capability to penetrate the challenging targets (Archakov *et al.* 2003; Watt 2006; Gozes 2007; Patel *et al.* 2007; Meade *et al.* 2009). Taken together, this study confers a precise demonstration about the broad-spectrum protective activity of ProTα-derived small peptide P_{30} against ischemic damages *in vitro* and *in vivo*. Thus, it is evident that P_{30} mimics the *in vitro* and *in vivo* neuroprotective actions of ProTα. The sequence homology of P_{30} domain in ProTα among all species is highly conserved; furthermore, this sequence is completely equal in human, rat, and mouse. From these facts, it is speculated that P_{30} domain may plays important roles in robustness of ProTα against neuronal damages.

In conclusion, ProTα-derived peptide P_{30} exerted its survival actions in cultured neurons against ischemic stress. P_{30} significantly blocked the ischemia-induced functional and cellular damages in retina as well as in brain, along with inhibition of the cerebral blood vessels disruption. Therefore, detailed mechanisms underlying neuroprotection by ProTα-derived small peptide may provide a novel therapeutic approach for the treatment of ischemic damages in the central nervous system.

Acknowledgements

We thank R. Fujita, J. Sugimoto, and S. Maeda for technical assistance and advice. We also thank M. Moskowitz for the valuable discussion. We acknowledge Parts of this study were supported by Grants-in-Aid for Scientific Research (to H.U.) from the Ministry of Education, Culture, Sports, Science and Technology (MEXT), and Health and Labor Sciences Research Grants (to H.U.) on Research from the Ministry of Health, Labor and Welfare. We have no conflict interest to report.

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