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Non-Invasive and Localized Blood-Brain Barrier Disruption by Focused Ultrasound

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During the last years, the knowledge of ultrasound non-invasively induced bio-effects significantly changed the scope of how ultrasound might be used in the future. Non-invasive and targeted brain surgery with focused ultrasound (FUS) became major research developments in the field of therapeutic ultrasound. In addition, temporary blood-brain barrier disruption (BBBD) and local drug delivery are major topics of current therapeutic ultrasound research activities. The BBBD with focused ultrasound system broadened the variety of potential brain applications significantly, including brain tumor and neurodegenerative diseases. This presentation will give an overview of BBBD and brain drug delivery.

Keywords: Focused ultrasound, blood brain barrier, drug delivery