

**37.** The method of claim 28, wherein the step of scanning comprises the step of driving a distal end of the light guide into a resonance movement mode.

**38.** The method of claim 28, wherein the light directed to the region of interest comprises a high intensity laser light that is directed at undesired tissue on the region of interest to cause the undesired tissue to be destroyed.

**39.** The method of claim 28, further comprising the step of selectively screening the region of interest to detect any pathological condition associated with the region of interest.

**40.** The method of claim 28, further comprising the step of selectively sensing a natural biological state of the region of interest to detect a pathological condition.

**41.** The method of claim 28, wherein the step of determining comprises the step of identifying any pathological condition of the tissue by detecting at least one of:

- (a) a spectrum of light scattered by tissue in the region of interest;
- (b) a spectrum of light emitted by tissue in the region of interest; and
- (c) a spectrum of light absorbed by tissue in the region of interest.

**42.** The method of claim 28, wherein the light directed at the region of interest comprises light in a predefined waveband, and wherein the step of determining comprises the step of detecting an absorption spectrum of tissue in the region of interest when exposed to the light in the predefined waveband, to identify any pathological condition of the tissue.

**43.** The method of claim 42, wherein the step of detecting the absorption spectrum includes the step of mapping at least one of an absorption ratio, an emitted fluorescence ratio, and a phosphorescence ratio for the tissue to identify any pathological condition of the tissue.

**44.** The method of claim 28, wherein the step of rendering therapy comprises the step of delivering the light to the region of interest with a pixel-by-pixel resolution based upon the image of the region of interest.

**45.** The method of claim 28, further comprising the step of using light to render therapy to the region of interest and to monitor a condition of the region of interest as a result of rendering therapy thereto.

**46.** The method of claim 28, further comprising the step of endoscopically advancing a distal end of the light guide to the region of interest in the patient.

**47.** The method of claim 28, wherein the step of imaging the region of interest includes the step of more definitively determining a boundary of the region of interest.

**48.** The method of claim 28, wherein the step of determining comprises the step of performing an optical coherence tomography and reflectometry analysis of the region of interest.

**49.** The method of claim 28, wherein the step of determining comprises the step of performing at least one of a laser induced fluorescence analysis, a fluorescence lifetime analysis, an elastic scattering spectroscopy analysis, an optically stimulated vibro-acoustography analysis, a Raman spectroscopy analysis, and detecting chemi-luminescence, of the region of interest.

**50.** The method of claim 28, further comprising the step of carrying out steps (a)-(e) using a plurality of integral light guides arranged in an array.

**51.** The method of claim 28, further comprising the step of retrofitting an existing rigid endoscope system with the integral light guide system prior to the step of scanning the region of interest.

**52.** Apparatus for automatically scanning a region of interest within a patient's body, comprising:

- (a) a light source;
- (b) a light guide that is optically coupled to the light source and having a proximal end and a distal end, said light guide being adapted to convey light emitted by the light source to a region of interest within a patient's body; and
- (c) a scanning actuator that is disposed adjacent to the distal end of the light guide, said scanning actuator being coupled to the light guide and adapted to cause the distal end of the light guide to move about so that light conveyed through the light guide produces a scanning pattern on a region of interest.

**53.** The apparatus of claim 52, wherein the scanning actuator comprises a pair of electromechanical actuators that respectively move the distal end of the light guide in substantially transverse directions.

**54.** The apparatus of claim 52, wherein the scanning actuator comprises a piezoceramic actuator that is energized at a harmonic of a resonant frequency of the distal end of the light guide, causing the light guide to oscillate.

**55.** The apparatus of claim 52, wherein the light guide comprises an optical fiber, and wherein the distal end of the optical fiber is tapered to a substantially smaller cross-sectional size than a more proximal portion of the optical fiber.

**56.** The apparatus of claim 52, further comprising at least one lens adapted to be disposed between the distal end of the light guide and a region of interest, said at least one lens being adapted to focus the light produced by the at least one light source onto a region of interest.

**57.** The apparatus of claim 56, wherein said at least one lens comprises a lens mounted at the distal end of the light guide, said scanning actuator being adapted to drive the distal end of the light guide in a resonance mode to scan a region of interest, said lens that is mounted at the distal end of the light guide having sufficient mass so that the lens generally rotates as the light guide moves to change a direction in which light is emitted, when scanning a region of interest.

**58.** The apparatus of claim 52, wherein the light guide comprises a thin film optical waveguide disposed at the distal end of the light guide so that the light conveyed through the light guide passes through the thin film optical waveguide and is thus adapted to be directed onto a region of interest.

**59.** The apparatus of claim 58, wherein the scanning actuator is disposed adjacent to the thin film optical waveguide and moves the thin film optical waveguide in the scanning pattern.

**60.** The apparatus of claim 58, wherein the thin film optical waveguide has a cross-sectional size less than 0.01 mm.

**61.** The apparatus of claim 52, further comprising a light detector adapted to receive light from the region of interest.

**62.** A method for automatically scanning a region of interest in a patient's body, comprising the steps of: