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Abstract: Terahertz (THz) imaging has a number of potential applications in medical imaging and diagnosis. Here, we demonstrate the THz images on the diseased and the corresponding normal tissues from 14 samples. The liver cancer cells are planted by subcutaneous injection into BALB/c which share high degree homology with human. Subcutaneous tumors and nearby normal tissues as well as the inflamed livers and normal liver tissues are achieved after 7 days, 14 days and 21 days injection. Terahertz time-domain spectroscopy (TDS) is used to image these tissues. We have found that at certain frequency range, most tumors and serious inflamed livers have lower absorption than normal tissues, which mean THz imaging could obviously distinguish the tumors and normal tissues, serious inflamed and normal livers, but could not obviously distinguish the grade of tumors and inflammation.

Keywords: THz imaging, biological tissue, absorption coefficient