CLAIMS

1. An electroporation device for use with an agent cartridge defining a volume containing a pre-measured dose of agent therein, the electroporation device comprising:

a housing having an axis extending therethrough, the housing further defining a cavity;

a jet-injection nozzle at least partially positioned within the housing;

wherein the cavity is sized to receive at least a portion of the agent cartridge therein, and wherein the jet-injection nozzle is in fluid communication with the volume of the agent cartridge when the agent cartridge is positioned within the cavity;

an array having a plurality of electrodes extending therefrom, the array mounted to a support slide that is axially moveable with respect to the housing and the jet-injection nozzle between a retracted position, in which the electrodes are positioned inside the housing, and an extended position, in which at least a portion of the electrodes are positioned outside the housing;

a propulsion cartridge configured to operatively engage the agent cartridge when the agent cartridge is positioned within the cavity to expel at least a portion of the pre-measured dose of agent through the jet-injection nozzle; and

a power supply in electrical communication with the array for sending a current to the plurality of electrodes for electroporating tissue of a subject.

2. The electroporation device of claim 1, wherein the propulsion cartridge is adjustable between an armed configuration and a deployed configuration, and wherein the propulsion cartridge is biased toward the deployed configuration.

3. The electroporation device of claim 2, wherein adjusting the propulsion cartridge from the armed configuration to the deployed configuration mechanically expels a portion of the pre-measured dose of the agent through the jet-injection nozzle.

4. The electroporation device of claim 2, further comprising a trigger, and wherein the trigger is adjustable between a first position, where the propulsion cartridge is fixed in the armed configuration, and a second position, where the propulsion cartridge is adjustable between the fixed and deployed configurations.

5. The electroporation device of claim 4, wherein the trigger is adjustable between the first position, where the array is in electrical communication with the power supply, and the second position, where the array is not in electrical communication with the power supply.

6. The electroporation device of claim 1, wherein the array is biased toward the extended position.

7. The electroporation device of claim 1, further comprising a trigger, and wherein the trigger is adjustable between a first position, where the array is fixed in the retracted position, and a second position, where the array is movable between the retracted and extended positions.

8. The electroporation device of claim 7, wherein the propulsion cartridge is adjustable between an armed configuration and a deployed configuration, and wherein the trigger is adjustable between the first position, where the propulsion cartridge is fixed in the armed configuration, and the second position, where the propulsion cartridge is adjustable between the armed and deployed configurations.

9. The electroporation device of claim 1, further comprising a signal generator in electrical communication with both the power supply and the array, wherein the signal generator is configured to receive electrical power from the power supply and output an electroporation signal to the array.

10. An electroporation device for use with an agent cartridge defining a volume containing a pre-measured dose of agent therein, the electroporation device comprising:

a housing defining a cavity sized to receive at least a portion of the agent cartridge therein;

a jet-injection nozzle at least partially positioned within the housing and in fluid communication with the agent cartridge when the cartridge is positioned within the cavity;

a propulsion rod positioned at least partially within the housing and movable with respect thereto between an armed position and a deployed position, and wherein movement of the propulsion rod from the armed position to the deployed position expels at least a portion of the pre-measured dose of the agent through the jet-injection nozzle;

a propulsion spring extending between the propulsion rod and the housing, the propulsion spring configured to bias the propulsion rod toward the deployed position;

an array having one or more electrodes extending therefrom, the array mounted to a support slide that is axially moveable with respect to the housing and the jet-injection nozzle between a retracted position, in which the electrodes are positioned inside the housing, and an extended position, in which at least a portion of the electrodes are positioned outside the housing;

a power supply; and

a trigger assembly adjustable between a first configuration, where the propulsion rod is fixed in the armed position and the power supply is not in electrical communication with the array, and a second

position, where the propulsion rod is free to move between the armed and deployed positions and the power supply is in electrical communication with the array.

11. The electroporation device of claim 10, wherein the jet-injection nozzle includes a first end positioned proximate a first end of the housing, and a second end in fluid communication with the volume of the agent cartridge.

12. The electroporation device of claim 10, further comprising a signal generator and a switch, wherein the signal generator is at least partially controlled by the switch, and wherein the signal generator is configured to receive electrical power from the power supply and output an electroporation signal to the array.

13. The electroporation device of claim 12, wherein the switch is at least partially controlled by the trigger assembly.

14. The electroporation device of claim 10, wherein the array includes one or more latches to releasably engage the housing, and wherein the latches are configured to fix the array in the retracted position.

15. The electroporation device of claim 10, further comprising an arming cam configured to move the propulsion rod from a relaxed position to the armed position.

16. The electroporation device of claim 10, wherein the array includes one or more latches configured to releasably engage the housing, wherein the latches retain the array in the retracted position.

17. An electroporation device comprising:

a cartridge defining a volume having a pre-measured dose of agent therein, at least a portion of the volume being sealed off by a plunger;

a jet injection module including:

a first housing defining a cavity sized to receive at least a portion of the cartridge therein;

a jet-injection nozzle at least partially positioned within the first housing and in fluid communication with the cartridge when the cartridge is positioned within the cavity;

an array having one or more electrodes extending therefrom, wherein the array is mounted to a support slide that is axially movable with respect to the first housing and the jet-injection nozzle between a retracted position, where the electrodes are positioned within the

housing, and an extended position, where at least a portion of the electrodes are positioned outside the housing; and

a base assembly being removably couplable to the jet injection module, the base assembly including:

a propulsion rod positioned at least partially within the housing and movable with respect thereto between an armed position and a deployed position, and wherein the propulsion rod is configured to operatively engage the cartridge,

a propulsion spring extending between the propulsion rod and the housing, the propulsion spring configured to bias the propulsion rod toward the deployed position;

a power supply, and

a trigger assembly adjustable between a first configuration, where the propulsion rod is fixed in the armed position and the power supply is not in electrical communication with the array, and a second position, where the propulsion rod is free to move between the armed and deployed positions and the power supply is in electrical communication with the array.

18. The electroporation device of claim 17, wherein the trigger assembly is adjustable between the first configuration, where the array is fixed in the retracted position, and the second configuration, where the array is movable between the retracted and extended positions.