

Scientist honored with second-most cited research paper of the decade

January 17 2006

Wladek Minor's busy laboratory inside Jordan Hall at the University of Virginia Health System is famous for strong cappuccino and European chocolates. But now there's something a lot bigger to crow about- the esteem of his competitive scientific colleagues around the world.

A professor of molecular physiology and biological physics and a native of Poland, Minor is a pioneer in the growing field of protein crystallography. His lab's work is not going unnoticed. A 1997 paper, "Processing of X-ray Differentiation Data Collected in Oscillation Mode," published with Zbyszek Otwinowski, a colleague at the University of Texas, is now the second-most cited scientific paper in the world in the last ten years, according to The Scientist magazine. The title may glaze the eyes of a layman, but the discovery is a building block of science and may one day help doctors treat cancer patients or people with viruses. "We are trying to elucidate the 3-dimensional structure of protein molecules which will hopefully lead to new cures for a host of diseases," Minor said.

Inside the Minor lab, a joyful polyglot of languages- Polish, Chinese, English- fills the air, usually seven days a week, amid chemical bottles, beakers, machines and microscopes. Minor's scientists use personal digital assistants (PDA's) connected to a central server to track all their experiments.

Minor and his ambitious team are tearing apart tiny proteins, trying to figure out the relationship between their structure and function. Their

goal is to solve one of the greatest mysteries in intelligent drug design-how specific, targeted drugs can kill viruses or cancer cells by finding their way around the human body's complex chemistry and innumerable defenses.

The 1997 paper describes a computer program used to process the data coming from X-ray experiments made on protein crystals. The program is now used in over 1,200 laboratories worldwide and has been improved over the years. Minor and his collaborators have mapped over 350 proteins in the last five years in 3-D using the technology. "Out of ten papers most widely cited by The Scientist, nine of them are biomedical and five of those are structural biology, which shows how important this field is," Minor said.

His lab is also part of a multi-institutional collaboration called the Midwest Center for Structural Genomics, which is developing new, integrated methods for cost-effective determination of protein structures through X-ray crystallography. It may take a long time, but the Center hopes to have complete images of all fundamental human protein structures. It's all made possible by what's come before- including the mapping of the human genome and advances in computer science.

Source: University of Virginia

Citation: Scientist honored with second-most cited research paper of the decade (2006, January 17) retrieved 13 May 2024 from

<https://phys.org/news/2006-01-scientist-honored-second-most-cited-paper.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.