11-25-1990

Nucleotide Sequence of the Epsilon-Subunit of the Mouse Muscle Nicotinic Acetylcholine Receptor

P D. Gardner
Dartmouth College

Nucleotide sequence of the ϵ-subunit of the mouse muscle nicotinic acetylcholine receptor

P.D.Gardner
Program in Molecular and Cellular Neurosciences and the Department of Biochemistry, Dartmouth Medical School, Hanover, NH 03756, USA

Submitted October 10, 1990 EMBL accession no. X55718

The two predominant types of nicotinic acetylcholine receptors expressed in mammalian muscle differ with respect to a variety of electrophysiological and biochemical properties. A developmental, innervation-dependent switch in the subunit structure of the receptor, in which a γ subunit is replaced by an ϵ subunit, is thought to account, in large part, for these differences (1). Because of the interest in the regulatory mechanisms underlying this switch, much attention has focused on these two subunits. Here I report the nucleotide and deduced amino acid sequences of a clone coding for the mouse muscle ϵ subunit isolated from a cDNA library constructed using poly $(A)^+$ RNA isolated from innervated mouse diaphragm. Assignment of an initiator methionine is based on sequence comparison with the mouse genomic ϵ subunit clone (2).

ACKNOWLEDGEMENTS

I thank Bill Huse for the cDNA library and Jim Patrick and Elise Lamar for their continued support and encouragement. This project was supported in part by BRSG S07RR05392 awarded by the Biomedical Research Grant Program of Research Resources, National Institutes of Health.

