



PRESS RELEASE

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Hauptman-Woodward Scientist Receives \$1.7 million NIH Grant
*Dr. Michael G. Malkowski receives grant for multi-faceted work that
one day may lead to better therapies for treating arthritis and other inflammatory diseases*

Dr. Michael G. Malkowski, Hauptman-Woodward research scientist, has received a \$1.7 million grant from the National Institutes of Health in support of his work to better understand the biological processes that occur as the human body reacts to anti-inflammatory medications.

When people take anti-inflammatory medications, such as aspirin, the aspirin inhibits an enzyme in the body (COX 2) which normally responds to injury by producing pain and swelling. Hence the aspirin gives the patient relief. For similar reasons, aspirin is effective in the prevention and treatment of cardiovascular conditions, but in that case the aspirin binds to a different enzyme (COX 1) to keep veins open for blood flow.

Why is this important?

Aspirin has proven over the last 100 years to be one of the safest and least expensive pain relievers used to treat a variety of ailments. While the aspirin affects both enzymes, it has a radically different effect on each. This difference leads to the importance of Malkowski's research. The aspirin inhibits COX1 making it nonfunctional and improving heart functionality. But in the case of COX2, the aspirin forms another complex that has very potent anti-inflammatory properties.

Malkowski's research is focused on understanding why and how that process happens – knowledge which is critical to the long-term future development of a new or combined therapeutic approach for the treatment of arthritis and other inflammatory diseases, such as asthma, atherosclerosis, cardiovascular diseases, etc., with fewer unwanted side effects.

His research has the potential to have medical relevance for literally millions of people worldwide.

“The medical relevance of this work for so very many people who suffer from inflammatory diseases – and who now in some cases, suffer from the side effects of the medications that are intended to treat those diseases is simply immense,” Malkowski said. “On a number of levels this study is similar to work I have conducted previously in my career so it is a topic that continues to fascinate me.”

How long will the study take and who will conduct the research?

The study is expected to take approximately five years, but may take longer based on the outcome of the research. The work will be led by Malkowski and conducted by all members of the Malkowski lab which includes: post-doctoral fellows Dr. Christopher Goulah and Dr. Mary Rosenblum, senior research associate Tracy Lloyd, as well as graduate students Danielle Simmons, Adam Krol, and Alex Vecchio.

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Is the work supported by others in addition to NIH?

Malkowski's initial funding for the project came from the Arthritis Foundation. With those funds, Malkowski was able to conduct all of the preliminary research needed to both test the viability of his project's hypothesis, and to develop the study to a level where it could be considered for funding by the NIH.

"This work would not have been possible without the support I received from the Arthritis Foundation. They believed in the work and supported the project until it reached a stage where we could then leverage their investment into additional financial support – in this case, support from the NIH," Malkowski said. "This is the ideal case where a foundation or a private philanthropist supports a scientist's work through its beginning stages and sees a return on their investment not only in the results of the research, but also in the resulting support from other financial backers."

About Malkowski

Malkowski received his Ph.D. in Biochemistry from Wayne State University in Detroit, Michigan and his bachelor's degree in Biochemistry from the University of Detroit in Detroit, Michigan. He resides in Williamsville, New York. In addition to the research discussed above, the Malkowski laboratory also deals with the structural characterization and functional analysis of other enzymes involved in lipid metabolism. . Malkowski is also the Project Manager and a co-PI for the Center for High-Throughput Structural Biology (CHTSB), housed at HWI, where he is involved in the development of tools for high-throughput characterization of membrane proteins. The CHTSB is one of six specialized research centers established nationally through the Protein Structure Initiative within the National Institute of General Medical Sciences at the NIH.

About HWI

With more than 50 years of exceptional scientific research, HWI is an independent, non-profit facility specializing in the area of fundamental biomedical research known as structural biology. Our team of more than 75 staff members is committed to improving human health by studying the causes of diseases, as well as potential therapies, at their basic molecular level. We are located in the heart of the Buffalo Niagara Medical Campus in downtown Buffalo, New York, in a new state-of-the-art structural biology research center at 700 Ellicott Street. For more information, visit HWI's website at www.hwi.buffalo.edu or call 716-898-8600.