Medical Xpress

# Researchers discover cellular mechanism that protects against disease

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Researchers at Oregon Health & Science University have discovered a new mechanism within human cells that constantly protects us against disease. P. Michael Conn, Ph.D., a researcher at the OHSU Oregon National Primate Research Center directed the work. The findings are reported in the Feb. 15 issue of the journal *Proceedings of the National Academy of Sciences*.

"Cells communicate with each other by releasing chemical signals, like hormones," explained Conn. "These chemical signals are detected and received by structures called 'receptors' which reside in the outer membranes of other cells. Sometimes environmental toxins or radiation can cause mutations in these receptors. When this happens, these mutant receptors make errors — they may activate unexpectedly or fail to activate at all — and this behavior results in disease."

Conn and his colleague Jody Janovick, B.S., R.Ph. a senior research associate discovered that when certain receptors, called G-protein coupled receptors, become "constitutively activated" by mutation, they are naturally detected by a mechanism in the body and targeted for destruction so they cannot cause disease.

"Unfortunately, the mechanism cannot detect all of these faulty receptors, meaning that the system is important, but not perfect," added Conn.

This discovery is important because G-protein coupled receptors are the

largest class of drug-development targets used by pharmaceutical companies. This research increases understanding of how these drugs work and will lead to better understanding of basic cell mechanisms that are important for therapeutic development.

Provided by Oregon Health & Science University