAACAGTGACAAGTCCAGCACCTATGTGAAGAACGGCACGTCCTTTGACATC
       D  I  A  C  W  V  H  H  K  Y  N  S  D  K  S  S  T  Y  V  K  N  G  T  S  F  D  I
 487  CACTACGGCTCAGGAAGCCTCTCTGGGTACCTGAGCCAGGACACTGTATCGGTTCCATGTAAGTCTGACCAGTCAAAGGCA
       H  Y  G  S  G  S  L  S  G  Y  L  S  Q  D  T  V  S  V  P  C  K  S  D  Q  S  K  A
 568  AGAGGTATCAAGGTGGAGAAACAGATCTTTGGAGAAGCCACCAAGCAGCCTGGAATCGTATTTGTTGCAGCCAAGTTTGAT
       R  G  I  K  V  E  K  Q  I  F  G  E  A  T  K  Q  P  G  I  V  F  V  A  A  K  F  D
 649  GGCATCTTGGGCATGGGCTACCCTCATATCTCTGTTAACAACGTGCTTCCGGTCTTTGACAACCTGATGCAACAGAAGCTG
       G  I  L  G  M  G  Y  P  H  I  S  V  N  N  V  L  P  V  F  D  N  L  M  Q  Q  K  L
 730  GTGGACAAGAACATCTTCTCCTTCTACCTGAACAGGGACCCAGAAGGGCAACCCGGAGGAGAACTAATGCTTGGTGGCACT
       V  D  K  N  I  F  S  F  Y  L  N  R  D  P  E  G  Q  P  G  G  E  L  M  L  G  G  T
 811  GACTCCAAGTACTACCACGGGGAGCTGTCCTACCTGAACGTCACTCGAAAGGCCTACTGGCAGGTGCACATGGACCAGTTG
       D  S  K  Y  Y  H  G  E  L  S  Y  L  N  V  T  R  K  A  Y  W  Q  V  H  M  D  Q  L
 892  GAGGTGGGCAATGAGCTGACCCTGTGCAAGGGAGGCTGTGAGGCTATTGTGGACACAGGGACATCTCTTCTGGTGGGGCCT
       E  V  G  N  E  L  T  L  C  K  G  G  C  E  A  I  V  D  T  G  T  S  L  L  V  G  P
 973  GTGGAAGAGGTGAAGGAGCTGCAGAAGGCCATCGGGGCAGTGCCTCTTATCCAGGGTGAGTATATGATTCCTTGTGAGAAG
       V  E  E  V  K  E  L  Q  K  A  I  G  A  V  P  L  I  Q  G  E  Y  M  I  P  C  E  K
1054  GTGTCCAGCCTGCCCACGGTCTACCTGAAGCTAGGAGGCAAAAACTATGAACTACACCCAGACAAGTATATACTCAAGGTA
       V  S  S  L  P  T  V  Y  L  K  L  G  G  K  N  Y  E  L  H  P  D  K  Y  I  L  K  V
1135  TCGCAGGGTGGAAAGACAATCTGCCTGAGTGGCTTCATGGGAATGGACATACCCCCTCCCAGTGGGCCGCTCTGGATCCTG
       S  Q  G  G  K  T  I  C  L  S  G  F  M  G  M  D  I  P  P  P  S  G  P  L  W  I  L
1216  GGCGATGTCTTCATTGGTTCCTACTACACTGTGTTTGACAGAGACAACAATAGGGTCGGCTTTGCCAATGCTGTCGTACTC
       G  D  V  F  I  G  S  Y  Y  T  V  F  D  R  D  N  N  R  V  G  F  A  N  A  V  V  L
1297  TAACTTGCTCCTTCTCCACTGTCAGGGAACTGGATCAGAGTCCAGTAGAGGAAGCCAGCCAGCCCCATCCCTCCACCTGCC
1378  CCACTCACACATAGTCACACTCGCTTAGTGTTGCTGGACCCTTGGGGGAGACCTGGCTGGAGCTTGTCCAGCTGTTCTGTT
1459  CTGTGGTTCCTCACCCTGGGTTCAGATTGCTGCCCTCTGCCTGTCTGAAGGAGGCCAAGGCCCACCCAGTACACGAGGCTG
1540  CCTTCAAAGGCCCCTACTGGTTTAATAGCTGCTGAGATGGATTGTCTTGTCCTGCCGCCCTTTGCTGTGTGGGCAGTACTC
1621  TGAAGCAGGCAAATGGGTCTTAGGATCCCTCCCAGAAACCTGCTCTGACCCAGACCCATCACCCAGCTTGGGGATGGCACC
1702  ACGTTCTACTGCCCCTCCAACTCTGGCCTGGCAAAGGCCTGAAGGTGAGCAGGAAGGAGCAAGAGGACAGAAGCAAAACTA
1783  TGAACCTGGGGGGTTACCTAGGGCTTGACCCCGCCCTCCTGGGAAGGCATGCCTCAGCCTGGGGTAGAGGTAGGATGACTG
1864  ACTGGTTTTGGCTGGCCTCTGCTGCCCTCATCCTGGGCTAGGCAGCTGGGAGCCAAAGTTGAAATACAAATAAAGTTGTTT
1945  TGGGCCTTGAAAAAAAAAAAAAAAAAAAAAAAAAA
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