

# Study shows link between gene variations and cancer survival

October 22 2008

---

Scientific research shows that certain genes can influence a person's likelihood to contract particular diseases, cancer for example. New research at the Masonic Cancer Center, University of Minnesota demonstrates that genetic markers may also show a person's likelihood to survive the disease.

A research study led by Brian Van Ness, Ph.D., has successfully identified combinations of genes associated with early clinical relapse of multiple myeloma, a cancer of the white blood cells that produce antibodies. These results raise the possibility that a patient's genetic background exerts an important influence on the patient's prognosis and response to treatment.

"Ultimately, the goal of this research is to predict drug efficacy and toxicity based on a patient's genetic profile, and develop individualized assessments and predictions for the right drug, at the right dose, for the right patient," Van Ness said. This approach offers the dual benefits of avoiding unnecessary treatment for patients less likely to respond to a particular drug, and targeting treatments to those who will benefit most.

The findings are reported in the current issue of the research journal *BMC Medicine*. Van Ness heads the University's Department of Genetics, Cell Biology, and Development, and conducts research through the Masonic Cancer Center.

In this study, Van Ness and his colleagues used genetic information that

the International Myeloma Foundation has gathered from myeloma patients worldwide through its program, Bank On A Cure®. This first-of-its-kind program involves several of the major treatment and research centers for myeloma worldwide and thousands of myeloma patients who donate DNA samples to the bank. The University of Minnesota houses one of the program's two DNA banks (the other is in London), and Van Ness is co-director of the program.

"Although myeloma is considered a fatal disease, individual patients have widely varied rates of disease progression and response to treatment because of attributes encoded in their DNA," Van Ness said.

According to Van Ness, the research study findings demonstrate that cancer outcomes differ because patients vary in the ways they absorb, distribute, metabolize, and transport drugs across cell membranes. Individual variations in genes that regulate these biologic processes may not only affect the effectiveness of the drug, but also can result in adverse side effects.

The findings from this study pave the way for similar investigations into other cancers, neurological and cardiovascular conditions, organ transplants, and other diseases.

Source: University of Minnesota

Citation: Study shows link between gene variations and cancer survival (2008, October 22) retrieved 18 April 2024 from <https://medicalxpress.com/news/2008-10-link-gene-variations-cancer-survival.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.