Translational Neurodegeneration

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Correction: GM604 regulates developmental neurogenesis pathways and the expression of genes associated with amyotrophic lateral sclerosis

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The original version of this article [1] refers to a protein previously described from rat muscle and originally designated motoneuronotrophic factor 1 (MNTF1) [2]. Nucleotide and amino acid sequences for MNTF1 were submitted to GenBank on December 17, 2001 in association with US patent 6309877 (GeneBank IDs: AR175906.1, AR175907.1, AR175908.1, AAE85614.1, AAE85615.1) [3]. Between 2004 and 2009, additional nucleotide and protein sequences for MNTF1 were submitted to GenBank in association with subsequent patent applications (i.e, AR562526.1, AR562527.1, AR562528.1, AAV23796.1, AR630645.1, AR630646.1, AR630647.1, AAX01604.1, ABP12727.1, ABP12728.1, ABP12729.1, ABP12730.1, ABP12731.1, ABP12732.1, ABP12733.1, DJ051830.1, DJ051831.1, DJ051832.1, DJ051833.1, DJ051834.1, DJ051835.1, DJ051836.1, DJ051837.1, DJ051838.1, DJ051839.1, DJ051840.1, DJ051841.1, GP281736.1, GP281737.1, GP281738.1, ACQ12655.1, ACQ12656.1) [4–13]. All sequences were derived during patent prosecution by Genervon Biopharmaceuticals, LLC. Patent applications were submitted by co-author RMWC, by co-author DK, or in one instance [7] under contract service by a non-coauthor investigator.

The GM604 (Alirinetide) synthetic linear peptide sequence (H-Phe-Ser-Arg-Tyr-Ala-Arg-OH) evaluated in our study [1] was determined from these sequences and experiments as described in the above-cited patent applications [3–13]. Aside from these patents, however, there is limited evidence supporting GM604 as a true homologue of MNTF1 or the existence of MNTF1 in nature [14–22]. The synthetic linear peptide sequence GM604 therefore cannot be claimed as a true homologue of a naturally occurring protein. Further in vivo characterization of MNTF1 or MNTF1-related proteins thus remains an avenue for future work, although this was not an objective in our study [1], which focused on transcriptional responses to the synthetic hexapeptide defined above. This correction serves to provide relevant background information but does not affect results or conclusions from our reported study [1].

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References

1. Swindell WR, Bojanowski K, Kindy MS, Chau RMW, Ko D. GM604 regulates developmental neurogenesis pathways and the expression of genes associated with amyotrophic lateral sclerosis. Transl Neurodegener. 2018;7:30.

