Study shows that a molecule critical to nerve cells increases drammatically during hypertension

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Researchers at Oregon Health & Science University's School of Dentistry have made an important connection between a molecule critical to nerve cells and high blood pressure. Production of the molecule Brain-Derived Neurotrophic Factor (BDNF) appears to increase dramatically in blood pressure-sensing nerve cells during hypertension. The study, published online in the *Journal of Neuroscience Research*, may someday have implications for the prevention and treatment of high blood pressure, which affects about one in three adults in the United States.

BDNF is essential to the normal development and plasticity of nerve cells. Using two distinct hypertensive animal models, OHSU team data suggest a direct role of BDNF in regulation of blood pressure.

"We are now able to knock down BDNF in the blood pressure control system and can move toward answering the next critical question, which is whether BDNF contributes to the development of hypertension, or whether it provides a compensatory mechanism counteracting those that lead to hypertension" said Agnieszka Balkowiec, M.D., Ph.D., associate professor of integrative biosciences, OHSU School of Dentistry, and adjunct assistant professor of physiology and pharmacology, OHSU School of Medicine, whose lab teamed with Virginia Brooks, Ph.D., professor of physiology and pharmacology in the OHSU School of Medicine.

Previous studies from Balkowiec's lab showed that BDNF is made by blood pressure-sensing nerve cells called 'baroreceptors'. BDNF is released from the baroreceptors onto relay cells in the brainstem when nerve activity rises, as in hypertension

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