CLAIMS

What is claimed is:

1. A device, comprising:

a plurality of coagulating elements for coagulating target tissue of a biological body;

a blood flow sensor for sensing levels of blood flow within the target tissue, the blood flow sensor capable of indicating absence of blood flow when the target tissue is substantially coagulated;

a retractable cutter for cutting the coagulated tissue in an event the sensor indicates absence of blood flow in the target tissue;

an actuator coupled to the retractable cutter ~~that activates~~ for activating the retractable cutter; ~~and~~

a housing at a distal end of the device housing at least the plurality of coagulating elements and the retractable cutter.; and

wherein the blood flow sensor is capable of continuing to sense levels of blood flow in the tissue after indicating absence of blood flow and the actuator is capable of actuating the retractable cutter away from live tissue in an event where the sensor indicates presence of blood flow within the tissue.

2. The device of Claim 1 wherein the blood flow sensor indicates the absence of blood flow in an event where zero blood flow within the target tissue is observed.

3. The device of Claim 1 wherein the blood flow sensor indicates the absence of blood flow in an event the blood flow observed within the target tissue is less than a predetermined threshold.

4. The device of Claim 1 wherein the blood flow sensor indicates the absence of blood flow within the target tissue by evaluating intensity of a backscattered signal resulting from irradiating the tissue with an ultrasonic wave.

5. The device of Claim 1 wherein the blood flow sensor indicates the absence of blood flow within the target tissue by evaluating intensity of a backscattered signal

resulting from analyzing the tissue using at least one of an ultrasonic wave, a shock wave, mechanical tissue properties, and electrical impedance imaging.

6. The device of Claim 1 wherein the actuator includes at least one of a pneumatic actuator, a spring, an electro-chemical actuator, an electromechanical actuator and a mechanical actuator.

7. The device of Claim 1 wherein the retractable cutter includes at least one of a retractable knife or a retractable scalpel.

~~8. The device of Claim 1 wherein the blood flow sensor continually senses amount of blood flow in the tissue; and~~

~~wherein the actuator actuates the retractable cutter away from live tissue in an event where the sensor indicates presence of blood flow within the tissue.~~

~~9.~~8. The device of Claim 1 wherein the actuator employs one or more electroactive polymers (EAP) actuation elements.

~~10.~~9. The device of Claim 1 wherein the distal end is coupled with at least one flexible structure, the flexible structure providing the distal end with movement in two or more degrees-of-freedom.

~~11.~~10. The device of Claim ~~10~~ 9 wherein the flexible structure is spherical.

~~12.~~11. The device of Claim 1 wherein the plurality of coagulating elements employ any of electrodes, lasers and certain energy waves.

~~13.~~12. The device of Claim 1 wherein the plurality of coagulating elements coagulates the target tissue using at least one of Radiofrequency Ablation (RFA), microwave ablation, cryo ablation, high intensity focused ultrasound ablation, and shockwave ablation of the tissue.

~~14. A method for dividing a biological tissue, comprising:~~

~~coagulating target tissue of a biological body;~~

~~sensing absence of blood flow within the target tissue and indicating the sensed absence of blood flow; and~~

~~cutting the coagulated target tissue.~~

~~15. The method of Claim 14 further including indicating the sensed absence of blood flow in an event where zero blood flow within the tissue is observed.~~

~~16. The method of Claim 14 further including indicating the sensed absence of blood flow in an event the blood flow observed within the tissue is less than a predetermined threshold.~~

~~17. The method of Claim 14 further including indicating the sensed absence of blood flow within the tissue by evaluating intensity of a backscattered signal resulting from irradiating the tissue with an ultrasonic wave.~~

~~18. The method of Claim 14 further including indicating the sensed absence of blood flow within the tissue by evaluating intensity of a backscattered signal resulting from analyzing the tissue using at least one of an ultrasonic wave, a shock wave, mechanical tissue properties, and electrical impedance imaging.~~

~~19. The method of Claim 14 further including coagulating the tissue using at least one of Radiofrequency Ablation (RFA), microwave ablation, cryo ablation, high intensity focused ultrasound ablation, and shockwave ablation of the tissue.~~

~~20. The method of Claim 14 further comprising:~~

~~wherein upon sensing absence of blood flow within the target tissue, discontinuing the step of coagulating target tissue.~~