

Scientists uncover mechanism for dental pain

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Researchers at Oregon Health & Science University's School of Dentistry have discovered a novel function of the peptide known as Nerve Growth Factor (NGF) in the development of the trigeminal nerve. The trigeminal nerve provides the signaling pathway for periodontal pain, dental surgical pain, and pain associated with temporomandibular disorder, trigeminal neuralgia, migraine, and other neuropathic and inflammatory conditions.

The study is posted online

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[www.neuropeptidesjournal.com/article/S0143-4179\(08\)00110-8/abstract](http://www.neuropeptidesjournal.com/article/S0143-4179(08)00110-8/abstract)

) in the journal *Neuropeptides* and will appear in print issues of that journal in early 2009.

Working with researchers in the dental school departments of Endodontology and Integrative Biosciences, second-year endodontology resident and lead author of the study, Leila Tarsa, D.D.S., M.S., found a new mechanism involved in establishing junctions - known as synapses - between trigeminal nerve cells. Nerve cells communicate with one another through chemicals called transmitters that are released at synapses. The transmitter release from nerve cells endings is possible only if aided by several molecules that are critical for proper function of the synapse. Tarsa's research shows that NGF promotes transport of one of the molecules (called synaptophysin) from the nerve cell body to its ending.

"The data indicate that NGF participates in formation of neuronal

connections in the trigeminal system," said Agnieszka Balkowiec, M.D., Ph.D., OHSU School of Dentistry assistant professor of integrative biosciences and OHSU School of Medicine adjunct assistant professor of physiology and pharmacology, who is the senior author of the study and whose lab hosted the research. "This study has broad implications for trigeminal nerve regeneration."

On the web: www.ohsu.edu/sod

Source: Oregon Health & Science University

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