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소속: 성균관대학교/Sungkyunkwan University

기타소속: 양자생명물리과학원/Institute of Quantum
Biophysics

강연제목: 집속 초음파와 유전자 조작 박테리아를 활용한 종양 치료 강화

Enhancing Tumor Therapy Through the Integration of Focused Ultrasound and Engineered Bacteria

Abstract:

Engineered bacteria can target tumors and deliver drugs but face issues like low efficacy and side effects. This study combines bacteria expressing gas vesicles (GVs) and TRAIL with focused ultrasound (FUS) to overcome these challenges. FUS precisely triggers bacterial lysis by cavitating GV, releasing therapeutic agents at the tumor site. It also improves drug delivery by enhancing cell permeability and directing bacteria to tumors. In mice, this method reduced tumor volume by 40% with just two minutes of FUS, showing strong potential for safe, effective, and controllable bacteria-based tumor therapy.

Brief Biosketch

2024.07 – 성균관대학교 양자생명물리과학원 박사후 연구원

2024.03 – 2024.07: 포항공과대학교 전자공학과 박사후 연구원

2018.03 – 2024.02: 포항공과대학교 시스템생명공학부 박사

연구분야: 음향 집게, 초음파 트랜스듀서, 생명물리학

2024.07 – Postdoctoral Training in Institute of Quantum Biophysics, Sungkyunkwan University

2024.03 – 2024.07: Postdoctoral Training in Department of Electrical Engineering, POSTECH

2018.03 – 2024.02: Ph.D. in School of Interdisciplinary Bioscience and Bioengineering from POSTECH

Research Interests: Acoustic tweezers, ultrasound transducers, and biophysics