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EDUCATION AND TRAINING

- 2024- Research Scientist 3, University of New Mexico Health Sciences Center
*Project: **Biological Relevance of Stress Granule Assembly during Lysosome Damage***
- 2021-2024 Research Associate, Johns Hopkins Bloomberg School of Public Health
*Project: **Role of ADP-ribosylation in Stress Granule Assembly***
- 2016-2021 Postdoctoral Fellow, Johns Hopkins Bloomberg School of Public Health
Advisor: Anthony K L Leung; Co-Advisor: Diane Griffin
*Project: **Mechanistic Insights into Stress Granule Modulation during Alphavirus Infection***
- 2012-2016 Ph.D. in *Molecular Biology*, Chosun University
Advisor: Takbum Ohn
*Thesis: **Functional Analysis of NEDDylation in Stress Granule Assembly***

AWARDS AND HONORSAWARDS:

- 2021-25 Forbeck Scholar, William Guy Forbeck Research Foundation
- 2020 Sharon Krag Award for outstanding leadership
- 2019 Best Poster Award, Biochemistry and Molecular Biology Department Retreat
- 2018 Winner, Cell Image Contest, GE Healthcare
- 2018 1st prize, Research photo contest, Johns Hopkins University
- 2012-16 Merit scholarship for PhD, Chosun University
- 2008 V.O. Chithambaranar Award (Excellence in Biotechnology), Anna University
- 2008 Periyar Award (Excellence in Academics), Anna University
- 2007-08 Student Project Scheme Award, Tamil Nadu State Council for Science and Technology

HONORS:

- 2020 Invited webinar talk, Arunai Engineering College, India
- 2019 Postdoc representative, School of Public Health
- 2018-19 Co-President, Johns Hopkins Postdoctoral Association
- 2017- Co-Chair, School of Public Health Postdoctoral Association
- 2017-18 Co-Chair, Professional Development Committee
- 2017 Featured in BRIC (<http://tinyurl.com/zpuy9co>) for novel findings as a graduate student

RESEARCH INTEREST

Stress Granules, Virus-Host Interactions, Cellular stress response, RNA-binding proteins, Biomolecular Condensates, ADP-ribosylation

PUBLICATIONS

Indicates a mentored student | Highlight=First-author papers

RESEARCH ARTICLES:

1. **A. K. Jayabalan**, K. Bhambhani[#], A. K. L. Leung, PARP10 is Critical for Stress Granule Initiation. <https://doi.org/10.1101/2023.10.13.562236> [Link to preprint](#) (Under revision in Life Science Alliance)
2. V. Gorbunova, M. Buschbeck, X. A. Cambronne, K. Chellappa, D. Corda, J. Du, M. Freichel, J. Gigas, A. E. Green, F. Gu, I. Guberovic, **A. K. Jayabalan**, I. Khansahib, S. Mukherjee, A. Seluanov, M. A. Simon, L. J. Sverkeli, N. Kory, D. C. Levine, I. Matic, A. Nikiforov, J. G. M. Rack, S.-I. Imai, D. A. Sinclair, D. Toiber, Y. Zhao, R. Mostoslavsky, L. Kraus, A. H. Guse, The 2021 FASEB science research conference on NAD metabolism and signaling. *Aging*. **13** (2021).
3. K. De, **A. K. Jayabalan**, R. Mariappan[#], V. S. Ramasamy, T. Ohn, Dihydrocapsaicin induces translational repression and stress granule through HRI-eIF2 α phosphorylation axis. *Biochem. Biophys. Res. Commun.* (2021).
4. M. Dasovich, J. Zhuo, J. A. Goodman, A. Thomas, R. L. McPherson, **A. K. Jayabalan**, V. F. Busa, S.-J. Cheng, B. A. Murphy, K. R. Redinger, Y. M. O. Alhammad, A. R. Fehr, T. Tsukamoto, B. S. Slusher, J. Bosch, H. Wei, A. K. L. Leung, High-Throughput Activity Assay for Screening Inhibitors of the SARS-CoV-2 Mac1 Macrodomein. *ACS Chem. Biol.* (2021).
5. **A. K. Jayabalan**, S. Adivarahan, A. Koppula, R. Abraham, M. Batish, D. Zenklusen, D. E. Griffin, A. K. L. Leung, Stress granule formation, disassembly, and composition are regulated by alphavirus ADP-ribosylhydrolase activity. *Proc. Natl. Acad. Sci. U. S. A.* **118** (2021).
6. **A. K. Jayabalan**, D. E. Griffin, A. K. L. Leung, Alphavirus nsP3 ADP-ribosylhydrolase activity disrupts stress granule formation. *bioRxiv* (2019).
7. P. Devanand, S. Sundaramoorthy, M. S. Ryu, **A. K. Jayabalan**, T. Ohn, I. K. Lim, Translational downregulation of Twist1 expression by antiproliferative gene, B-cell translocation gene 2, in the triple negative breast cancer cells. *Cell Death Dis.* **10**, 1–16 (2019).
8. J. A. Kim^{*#}, **A. K. Jayabalan**^{*}, V. K. Kothandan[#], R. Mariappan[#], Y. Kee, T. Ohn, Identification of Neuregulin-2 as a novel stress granule component. *BMB Rep.* **49**, 449–454 (2016). (*Co-first author)
9. **A. K. Jayabalan**, A. Sanchez, R. Y. Park, S. P. Yoon, G. Y. Kang, J. H. Baek, P. Anderson, Y. Kee, T. Ohn, NEDDylation promotes stress granule assembly. *Nat. Commun.* **7**, 1–14 (2016).
10. J. Park, S. Ahn, **A. K. Jayabalan**, T. Ohn, H. C. Koh, J. Hwang, Insulin Signaling Augments eIF4E-Dependent Nonsense-Mediated mRNA Decay in Mammalian Cells. *Biochim. Biophys. Acta.* **1859**, 896–905 (2016).
11. H. Tak, J. Kim, **A. K. Jayabalan**, H. Lee, H. Kang, D.-H. Cho, T. Ohn, S. W. Nam, W. Kim, E. K. Lee, miR-27 regulates mitochondrial networks by directly targeting the mitochondrial fission factor. *Exp. Mol. Med.* **46**, e123 (2014).

