CLAIMS

1. A method of imaging living tissue by multispectral optoacoustic tomographic imaging, the method comprising:

introducing a photoacoustic contrast agent consisting of a photosensitizer into living tissue, wherein the photosensitizer consists of protoporphyrin, chlorin, phthalocyanine, squarine, methylene blue, or combinations thereof;

irradiating the photosensitizer in the living tissue with electromagnetic radiation having an excitation wavelength ranging from about 680 nm to about 900 nm, wherein the photosensitizer absorbs the electromagnetic radiation to result in thermoelastic expansion of the photosensitizer;

generating a photoacoustic signal due to the thermoelastic expansion; and

obtaining an image of the living tissue based on the photoacoustic signal.

2. The method according to claim 1, wherein the photosensitizer consists of zinc phthalocyanine, or methylene blue, or 2,4-bis [4-(N,N-dibenzylamino)-2,6-dihydroxyphenyl] squaraine, or protoporphyrin IX, or chlorin e6, or combinations thereof.

3. The method according to claim 1, wherein photosensitizer is zinc phthalocyanine.

4. The method according to claim 1, wherein obtaining the image of the living tissue based on the photoacoustic signal is carried out *in vivo*.

5. The method according to claim 1, wherein the living tissue is contained in a sample, and obtaining the image of the living tissue based on the photoacoustic signal is carried out *in vitro*.

6. The method according to claim 1, wherein the photosensitizer is introduced into the living tissue at a concentration ranging from 1 to 100 μM.