



## BIOINFORMATICS SEMINAR

### SUA MYONG

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**JOHNS HOPKINS UNIVERSITY**

#### MOLECULAR MECHANISM UNDERLYING ALS-LINKED FUS MUTATION

Ribonucleoprotein (RNP) granules are membrane-less cellular compartments used for RNA storage, degradation and localization. They form liquid like droplets in cells but such property is converted to fibril or amyloid-like state in neurodegenerative diseases such as ALS and FTD which are hallmarked by pathogenic aggregation of FUS, TDP-43 and other hnRNPs. Recent studies reported on the spontaneous formation of liquid like droplets by these proteins promoted by conditions such as low salt and high protein concentration, but the molecular mechanism that gives rise to RNA-protein assembly and dynamic state of RNP granule remains elusive. We are employing a combination of single molecule fluorescence, biochemical, biophysical tools to dissect molecular underpinnings of FUS-RNA interaction which contribute to granule assembly and dynamics and how the process is perturbed by ALS-linked FUS mutants.

#### BIOGRAPHY

##### EDUCATION:

**2002** Ph.D in Nutrition, University of California, Berkeley [Thesis: Folate-mediated one-carbon flux into thymine and purines in CHO cell lines. (Advisor: Barry Shane Ph.D)]

**1994** B.S in Molecular Cell Biology, University of California, Berkeley [Thesis: Aspartate receptor binding protein characterization by site-specific mutagenesis. (Advisor: Sunghou Kim Ph.D)]

##### TEACHING:

Single molecule Single Cell Biophysics (Biophysics Elective; fall 2017, Johns Hopkins University)

Topics: single molecule techniques including smFRET, optical tweezers, next generation sequencing, transcriptomic analysis, single molecule imaging in live cells.

##### RESEARCH INTEREST:

DNA recombination/repair and its role in cancer development and environmentally induced human diseases, virus infection and antiviral signaling, microRNA processing by dicer and TRBP, photophysics.

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