

Team makes breakthrough demonstration of pH-regulating protein

December 22 2009

Researchers have identified the protein mechanism that senses bicarbonate fluctuations and adjusts blood pH levels.

A Canadian/U.S. research team led by University of Alberta biological sciences professor, Greg Goss and his graduate students Martin Tresguerres and Scott Parks achieved the first demonstration of the process in a whole animal. The researchers found that the protein adenylyl cyclase sensed and then regulated the pH blood levels in a dogfish shark following feeding.

"Researchers have been trying to see how this process works for 50 years," said Goss. "It opens a whole avenue of possibilities of how we could regulate the blood pH in the human body."

Blood pH, the acidity of blood, is tightly regulated. pH fluctuations throw off the body's metabolism and is related to a wide number of human ailments such a diabetes, [kidney disease](#) and male [infertility](#).

The [protein](#) adenylyl cyclase senses the bicarbonate (alkaline) level in the [blood](#) and triggers cascades of other proteins that enable cellular functions to adjust and maintain an acceptable pH level.

Research is moving forward to better understand the process and its possible implications for human health.

More information: Goss along with his graduate students and

colleagues at Cornell University and the Bamfield Marine Sciences Centre in B.C, published their findings this month in Proceedings of the National Academy of Sciences.

Provided by University of Alberta

Citation: Team makes breakthrough demonstration of pH-regulating protein (2009, December 22) retrieved 24 April 2024 from <https://phys.org/news/2009-12-team-breakthrough-ph-regulating-protein.html>

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