



Wednesday, September 8, 2021

4:00 P.M. By Zoom

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Biochemistry
&
Molecular
Biophysics

Seminar

Storing information in Amyloids



Kausik Si

Molecular and Integrative Physiology
University of Kansas School of Medicine
Stowers Institute for Medical Research

For over a century, amyloids have been associated with pathology, particularly pathology of the nervous system, and have been studied as an unintended byproduct of protein mismanagement, an irreversible dead-end for a protein. We were thus surprised to find, while seeking to understand how memories withstand time, that certain amyloids can stabilize memory. The discovery of functional amyloids in the brain forced us to rethink long-standing assumptions on how and why amyloids are formed. Regulatable amyloids have affordances relevant to various biological processes: self-sustaining change in function, increase in local concentration, a structured platform, and a highly stable yet malleable structure. We have now identified additional amyloids involved in determining cell fate or controlling embryonic patterning. These amyloids have given us access to unexplored areas, such as what structural features make amyloids regulatable, how cells assemble amyloids in a controlled way, and once formed, how cells remove amyloids when needed.