Sequence of the chicken $GABA_A$ receptor β3-subunit cDNA

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Submitted August 13, 1990

EMBL accession no. X54243

Complementary DNA cloning has revealed that the $GABA_A$ receptor, which is the major inhibitory neurotransmitter receptor in the vertebrate brain, is a member of the ligand-gated ion channel super-family (1). Such studies have elucidated the sequences of different types of subunit and of different subunit isoforms (2). We screened an embryonic chick whole brain cDNA library in λgt10 with a linearized plasmid, pbGRβsense, that contains a bovine $GABA_A$ receptor β1-subunit cDNA (3). A 2.2 kb clone was isolated that encodes a mature polypeptide of 451 amino acids and a signal peptide of 25 amino acids. The mature subunit sequence exhibits 81, 81 and 92% identity to the previously-reported bovine β1- (3), β2- and β3-subunit sequences (4), respectively.

ACKNOWLEDGEMENTS

We thank Thora A.Glencorse for help in the initial characterization of the clone, and Eric A.Barnard for his interest in this work. R.J.H. holds an SERC Research Studentship.

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   1                                GAATTCCCTCACGCGGCAGCCAGGGCAGCCGGATCGCGGCGGCAGCAGCTGCTGCTGCTGCTGCTGCGCGGAGGGAGCCCGGGGCGGAGGG
 -25  M  W  G  F  G  G  G  R  I  F  G  I  F  S  A  P  V  L  V  A  V  V  C  C  A  Q  S  V  N  D  P  G  N  M  S  F  V  K  E  T
  92 ATGTGGGGCTTTGGGGGAGGCAGGATCTTCGGGATCTTCTCCGCTCCCGTCCTGGTGGCCGTGGTGTGCTGCGCCCAGAGCGTGAACGATCCCGGCAACATGTCCTTCGTGAAGGAAACG
  16  V  D  K  L  L  K  G  Y  D  I  R  L  R  P  D  F  G  G  P  P  V  C  V  G  M  N  I  D  I  A  S  I  D  M  V  S  E  V  N  M
 212 GTGGATAAATTGCTGAAGGGCTACGACATCCGCCTCCGCCCGGATTTCGGAGGTCCTCCCGTCTGCGTGGGGATGAACATCGACATCGCCAGCATCGACATGGTCTCCGAAGTCAACATG
  56  D  Y  T  L  T  M  Y  F  Q  Q  Y  W  R  D  K  R  L  A  Y  A  G  I  P  L  N  L  T  L  D  N  R  V  A  D  Q  L  W  V  P  D
 332 GATTACACTTTGACTATGTATTTTCAACAGTACTGGAGAGATAAGAGATTGGCATATGCTGGCATACCTCTCAACCTGACGCTTGATAATCGAGTGGCAGATCAACTCTGGGTGCCTGAC
  96  T  Y  F  L  N  D  K  K  S  F  V  H  G  V  T  V  K  N  R  M  I  R  L  H  P  D  G  T  V  L  Y  G  L  R  I  T  T  T  A  A
 452 ACGTACTTCTTAAATGACAAGAAATCATTTGTGCATGGCGTTACTGTGAAGAACCGAATGATTCGCCTTCATCCAGATGGAACGGTGCTTTATGGCCTCAGGATCACAACCACAGCAGCT
 136  C  M  M  D  L  R  R  Y  P  L  D  E  Q  N  C  T  L  E  I  E  S  Y  G  Y  T  T  D  D  I  E  F  Y  W  R  G  G  D  N  A  V
 572 TGTATGATGGACTTGAGAAGATACCCGCTAGATGAGCAGAACTGTACTCTCGAAATAGAAAGCTATGGCTACACGACTGATGACATAGAGTTCTACTGGAGAGGTGGAGATAATGCGGTC
