

Kennesaw State University

DigitalCommons@Kennesaw State University

---

Symposium of Student Scholars

---

## The role of long non-coding RNA (lncRNA) in the organization of nuclear bodies

SooBin An

*Department of Molecular and Cellular Biology, Kennesaw State University, Kennesaw, GA, United States.*

Follow this and additional works at: <https://digitalcommons.kennesaw.edu/undergradsymposiumksu>



Part of the [Cell Biology Commons](#), and the [Molecular Genetics Commons](#)

---

An, SooBin, "The role of long non-coding RNA (lncRNA) in the organization of nuclear bodies" (2022).  
*Symposium of Student Scholars*. 302.

<https://digitalcommons.kennesaw.edu/undergradsymposiumksu/Fall2022/presentations/302>

This Oral Presentation (15-min time slots) is brought to you for free and open access by the Office of Undergraduate Research at DigitalCommons@Kennesaw State University. It has been accepted for inclusion in Symposium of Student Scholars by an authorized administrator of DigitalCommons@Kennesaw State University. For more information, please contact [digitalcommons@kennesaw.edu](mailto:digitalcommons@kennesaw.edu).

## **The role of long non-coding RNA (lncRNA) in the organization of nuclear bodies**

SooBin An, Selma Atic, and Anton Bryantsev

Department of Molecular and Cellular Biology, Kennesaw State University, Kennesaw, GA

Nuclear bodies (NBs) (e.g., the nucleolus, nuclear speckles, and others) are membraneless compartments within the eukaryotic cell nucleus that selectively accumulate and retain specific nuclear proteins. NBs have become a new interest in recent discoveries because of their potential involvement in cancer and neurological disorders. However, the regulation and function of NBs are still enigmatic. Our laboratory studies a specific type of NBs, called B-bodies, to understand how NBs are formed and regulated in the nucleus. We hypothesized that long non-coding RNA (lncRNA) functions as a structural scaffold of NBs.

The B-body is a recently discovered NB expressed in the flight muscles of the fruit fly (*Drosophila*). B-bodies contain a protein called Bruno (Bru), which is essential for proper flight muscle development. Using advanced staining methods and microscopy, we identified the presence of the lncRNA *Hsr-omega* within B-bodies. Using genetic techniques, we removed *Hsr-omega* and, separately, Bru from the cells to analyze the resulting effects on the integrity of B-bodies. Based on our findings, it is the RNA component, not the protein component, that plays a pivotal role in assembling the B-body. Future studies should understand the mechanism of Bru trafficking in B-body and the function of *Hsr-omega* besides the scaffold of B-body.