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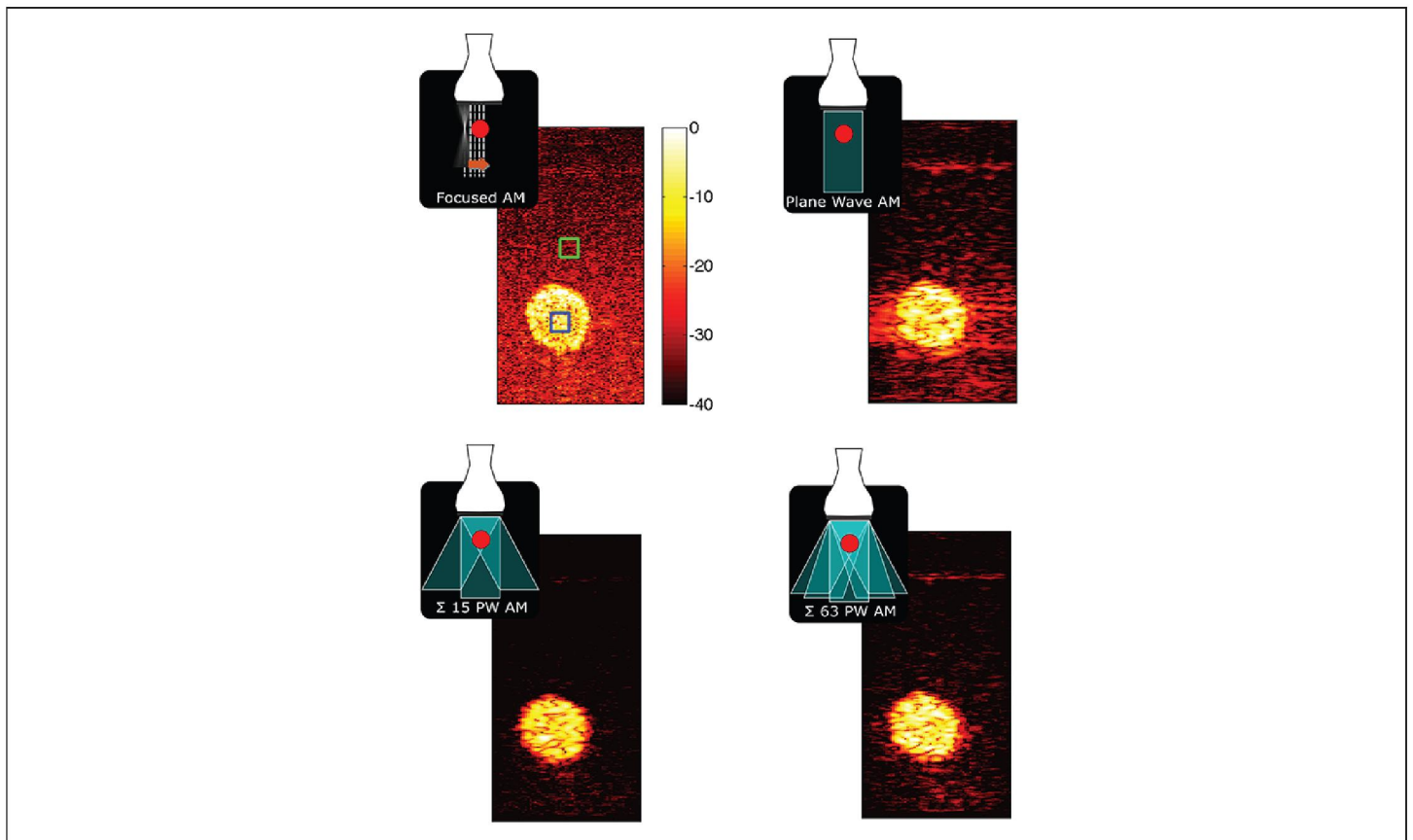
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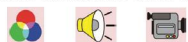
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Detection of Contrast Agents: Plane Wave versus Focused Transmission

The front cover shows multiple images of a dilution of BR-14 (Bracco Research S. A., Geneva, Switzerland) ultrasound contrast agents as they flow through a wall-less vessel in a phantom. The average flow speed was 20 mm/s. All contrast images are obtained using a three-pulse Amplitude Modulation (AM) sequence at 140 kPa peak-negative pressure, 3.5 MHz. Each image is independently normalized to show a dynamic range of 40 dB.

The top left and right images were obtained with focused and single plane wave transmission, respectively. In the left-bottom image, coherent compounding of 15 angled plane waves (scan angle range of 13°) lead to both an improved image resolution and an improved signal-to-noise ratio (SNR). Acquisition over 63 angles (right-bottom) leads to decorrelation of contrast signal because of flow, thus reducing the contrast to tissue ratio in the compounded image compared to 15 angles acquisition.

Images courtesy of Jacopo Viti, Francesco Guidi and Piero Tortoli from the Dept. of Information Engineering of the University of Firenze, Florence, Italy, and Hendrik J. Vos and Nico de Jong from Biomedical Engineering, Thorax Center, Erasmus MC, Rotterdam, The Netherlands.

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