



Fig. 5. OCE results on *ex vivo* rat tumor tissue. (a) OCE image under 45 Hz mechanical excitation. (b) OCT structural image of the tissue. (c) OCE image under 313 Hz mechanical excitation. (d) Corresponding histological image. Scale bar applies to all the images. Arrows are discussed in the text.

4. Conclusion

A dynamic OCE technique has been demonstrated based on a phase-sensitive spectral-domain OCT system and audio-frequency external mechanical excitations. It provides micron-scale resolution, fast imaging and processing speeds, and non-destructive biomechanical imaging capability. Based on local mechanical properties, this technique has shown the ability to differentiate sample regions in silicone tissue phantoms and rat tumor tissues under different excitation frequencies, using strain rate as contrast. Ongoing studies are aimed at conducting *in vivo* measurements and investigating the potential for characterizing the full frequency-dependant mechanical response of tissues.

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