

Marquette University: Biological science professor receives \$950,000 NSF grant

Posted on Monday, Sep 20, 2021

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MILWAUKEE — Dr. Anita Manogaran, associate professor of biological sciences in the Klingler College of Arts and Sciences at Marquette University, has been awarded a \$950,000 grant from the National Science Foundation to address fundamental questions about how cells respond to and manage misfolded and aggregating proteins.

Diseases such as Alzheimer's, Parkinson's or amyloidosis are aging disorders that are linked to misfolded, aggregated proteins in tissues such as the brain or heart. Yet, it is still unclear how aggregating proteins do damage at the cellular level.

"These are devastating diseases, but, at a biological level, there is something we have overlooked. You never see adolescents or the young with these types of disease," Manogaran said. "This means that young cells know how to take care of these damaging protein aggregates, and old cells are just not that good at it. However, if we can understand what goes on in young cells, we should be able to unlock what is going wrong in old cells."

Manogaran and her team will explore how cells use molecular tracks in the cell, called the cytoskeleton, to help bring together and move protein aggregates into different compartments of the cell. They will also determine how environmental stress or age influence these processes to determine whether all cells have common mechanisms to manage protein aggregates.

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Heidi Bostic, dean of the Klingler College of Arts and Sciences. “Dr. Manogaran also has used her research to recruit and engage first generation and underrepresented students, furthering Marquette’s ambitious goals in these areas. Her mentorship has led to numerous Marquette students going on to prestigious Ph.D. and M.D. programs.”

In addition to its scientific objectives, this NSF funding will help Manogaran expand access to research by integrating experiments into a course for undergraduates at Marquette University and Lakeland University, a Wisconsin liberal arts college with many first-generation students.

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