2. Chau RMW, Ren F, Huang W, Jen LS. Muscle Neuronotrophic factors specific for anterior horn motoneurons of rat spinal cord. In: Wegmann RJ, Wegmann MA, editors. World congress of cellular and molecular biology; Paris, France. Leuven: Peeters Press; 1992. p. 89–94.
3. Chau RMW. Polynucleotides encoding motoneuronotrophic factors. October 30, 2001. Patent No. US 6,309,877 B1. https://patentimages.storage.googleapis.com/c1/09/f3/1e59678ff221d3/US6309877.pdf.
4. Chau RMW. Motoneurotrophic factors. July 06, 2004. Patent No. US 6,759,389 B1. https://patentimages.storage.googleapis.com/ee/3f/02/ba71c87c1867dd/US6759389.pdf.
5. Chau RMW. Methods and use of motoneuronotrophic factors. January 11, 2005. Patent No. US 6,841,531 B2. https://patentimages.storage.googleapis.com/6e/0a/5b/50050fd0f3994f/US6841531.pdf.
6. Chau RMW. Isolation and use of motoneuronotrophic factor. February 02, 2006. Patent No. 2006/0025565. https://patentimages.storage.googleapis.com/d2/e5/bd/4b360af2949ee8/US20060025565A1.pdf.
7. Xue BB. Motoneuronotrophic factor gene sequences. February 15, 2007. Patent No. US 2007/0037161 A1. https://patentimages.storage.googleapis.com/6c/1e/c3/55c9de932facc9/US20070037161A1.pdf.
8. Chau RMW. MNTF peptides and compositions and methods of use. February 27, 2007. Patent No. US 7,183,373 B2. https://patentimages.storage.googleapis.com/99/dc/4b/9cd8da9c6f650e/US7183373.pdf.
9. Ko D, Kindy MS. Methods of treating neuronal disorders using MNTF peptides and analogs thereof. February 19, 2009. Patent No. US 2009/0048162 A1. https://patentimages.storage.googleapis.com/fe/0e/cb/495444fe58ab95/US20090048162A1.pdf.
10. Chau RMW. Motoneuronotrophic factor. March 24, 2009. Patent No. US 7,507,713 B2. https://patentimages.storage.googleapis.com/89/2e/7c/0ca88e70743ea2/US7507713.pdf.
11. Deshpande DM, Kerr DA, Ko D. MNTF differentiation and growth of stem cells. May 07, 2009. Patent No. US 2009/0117085 A1. https://patentimages.storage.googleapis.com/d8/3e/8b/863b4969444704/US20090117085A1.pdf.
12. Chau RMW, Ko D. MNTF peptides and compositions and methods of use. September 14, 2010. Patent No. US 7,795,215 B2. https://patentimages.storage.googleapis.com/d9/5e/35/ca681e7cad80cb/US7795215.pdf.
13. Ko D, Kindy MS. MNTF peptide compositions and methods of use. November 19, 2009. Patent No. US 2009/0286747 A1. https://patentimages.storage.googleapis.com/5f/da/02/9ee778c7acd315/US20090286747A1.pdf.
14. Zhou MH, Wu XY, Ren F, Zhao LP, Huang WQ, Yang ZY, Ren LS. Effect of 22kd, 35kd protein molecules from extract of skeletal-muscle on cultured anterior horn motoneuron of lumbar spine in rat. Chin Sci Bull. 1992;37:1742–6.
15. Zhou M, Huang Z, Wu X, Lu N, Rao X. Immunohistochemical localization of motoneuronotrophic factor in fetal andneonatal rats. Acta Anatomica Sinica. 1993;25:189–92.
16. Xinyu D, Weiquan H, Lan S, Wei W. Expression of motoneuronotrophic factor 1 and its receptors in rat submandibulary gland. Chin J Anat. 1996;20:540–3.
17. Di X, Huang WQ, Sun L. Immunohistochemical localization of c-fos p53 protein & MNTF1 receptor in early human placental villi. Acta Anat Sin. 1997;28:404–6.
18. Zhou M, Wu X, Chen S. The distribution of motoneuronotrophic factor 1 (MNTF1) and its receptor-like substance in the spinal cord and limb muscles of mice with motoneuron disease. Acta Acad Med Sin. 1997;19:171–8.
19. Di X, Huang WQ. Localization and morphometric study on motoneuronotrophic factor 1 and its receptor in developing chorionic villi of human placenta. Acta Anat Sin. 1997;29:86–9.
20. Ash DL, Nussbaum D, Jabs EW, Brushart T. Motoneuron trophic factor (MNTF) enhances peripheral nerve regeneration. Am J Hum Genet. 2003; 73(5):345.
21. Yu J, Zhu H, Ko D, Kindy MS. Motoneuronotrophic factor analog GM6 reduces infarct volume and behavioral deficits following transient ischemia in the mouse. Brain Res. 2008;1238:143–53.
22. Valko K, Kindy M, Evans J, Ko D. In vitro biomimetic HPLC and in vivo characterisation of GM6, an endogenous regulator peptide drug candidate for amyotrophic lateral sclerosis. ADMET DMPK. 2018;6(2):176–89.