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[\[PDF \(725K\)\]](#) [\[References\]](#)**Brain-derived neurotrophic factor (BDNF) prevents the development of diabetes in prediabetic mice**Mitsugu YAMANAKA<sup>1)</sup>, Yasushi ITAKURA<sup>2)</sup>, Atsushi TSUCHIDA<sup>1)</sup>, Tsutomu NAKAGAWA<sup>1)</sup> and Mutsuo TAIJI<sup>1)</sup>

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**ABSTRACT**

We previously reported that peripheral injection of brain-derived neurotrophic factor (BDNF) exhibits hypophagic and hypoglycemic effects in obese hyperglycemic animals, indicating its antiobesity and antidiabetic effects. Since previous studies were focused on the effect of BDNF on overt diabetic animals with severe hyperglycemia, there was no evidence whether BDNF is effective or not for the development of diabetes in prediabetic animal models. Therefore, we evaluated the effect of BDNF on preventing the development of diabetes in *db/db* mice. First, we characterized age-related changes in the pathophysiology of diabetes in *db/db* mice. We chose 8 week-old *db/db* mice as the early diabetic stage (early intervention study) and 4 week-old *db/db* mice as the prediabetic stage (prevention study). Next, we examined the effects of BDNF on the progression of diabetes in early diabetic *db/db* mice. In the early intervention study using 8 week-old *db/db* mice, intermittent treatment with BDNF prevented the deterioration in hyperglycemia. Lastly, we examined the preventive effects of BDNF on the development of diabetes in prediabetic *db/db* mice. In the prevention study using 4 week-old *db/db* mice, treatment with BDNF prevented the age-related increase in blood glucose concentration. These results showed for the first time that BDNF prevents the development of diabetes in prediabetic *db/db* mice.

[\[PDF \(725K\)\]](#) [\[References\]](#)

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