Corrigendum

Genes & Development 2: 786–800

Isolation of a recombinant copy of the gene encoding C/EBP

William H. Landschulz, Peter F. Johnson, Eli Y. Adashi, Barbara J. Graves, and Steven L. McKnight

A revised sequence of the rat *c/ebp* geneA. Jeannine Lincoln, Simon C. Williams, and Peter F. Johnson¹

ABL–Basic Research Program, National Cancer Institute–Frederick Cancer Research and Development Center, Frederick, Maryland 21702-1201 USA

We have discovered two errors in the published DNA sequence of the rat gene encoding the bZIP transcription factor, C/EBP (C/EBP α) (Landschulz et al. 1988). These mistakes occur in GC-rich regions within the first 160 nucleotides of the C/EBP-coding region and have been confirmed by sequencing both DNA strands. The first error results from the addition of an extra C residue at nucleotide +87 relative to the translational start site, whereas the second error is attributable to the omission

of a G residue at +160. These two sequence changes generate a conceptual frameshift that affects the amino acid sequence between residues 30 and 54 (Fig. 1). The altered sequence lies in a region that is nonconserved compared with C/EBP proteins from different species (Calkhoven et al. 1992; Xu and Tata 1992) and with other members of the C/EBP protein family (Williams et al. 1991; Cao et al. 1991), and that is rich in proline, alanine, and glycine residues in both reading frames.

Figure 1. (A) The corrected DNA and protein sequences between nucleotides +1 and +160 of the C/EBP-coding region. The positions where mistakes occurred in the published DNA sequence are indicated (Δ C and +G). The revised protein sequence between the two errors is highlighted and is aligned to the incorrect sequence shown beneath it. The *Sma*I restriction site (boxed) at +103 of the DNA sequence was used in constructing *lacZ* fusions to test the correct reading frame. (B) Location of the revised segment (solid box) in the C/EBP protein. Activation domains I and II (ADI and ADII) were mapped by Friedman and McKnight (1990) and Pei and Shih (1991). (BR) Basic region; (LZ) leucine zipper.

¹Inquiries to Peter F. Johnson.

Corrigendum

Several additional observations support the existence of this reading frame error in C/EBP. First, the revised sequence was corroborated by sequencing the same region of the highly related mouse *c/ebp* gene. (The mouse gene sequence reported in the GenBank data base contains the same two errors.) Second, the new reading frame is consistent with the expression of C/EBP–LacZ fusion genes joined in different registers within the affected region (unpubl. results). Third, the reading frame error apparently accounts for unexplained results obtained by two groups that studied the domain structure of C/EBP, where certain deletion mutants or fusion genes either failed to produce a detectable protein or generated a polypeptide that differed from the predicted size (Friedman and McKnight 1990; Pei and Shih 1991). One explanation offered for these observations was the existence of an amino-terminal “stability domain,” whose absence in some way destabilized the recombinant C/EBP proteins. We propose instead that the misexpression of such proteins can be explained by the incorrect reading frame used to design these altered genes.

Acknowledgments

The sequence changes reported here have been submitted to the EMBL–GenBank data base libraries. This research was sponsored by the National Cancer Institute under contract N01-CO-74101 with ABL. S.C.W. is a Special Fellow of the Leukemia Society of America.

References

- Calkhoven, C.F., G. AB, and J. Wijnholds. 1992. cC/EBP, a chicken transcription factor of the leucine-zipper C/EBP family. *Nucleic Acids Res.* **20**: 4093.
- Cao, Z., R.M. Umek, and S.L. McKnight. 1991. Regulated expression of three C/EBP isoforms during adipose conversion of 3T3-L1 cells. *Genes & Dev.* **5**: 1538–1552.
- Friedman, A.D. and S.L. McKnight. 1990. Identification of two polypeptide segments of CCAAT/enhancer-binding protein required for transcriptional activation of the serum albumin gene. *Genes & Dev.* **4**: 1416–1426.
- Landschulz, W.H., P.F. Johnson, E.Y. Adashi, B.J. Graves, and S.L. McKnight. 1988. Isolation of a recombinant copy of the gene encoding C/EBP. *Genes & Dev.* **2**: 786–800.
- Pei, D. and C. Shih. 1991. An “attenuator domain” is sandwiched by two distinct transactivation domains in the transcription factor C/EBP. *Mol. Cell. Biol.* **11**: 1480–1487.
- Williams, S.C., C.A. Cantwell, and P.F. Johnson. 1991. A family of C/EBP-related proteins capable of forming covalently linked leucine zipper dimers in vitro. *Genes & Dev.* **5**: 1553–1567.
- Xu, Q. and J.R. Tata. 1992. Characterization and developmental expression of *Xenopus* C/EBP gene. *Mech. Dev.* **38**: 69–81.

A revised sequence of the rat c/ebp gene.

A J Lincoln, S C Williams and P F Johnson

Genes Dev. 1994, **8**:

Access the most recent version at doi:[10.1101/gad.8.9.1131](https://doi.org/10.1101/gad.8.9.1131)

References

This article cites 7 articles, 5 of which can be accessed free at:
<http://genesdev.cshlp.org/content/8/9/1131.full.html#ref-list-1>

License

Email Alerting Service

Receive free email alerts when new articles cite this article - sign up in the box at the top right corner of the article or [click here](#).