6. The system of claim 1, further comprising a plurality of single-wavelength short pulse lasers.

7. The system of claim 1, further comprising a fiberoptic light delivery system.

8. The system of claim 1, in which the system is configured to present images substantially in real time by operating at a video frame rate.

9. The system of claim 1, in which the hand-held ~~optoacoustic~~ imaging probe is configured to deliver optical energy from either under a face of said array of transducers or its side.

10. The system of claim 1, in which the hand-held imaging probe comprises an acoustic lens.

11. The system of claim 10, in which the acoustic lens comprises optically reflective materials.

12. The system of claim 11, in which the optically reflective materials comprise a thin, highly optically reflective metallic layer that removes image artifacts associated with light interactions with the acoustic lens.

13. The system of claim 12, in which the acoustic lens is formed from a white opaque material.

14. The system of claim 12, in which the thin, highly optically reflective metallic layer comprises aluminum, gold, or silver.

15. The system of claim 1, in which the hand-held imaging probe comprises an output fiber bundle with multiple sub-bundles.

16. The system of claim 15, in which said multiple sub-bundles are shaped to provide even illumination of the image plane and smooth illumination edges so as to reduce edge-related optoacoustic artifacts.

17. The system of claim 1, in which the array of ultrasonic transducers comprises ultrasonic transducers having an ultrawide ultrasonic frequency band of sensitivity, with bandwidth of up to 200% from the central frequency.