REVIEW ARTICLES:

12. **AK Jayabalan**, A Ayeni, J Jia, Calcium release from damaged lysosomes triggers stress granule formation for cell survival. *Autophagy* **21** (6), 1390-1392 (2025).
 13. **A. K. Jayabalan**, D. E. Griffin, A. K. L. Leung, Pro-Viral and Anti-Viral Roles of the RNA-Binding Protein G3BP1. *Viruses*. **15** (2023).
 14. **A. K. Jayabalan**, T. Ohn, Mammalian RNA Granules. *Biomedical Science Letters*. **20**, 1–7 (2014).
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PRESENTATIONS (ORAL ONLY)INVITED TALKS/SEMINARS:

- 2024 “Biomolecular Condensates in Health and Disease”, Department of Biology, Texas A&M University
- 2024 “Virus-Host Battle at Stress Granules: Insights from Alphavirus Macrodomain”, Department of Microbiology and Immunology, University of Iowa, Carver College of Medicine
- 2024 “Virus-Host Battle at Stress Granules: Insights from Alphavirus Macrodomain”, Immunity and Pathogenesis division, Burnett School of Biomedical Sciences, University of Central Florida
- 2023 “Virus-Host Battle at Stress Granules: Insights from Alphavirus Macrodomain”, Department of Microbiology and Immunology, University at Buffalo
- 2023 “Virus-Host Battle at Stress Granules: Insights from Alphavirus Macrodomain”, Department of Microbiology and Immunology, Stony Brook University
- 2020 “Cellular Stress Response Against Viral Infection”, Invited Webinar Talk, Arunai Engineering College, India (Virtual)

PRESENTATIONS AT CONFERENCES:

- 2023 Aravinthkumar Jayabalan “Poly-ADP-ribose polymerase 10 (PARP10) is necessary and critical for stress granule condensation”. *Spring Scholar Retreat 2023*, William Forbeck Research Foundation, Lake Geneva
- 2022 Aravinthkumar Jayabalan “Principles of Stress Granule Condensation: Lessons from Viral Infection”. *Biomolecular Condensates in Cancer*, William Forbeck Research Foundation, San Diego.
- 2022 Aravinthkumar Jayabalan, Diane E. Griffin, and Anthony K. L. Leung. “Role of Biomolecular Condensates during Alphavirus Infection”. *Carnegie-Hopkins Microbiology Minisymposium*.
- 2022 Aravinthkumar Jayabalan, Diane E Griffin, and Anthony K L Leung. “The Novel Role of Alphavirus Macrodomain in Regulating Stress Granule Integrity and Viral Translation”. *BMB-MMI summer research forum*, Johns Hopkins University, Baltimore, USA
- 2021 Aravinthkumar Jayabalan, Srivathsan Adivarahan, Aakash Koppula, Rachy Abraham, Mona Batish, Daniel Zenklusen, Diane E. Griffin, and Anthony K. L. Leung. “Alphavirus ADP-ribosylhydrolase Activity Controls Stress Granule Dynamics”. *The NAD⁺ Metabolism and Signaling Conference*. (Virtual)
- 2021 Aravinthkumar Jayabalan, Diane E Griffin, and Anthony K L Leung. “Role of Stress Granules During Alphavirus Infection”. *Department of Biochemistry and Molecular Biology retreat Postdoc Club presentation*, Johns Hopkins University, Baltimore, USA
- 2020 Aravinthkumar Jayabalan, Diane E Griffin, and Anthony K L Leung. “Alphavirus macrodomain regulates stress granule integrity”. *BMB-MMI summer research forum*, Johns Hopkins University, Baltimore, USA
- 2019 Aravinthkumar Jayabalan and Anthony K L Leung. “Cellular Structure Re-Organization by Alphaviruses”. *Research Colloquium – BMB Dept*, Johns Hopkins University, Baltimore, USA
- 2018 Aravinthkumar Jayabalan and Anthony K L Leung. “ADP-ribosylhydrolase activity of nsP3 is critical to disassemble stress granules”. *Department of Biochemistry and Molecular Biology Annual Retreat*, Notre Dame University of Maryland, Baltimore, USA
- 2018 Aravinthkumar Jayabalan, Diane E Griffin, and Anthony K L Leung. “ADP-ribosylhydrolase activity of nsP3 is critical to disassemble SGs”. *American Society of Virology, ASV*, University of Maryland, College Park, USA

