Nucleotide sequence of the *tet(M)* gene of *Tn916*

Vickers Burdett

Department of Microbiology, Duke University Medical Center, Durham, NC 27710, USA

Submitted September 12, 1990

EMBL accession no. X56353

A 4.8-kilobase *HincII* fragment from the *Streptococcus faecalis* transposon *Tn916* known to contain *tet(M)*916, a class M tetracycline resistance determinant (1), was cloned into pT7.3 (2). Following the addition of *Bam*HI linkers to the fragment and subcloning into M13mpl8, the nucleotide sequence of the *tet(M)* coding region was determined and found to encode a protein of 639 amino acids. The amino acid sequence of this *Tet(M)* protein is very closely related to the *Tet(M)* from *Ureaplasma urealyticum* (3) isolated in Seattle, WA (630 of 639 amino acid residues identical), but less related to that from *S. pneumoniae* (4) isolated in France (604 of 639 residues identical). We have confirmed that the open reading frame is correct by comparison of the amino terminal sequence of the purified protein with the amino acid sequence predicted from the DNA sequence (5).

ACKNOWLEDGEMENT

Supported by NIH grant AI 15619.

REFERENCES

1. Senghas, E., Jones, J.M., Yamamoto, M., Gawron-Burke, C. and Clewell, D.B. (1988) *J. Bacteriol.* **170**, 245–249.
2. Tabor, S. and Richardson, C. (1985) *Proc. Natl. Acad. Sci. USA* **82**, 1074–1078.
3. Sanchez-Pescador, R., Brown, J.T., Roberts, M. and Urdea, M.S. (1988) *Nucl. Acids Res.* **16**, 1216–1217.
4. Martin, P., Trieu-Cout, P. and Courvalin, P. (1986) *Nucl. Acids Res.* **14**, 7047–7058.
5. Burdett, V. (1990) *J. Biol. Chem.*, submitted.

```
1   CTGTCAATTGATAGCGGGAACAAATAATTGGATGTCCTTTTTTAGGAGGGCTTAGTTTTTTGTACCCAGTTTAAAGATACCTTTATCATGTGATTCTAAAGTATCCGGAGAATATCTGT
121  ATGCTTTGTATGCCTATGGTTATGCATAAAAAATCCCAGTGATAAGAGTATTTATCACTGGGATTTTTATGCCCTTTTGGGCTTTGAATGGAGGAAAATCACATGAAAATTATTAATATT
      M K I I N I
241  GGAGTTTTAGCTCATGTTGTATGCAGGAAAACTACCTTAACAGAAAGCTTATTATATAACAGTGGAGCGATTACAGAATTAGGAAGCGTGGACAAAGGTACAACGAGGACGGATAATACG
      G V L A H V D A G K T T L T E S L L Y N S G A I T E L G S V D K G T T R T D N T
361  CTTTTAGAACGTCAGAGAGGAATACAATTACAGACAGGAATAACCTCTTTTCAGTGGGAAAATACGAAGGTGAACATCATAGACACGCCAGGACATATGGATTCTTAGCAGAAGTATAT
      L L E R Q R G I T I Q T G I T S F Q W E N T K V N I I D T P G H M D F L A E V Y
481  CGTTCATTATCAGTTTTAGATGGGGCAATTCTACTGATTTCTGCAAAAGATGGCGTACAAGCACAACTCGTATATTATTTTCATGCACTTAGGAAAATGGGGATTCCCACAATCTTTTTT
      R S L S V L D G A I L L I S A K D G V Q A Q T R I L F H A L R K M G I P T I F F
601  ATCAATAAGATTGACCAAAATGGAATTGATTATCAACGGTTTATCAGGATATTAAGAGAACTTTCTGCCGAAATTGTAATCAACAGAGGTAGAAGTGTATCCTAATGTGTGTGTG
