

Researchers discover key to making cancer-killing peptides

May 27 2011



Professor Paavo Kinnunen, whose research team at the Department of Biomedical Engineering has made the breakthrough

Researchers from Aalto University have found the mechanism of action for cancer-cell-killing peptides. This breakthrough is expected to lead to better medication, in particular better treatments for leukemia, skin cancer, and infections caused by multi-resistant bacteria.

Thanks to this new knowledge, it is hoped that future medical therapies will be more effective and have far fewer side effects. The first trials on patients are expected to take place over the next two years and the first finished products should be entering the market ten years from now.

The research has focused on peptides which target and lethally harm [cancer cells](#). Cytotoxic peptides are short chains of amino acids that are able to penetrate and damage the [lipid membrane](#) surrounding individual cancer cells. By manipulating this response, researchers hope to cause [cancer cells](#) to die off and leave all other cells unharmed.

"Our research has shown that the mechanism by which these life-saving peptides trigger cell-death is similar to that utilized by peptides which are the culprit of certain [neurodegenerative diseases](#)," explains Professor Paavo Kinnunen, whose research team at the Department of Biomedical Engineering has made the breakthrough. The mechanism is similar, yet the effects are polar opposites – either beneficial or lethal. Hence, the research results reached by Kinnunen and his team may affect not only the treatment of cancer but also the current understanding of neurodegenerative diseases such as Alzheimer's and Parkinson's diseases and their treatment.

Professor Kinnunen and his team have worked on cytotoxic peptides for a number of years. Interest in the topic is shared by research groups in many other universities, and other researchers have been able to confirm results reached by Kinnunen and his team.

Provided by Aalto University

Citation: Researchers discover key to making cancer-killing peptides (2011, May 27) retrieved 19 April 2024 from <https://medicalxpress.com/news/2011-05-key-cancer-killing-peptides.html>

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