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강연제목: 고주파 초음파 기반 바이오 응용 기술 개발 (Biological applications using high frequency ultrasound)

Abstract:

Acoustic tweezers are capable of manipulating objects singularly or in a group through both air and water. When compared to other tweezer technologies, such as optical and magnetic tweezers, acoustic tweezers possess a significant advantage in terms of trapping larger objects with stronger forces. Moreover, there is no requirement for trapped samples to be optically transparent or labeled with a magnetic bead. A definitive advantage of single beam acoustic trapping is that it employs only a single transducer. In the current study, we have demonstrated the efficacy of single beam acoustic tweezers (SBAT) in manipulating cells and exploring various biological applications, such as measuring intercellular forces and mechanical properties. This study marks a significant step forward in investigating cell mechanics through the use of high-frequency acoustic tweezers.

Brief Biosketch

Dr. Hae Gyun Lim received the B.S. degree in biochemistry from the University of California at Los Angeles, Los Angeles, CA, USA, in 2010, and the M.S. and Ph.D. degrees in biomedical engineering from the University of Southern California, Los Angeles, in 2014 and 2017, respectively. From 2013 to 2017, he was a Research Assistant at the NIH Resource Center for Medical Ultrasonic Transducer Technology. He worked as a Research Assistant Professor with the Department of Convergence IT Engineering, Pohang University of Science and Technology (POSTECH), Pohang, South Korea, from 2019 to 2020. He is currently an Assistant Professor in the Department of Biomedical Engineering, Pukyong National University, Busan, South Korea.