 176  T  G  V  E  R  I  E  L  P  Q  F  S  I  V  E  Y  R  L  V  S  K  N  V  V  F  A  T  G  A  Y  P  R  L  S  L  S  F  R  L  K
 692 ACTGGTGTGGAAAGAATTGAACTTCCTCAGTTCTCCATTGTGGAATATAGACTGGTGTCCAAGAATGTTGTCTTTGCCACAGGTGCCTATCCAAGACTTTCACTAAGCTTCAGGTTGAAA
 216  R  N  I  G  Y  F  I  L  Q  T  Y  M  P  S  I  L  I  T  I  L  S  W  V  S  F  W  I  N  Y  D  A  S  A  A  R  V  A  L  G  I
 812 AGGAATATTGGATACTTTATTCTTCAAACCTACATGCCCTCCATACTGATTACCATTTTATCATGGGTGTCATTCTGGATCAATTATGATGCATCAGCAGCAAGAGTTGCCCTTGGAATT
 256  T  T  V  L  T  M  T  T  I  N  T  H  L  R  E  T  L  P  K  I  P  Y  V  K  A  I  D  M  Y  L  M  G  C  F  V  F  V  F  L  A
 932 ACAACTGTGCTGACTATGACAACAATCAACACACATCTGCGAGAGACTTTGCCTAAAATTCCCTATGTTAAAGCCATTGACATGTATCTTATGGGCTGCTTTGTATTCGTCTTCTTGGCC
 296  L  L  E  Y  A  F  V  N  Y  I  F  F  G  K  G  P  Q  R  Q  K  K  L  A  E  K  S  A  K  A  N  N  D  R  S  R  F  E  G  S  R
1052 TTACTTGAATATGCCTTTGTCAACTACATTTTCTTCGGAAAAGGCCCTCAAAGGCAGAAGAAACTTGCGGAAAAATCAGCAAAGGCAAACAACGATCGCTCAAGGTTTGAAGGCAGCCGG
 336  V  D  T  H  G  N  I  L  L  T  S  L  E  I  H  N  E  V  A  S  N  E  V  T  T  S  V  T  D  A  R  N  S  T  I  S  F  D  N  S
1172 GTGGACACCCATGGAAACATTCTGCTAACATCTCTTGAAATTCACAACGAGGTCGCAAGCAACGAGGTCACAACCAGCGTTACGGATGCCAGAAATTCAACGATATCCTTTGACAACTCA
 376  G  I  Q  Y  R  K  Q  S  S  H  R  E  S  L  G  R  R  S  S  D  R  T  G  S  H  S  K  R  G  H  L  R  R  R  S  S  Q  L  K  I
1292 GGAATCCAGTACAGAAAACAAAGCTCACATCGTGAAAGCCTTGGAAGGCGTTCATCAGACAGAACAGGCTCCCACAGCAAGAGGGGCCATTTACGAAGAAGGTCTTCACAACTGAAGATA
 416  K  I  P  D  L  T  D  V  N  A  I  D  R  W  S  R  M  V  F  P  F  T  F  S  L  F  N  L  I  Y  W  L  Y  Y  V  N
1412 AAAATTCCTGATCTAACAGATGTGAATGCCATCGACAGATGGTCAAGAATGGTGTTTCCATTCACATTTTCTCTTTTCAACTTAATTTACTGGCTATACTATGTTAACTGAGTGACTGAA
1532 CTTTTTAAAGGACTTCAATTATAACAAGTGAAGTACTACTTGCCTGCAGAGTTTATATATATTTATATGTAAAAATATATATATATATATGAACTTTTACAATGTAGAGAATACTCATG
1652 TATGTGTGGATACGTACAGCGAAGAACTGTGTGTATATATGAGCACACACTGCAGAACAAAAGTATATGTATGCACACATACGTGTACACATTCATTCTGAGGTTATGGACAATGTAACA
1772 TAGAATGCACTTCCGAGGAACTTTTTAATTTGAAAGTCAGGTGTCGTCCAAAGCAAGCCTTGAGAACGTAAGTGTTGTATATTATCACTTCAAAACTTTGATGGTCGTAGAAATTTTCAA
1892 ACAGCTGTAATGGTGTATAAAGTCAGTATTTAGTAACATTGTTTGTAAATGCTGCCATACACACTAATCATAAAGTGATAGAGTTACACTGGTAAGTTTAAAGTAAGTCGTTTGTATTGC
2012 AGAACCATGAACAACAATTTCATCAAGCCAAACTTGTTTCTCTTTGCTAAAATTTCTTGGTTTTGTATGACCTAACATATTTTTCCCCCTCATGAATGGGCATTGTTTTTAATGGTCTCT
2132 TGCTTTCTCTTCTGCAGTAAGCAAGCTGATCATTGGA
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