

OHSU discovery may someday lead to prevention and treatment of sudden infant death syndrome

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Researchers at Oregon Health & Science University have discovered that brain cells commonly thought to play a supporting role actually are critically important for the growth of brainstem neurons responsible for cardiorespiratory control. The discovery has profound implications for the prevention and treatment of SIDS (Sudden Infant Death Syndrome), the leading cause of death in children aged one month to one year.

The new discovery is [published online](#) in *Neuroscience*.

In their study, the OHSU team looked at glial cells, non-neuronal cells of the brain, and found that they very potently regulate growth of nerve cells in the brainstem. In fact, the glial cells actually inhibit the growth of brainstem neurons and may be as important for establishing neuronal networks as neurotrophic factors, a family of proteins essential for brain growth and survival. The OHSU study is the first to find that glial cells inhibit nerve cell growth.

"Previous research has shown that a common feature of the brains of SIDS babies is a dramatically increased number of glial cells," said Agnieszka Balkowiec, M.D., Ph.D., principal investigator and associate professor of integrative biosciences in the OHSU School of Dentistry. "Based on the results of our new study, the increase in glial cells in SIDS babies could be the cause of a compromised growth of brainstem neurons that control the cardiorespiratory function and, ultimately, cause death."

The new study also shows that glial cells direct the growth of brainstem neurons caused by BDNF (Brain-Derived Neurotrophic Factor), another molecule found by the Balkowiec lab to play an

important role in cardiorespiratory control.

"Our study shows that the picture is more complex than we had previously thought," said Balkowiec. "A better understanding of interactions between BDNF and glial cells could play a significant role in the development of treatment for SIDS, high blood pressure, and other disorders with a deficient cardiorespiratory control."

Provided by Oregon Health & Science University

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