PROFESSIONAL ACTIVITIES

Leadership

- 2019 *Postdoc representative*, Bloomberg School of Public Health [*served over 180 postdocs*]
 2018-19 *Co-President*, Johns Hopkins Postdoctoral Association (JHPDA) [*served over 1500 postdocs*]
 2017-20 *Co-Chair*, Bloomberg School of Public Health Postdoctoral Association [*served over 180 postdocs*]
 2017-18 *Co-Chair*, Professional Development Committee, JHPDA

Other professional activities

- Session Chair** Hopkins RNA meeting, 2022
- Organizer** Writing Accountability Group, Johns Hopkins Bloomberg School of Public Health, 2019-20
 Johns Hopkins Postdoctoral Conference, 2019
- Poster Judging** Biochemistry and Molecular Biology Department Annual Retreat, 2019
 Johns Hopkins Postdoctoral Conference, 2019
 Johns Hopkins Postdoctoral Annual Retreat, 2018
 Biochemistry and Molecular Biology Department Annual Retreat, 2017
- Planning Committees** Biochemistry and Molecular Biology department Annual Retreat, 2017
 Johns Hopkins Postdoctoral Annual Retreat, 2018
 Johns Hopkins Postdoctoral Conference, 2019

EDITORIAL AND OTHER PEER REVIEW ACTIVITIES

Editorial Board Member

- International Journal of Biochemistry & Physiology (IJB)
 Open Access Journal of Mycology & Mycological Sciences (OAJMMS)

Journal Peer Review Activities

Ad Hoc peer reviewer for *Viruses*, *Cells*, *Biology*, *Animals*, *Biomedicines*, *International Journal of Molecular Sciences*, *Gene reports*, *Medicine*, *Archives of Microbiology*, *Tropical Medicine and Infectious Disease*, and *Frontiers journal* including *Cellular and Infection Biology*, *Immunology*, *Molecular Biosciences*, and *Pharmacology*

MENTORING

<i>Undergraduate</i>	2022-2024	Krishna Bhambhani
	2022	Abby Swamidoss
	2019	Deepthi Sudhakar
	2018-19	Emily Burnette
	2013-15	Ka Young
<i>Master's Student</i>	2013-15	Mine Minh
	2022-23	Yuqian Wang
	2013-14	Jin Ah Kim
<i>PhD Student</i>	2025	Aanuoluwakiiitan O Ayeni
	2022-23	Jasper Moh
	2020	Nelson Yeung
	2019	Jessica Resnick
	2015-16	Ramesh Marippan
	2014-15	Vinoth Kothandan

RESEARCH GRANT PARTICIPATION

1. **Title:** Understanding how virus virulence is regulated by the ADP-ribosylhydrolase activity of the macrodomain—a potential drug target, Fisher Center Discovery Program
Sponsoring Agency: The Sherrilyn and Ken Fisher Center for Environmental Infectious Diseases, Johns Hopkins University School of Medicine
Role: Co-Investigator
Funding year: 2018
2. **Title:** Identifying the novel role of alphavirus macrodomain in regulating stress granule integrity and viral translation
Sponsoring Agency: NIH Pathway to Independence Award (Parent K99/R00) – NIAID
Role: Investigator
Impact Score: 17 (*Not funded*)
Submission year: 2020-21

GRANT REVIEW

External expert reviewer of an FRM grant (2024)