      I N K I D Q N G I D L S T V Y Q D I K E K L S A E I V I K Q K V E L Y P N V C V
721  ACGAACTTTACCGAATCTGAACAATGGGATACGGTAATAGAGGGAACGATGACCTTTTAGAGAAATATATGTCGGTAAATCATTAGAAGCATTGGAAGTGAACAAGAGGAAAGCATA
      T N F T E S E Q W D T V I E G N D D L L E K Y M S G K S L E A L E L E Q E E S I
841  AGATTTCAGAATTGTTCTCTGTTCCCTCTTTATCATGGAAGTGCAAAAAGTAATATAGGGATTGATAACCTTATAGAAGTTATTACTAATAAAATTTTATTCATCAACACATCGAGGTCCG
      R F Q N C S L L Y H G S A K S N I G I D N L I E V I T N K F Y S S T H R G P
961  TCTGAGACTTTGCGAAATGTTTTCFAALTGAATATACAAAAAAGACACGCTCTTGCATATATACGCCCTTTATAGTGGAGTACTACATTTACGAGATTCGGTTAGAGTATCAGAAAAG
      S E L C G N V F F K I E Y T K K R Q R L A Y I R L Y S G V L H L R D S V R V S E K
1081  GAAAAAATAAAGTTACAGAAATGTATACTTCAATAAATGGTGAATTATGTAAGATTGATAGAGCTTATTCTGGAGAAATGTTATTTTGCAAAATGAGTTTTGAAGTTAAATAGTGT
      E K I K A V A T E M Y T S I N G E L C K I D R A Y S G E I V I L Q N E F L K L N S
1201  CTTGGAGATACAAAATATTGCCACAGAGAAAAAGATTGAAAAATCCGACCCCTCTACTACAAACAACTGTTGAACCGAGTAAACCTGAACAGAGAGAAATGTTGCTTGATGCCCTTTG
      L G D T K L L P Q R K K I E N P H P L L Q T T V E P S K P E Q R E M L L D A L L
1321  GAAATCTCAGATAGTATCCGCTTCTACGATATTACGTGGATTCTACGACACATGAATATTACTTTCTTTCTTAGGGAAAGTACAAATGGAAGTGATTAGTGCATGTTGCAAGAAAAG
      E I S D S D P L L R Y Y V D S T T H E I I L S F L G K V Q M E V I S A L L Q E K
1441  TATCATGTGGAGATAGAAATAACAGAGCCTACAGTCATTTATATGGAGAGACCGTTAAAAAATGCAGAATATACCATTACATCGAAGTGCCGCCAAATCCTTCTGGGCTTCCATTGGT
      Y H V E I E I T E P T V I Y M E R P L K N A E Y T I H I E V P P N P F W A S I G
1561  CTATCTGTATCACCGCTTCCGTTGGGAAGTGAATGCAGTATGAGAGCTCGGTTTCTCTGGTACTTAAATCAATCATTTCAAAATGCAGTTATGGAAGGGATACGCTATGGTTGTGAA
      L S V S P L P L G S G M Q Y E S S V S L G Y L N Q S F Q N A V M E G I R Y G C E
1681  CAAGGATTGTATGGTTGGAATGTGACGGAGCTGTAATCTGTTTAAAGTATGGCTTATACCTATAGCCCTGTAGTACCCAGCAGATTTTCGGATGCTGCTCCTATGTATTGGAACAA
      Q G L Y G W N V T D C K I C F K Y G L Y Y S P V S T P A D F R M L A P I V L E Q
1801  GTCTTAAAAAAGCTGGAACAGAATTGTTAGGCCATATCTTAGTTTTAAATTTATGCGCCACAGGAATATCTTTCACGAGCATACAACGATGCTCCTAAATATTGTGCGAACATCGTA
      V L K K A G T E L L E P Y L S F K I Y A P Q E Y L S R A Y N D A P K Y C A N I V
1921  GACACTCAATTGAAAAATAATGAGGTCAATCTTAGTGGAGAAATCCCTGCTCGGTGTATTCAAGAATATCGTAGTGATTAACTTTCTTTACAAATGGACGTAGTGTGTTTAAACAGAG
      D T Q L K N N E V I L S G E I P A R C I Q E Y R S D L T F T F T N G R S V C L E Q
2041  TTAAGAGGTACCATGTTTACTACCGGTGAACCTGTTTGCCAGCCCGCTCGTCCAAATAGTCGGATAGATAAAGTACGATATATGTTCAATAAAATAACTTAGTGTAATTAAGTTGTTAT
      L K G Y H V T T G E P V C Q P R R P N S R I D K V R Y M F N K I T *
2161  ATAAATATGTTTCTGTTAAATAAG
```