REFERENCES

1. Witzemann *et al.* (1989) *FEBS Lett.* **242**, 419–424.
2. Buonanno *et al.* (1989) *J. Biol. Chem.* **264**, 7611–7616.

```
                  M  A  G  A  L  L  G  A  L  L  L  L  T  L  F  G  R  S  Q  G  K  N  E  E  L  S  L  Y  H  H  L
ctgagaaccagacatcaggATGGCAGGGGCTCTGCTTGGTGCCCTGCTTCTCCTGACACTCTTTGGCAGAAGCCAGGGAAAGAATGAAGAGCTTAGCCTGTATCACCATCT

  F  D  N  Y  D  P  E  C  R  P  V  R  R  P  E  D  T  V  T  I  T  L  K  V  T  L  T  N  L  I  S  L  N  E  K  E  E
CTTCGACAATTATGATCCAGAATGCCGGCCAGTTAGGAGACCTGAGGACACTGTCACCATCACCCTCAAGGTCACCCTAACCAACCTCATCTCACTGAACGAGAAAGAAGA

  T  L  T  T  S  V  W  I  G  I  D  W  H  D  Y  R  L  N  Y  S  K  D  D  F  A  G  V  G  I  L  R  V  P  S  E  H  V
AACTCTGACCACCAGTGTCTGGATTGGCATTGACTGGCACGACTATCGGCTCAACTACAGCAAGGACGATTTTGCAGGTGTAGGAATCCTCCGGGTCCCTTCAGAACATGT

  W  L  P  E  I  V  L  E  N  N  I  D  G  Q  F  G  V  A  Y  D  S  N  V  L  V  Y  E  G  G  Y  V  S  W  L  P  P  A
ATGGCTGCCAGAGATTGTTCTAGAAAACAATATTGATGGGCAGTTTGGAGTGGCCTACGACAGCAATGTTCTAGTCTATGAGGGAGGCTATGTGAGCTGGTTGCCCCCAGC

  I  Y  R  S  T  C  A  V  E  V  T  Y  F  P  F  D  W  Q  N  C  S  L  I  F  R  S  Q  T  Y  N  A  E  E  V  E  F  I
CATCTACCGCAGCACCTGCGCAGTGGAGGTCACCTATTTCCCCTTTGACTGGCAGAACTGCTCTCTCATTTTTCGCTCCCAGACCTACAATGCTGAGGAGGTGGAGTTCAT

  F  A  V  D  D  D  G  N  T  I  N  K  I  D  I  D  T  A  A  F  T  E  N  G  E  W  A  I  D  Y  C  P  G  M  I  R  R
CTTTGCCGTGGATGACGACGGCAATACCATCAACAAGATTGACATTGACACGGCAGCTTTTACCGAGAATGGAGAATGGGCCATAGACTACTGCCCAGGCATGATTCGCCG

  Y  E  G  G  S  T  E  G  P  G  E  T  D  V  I  Y  T  L  I  I  R  R  K  P  L  F  Y  V  I  N  I  I  V  P  C  V  L
CTATGAGGGAGGTTCCACAGAAGGTCCTGGAGAAACTGACGTCATCTATACGCTCATCATCCGCCGGAAGCCGCTTTTTTACGTCATTAACATCATTGTGCCTTGCGTGCT

  I  S  G  L  V  L  L  A  Y  F  L  P  A  Q  A  G  G  Q  K  C  T  V  S  I  N  V  L  L  A  Q  T  V  F  L  F  L  I
CATTTCTGGCTTGGTGCTGCTCGCTTACTTCCTGCCTGCGCAGGCTGGTGGCCAGAAATGCACGGTCTCTATCAACGTCCTGCTAGCCCAGACTGTCTTCTTGTTTCTAAT

  A  Q  K  I  P  E  T  S  L  S  V  P  L  L  G  R  Y  L  I  F  V  M  V  V  A  T  L  I  V  M  N  C  V  I  V  L  N
TGCCCAGAAAATTCCAGAGACTTCTCTGAGCGTGCCACTGCTGGGCAGGTATCTTATATTCGTCATGGTGGTTGCCACGCTCATTGTCATGAATTGCGTCATCGTGCTCAA

  V  S  L  R  T  P  T  T  H  A  T  S  P  R  L  R  Q  I  L  L  E  L  L  P  R  L  L  G  S  S  P  P  P  E  D  P  R
CGTATCTTTGAGGACGCCAACGACTCATGCTACATCCCCTCGGCTGCGCCAGATTTTATTAGAGCTGCTGCCGCGTCTCCTGGGCTCGAGCCCACCCCCAGAGGATCCCCG

  T  A  S  P  A  R  R  A  S  S  V  G  I  L  L  R  A  E  E  L  I  L  K  K  P  R  S  E  L  V  F  E  G  Q  R  H  R
AACTGCCTCACCAGCGAGGCGTGCCTCGTCTGTGGGCATTCTGCTCAGAGCGGAGGAGCTCATCTTGAAAAAGCCGCGGAGCGAACTCGTGTTTGAGGGTCAGAGGCATCG

  H  G  T  W  T  A  A  L  C  Q  N  L  G  A  A  A  P  E  I  R  C  C  V  D  A  V  N  F  V  A  E  S  T  R  D  Q  E
GCACGGAACTTGGACCGCAGCCCTCTGCCAGAACCTGGGTGCTGCAGCCCCAGAAATCCGCTGCTGTGTGGATGCTGTGAACTTTGTGGCTGAGAGCACAAGAGACCAGGA

  A  T  G  E  E  L  S  D  W  V  R  M  G  K  A  L  D  N  V  C  F  W  A  A  L  V  L  F  S  V  G  S  T  L  I  F  L
AGCCACTGGAGAGGAACTGTCCGACTGGGTGCGTATGGGGAAGGCCCTGGACAATGTCTGTTTTTGGGCAGCTTTGGTGCTCTTCAGCGTTGGTTCTACTCTCATCTTCCT

  G  G  Y  F  N  Q  V  P  D  L  P  Y  P  P  C  I  Q  P  *
TGGGGGTTACTTCAACCAAGTTCCTGATCTCCCTTACCCACCGTGCATCCAACCATGAgcctgcactggcacccacctctccccccaccccccaagaaagagattttgaaaa

caggccgctgacaataaatctggtttgtgaacttgcaaaaaaaaa
```