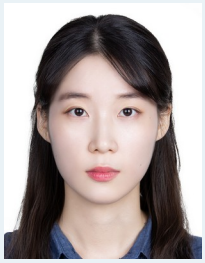
JIYUN CHOI, Ph.D.

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RESEARCH & COLLABORATION PROFILE

KEY WORDS: MicroRNAs, Alzheimer's disease, Exosome, Apoptosis, Inflammation, Differentiation



Research Snapshot. Research focuses on microRNA-based therapeutic strategies for Alzheimer's disease, investigating their roles in neuronal protection, amyloid-beta and tau pathology, and cognitive function. I also explore extracellular vesicle-mediated neuronal differentiation and transcriptomic approaches to identify novel therapeutic targets and disease-associated molecular mechanisms.

RESEARCH EXPERTISE

- Cell culture
- FACS analysis
- MTT assay
- Western blotting
- ELISA
- TEM
- qPCR
- Cryosection
- Immunocytochemistry & Immunohistochemistry
- Perfusion
- Genotyping
- Cloning and gene transfection/transformation
- Animal handling & Behavior test

RECENT RESEARCH HIGHLIGHTS

Recent research focuses on miRNA-mediated therapeutic strategies for Alzheimer's disease, elucidating the molecular mechanisms underlying neuronal differentiation, neuroprotection, and neuroinflammation. I have identified novel miRNAs that modulate neuronal differentiation through Wnt/MAPK signaling and demonstrated the therapeutic potential of miRNA inhibition in reducing amyloid-β accumulation, tau phosphorylation, neuronal apoptosis, and neuroinflammation. Additionally, my research has explored small-molecule-mediated neuronal differentiation through Wnt signaling pathways, providing insights into potential therapeutic approaches for neurodegenerative diseases.

POTENTIAL COLLABORATION RESEARCH

Best-fit collaborator areas:

- **1. RNA sequencing**
- **2. Proteomics**
- **3. Metabolism**
- **4. Exosome**

SELECTED RECENT PUBLICATIONS

1] Choi J*. Inhibition of miR-4284 could reduce apoptosis and neuroinflammation by targeting APBA1/JAK1/STAT3 signaling in Alzheimer's disease. Cell Biosci. 2025

2] Choi J*. A novel miR-4536-3p inhibition ameliorates Alzheimer's disease by reducing Aβ accumulation and tau phosphorylation. Alzheimers Res Ther. 2025

3] Choi J*. Therapeutic effects of miR-937-3p by targeting NTN1 expression and regulating apoptosis in an Aβ-induced neuronal cell death. Sci Rep. 2025

4] Choi J*. Novel miRNAs, miR-937-3p, miR-4536-3p, and miR-4650-5p, can Modulate Neuronal Differentiation via the Wnt/MAPK Pathway in SH-SY5Y Cells. Mol Neurobiol. 2025

5] Choi J*. BML-281 promotes neuronal differentiation by modulating Wnt/Ca(2+) and Wnt/PCP signaling pathway. Mol Cell Biochem. 2024

CONTACT

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REPRESENTATIVE RESEARCH FIGURES / SCHEMES

