



HOKKAIDO UNIVERSITY

AMBITIOUS LEADER'S PROGRAM

Fostering Future Leaders to Open New Frontiers in Materials Science

Ambitious 物質科学セミナー・生物物理学会北海道支部講演会

Biological Phase Transitions: Where Chemistry and Physics Meet Biology

Professor Samrat Mukhopadhyay

Indian Institute of Science Education and
Research (IISER) Mohali

2024年10月18日(木) 16:00~

北海道大学 理学部5号館 5-206



Cells use membrane-bound organelles to compartmentalize components and regulate processes. Recent research highlights an alternative mechanism involving biomolecular condensates formed via phase separation of proteins and nucleic acids. These condensates can transition into amyloid aggregates linked to diseases. Our prion biology research found that prion protein (PrP) can phase-separate through weak interactions, with a specific mutation (Y145Stop) forming dynamic droplets that become amyloid-like aggregates. This transition is less likely in full-length PrP, indicating an evolutionary role. PrP also forms complex condensates with neuronal proteins in the presence of RNA, studied using advanced techniques like SERS and single-molecule FRET.



北海道大学 スマート物質科学を拓く
アンビシャスプログラム

連絡先：北海道大学大学院

理学研究院化学部門 石森浩一郎

(Tel: 011-706-2707,

e-mail: koichiro@sci.hokudai.ac.jp)