

WHAT IS CLAIMED IS:

1. A method for determining an amount of energy to be delivered to cause an end effect on a target invasive entity of a target in a host, the method comprising:
  - determining the type of the target invasive entity;
  - estimating the sensitivity of the determined target invasive entity to a particular energy-based therapy;
  - estimating, based on the estimated sensitivity, a waveband-specific dose required to result in 10% remaining target invasive entity that is a 1-log reduction as a  $D_{10}$  value;
  - defining the treatment volume of the target;
  - determining the maximal multiple of the estimated  $D_{10}$  value of the target invasive entity that overlaps within the shoulder of the cellular survival curve pertaining to the treatment volume of the target;
  - determining a permissible dose per fraction based on the determined maximal multiple when administered is to result in no more than a cellular  $D_{90}$  to result in a 10% reduction of cells;
  - determining a percent depth-dose or depth dose characterizations to identify the isodose distribution of the particular energy-based therapy in a particular treatment volume density;
  - optimizing the volume of the defined treatment volume of the target to receive 100% of the maximal permissible dose per fraction; and
  - prescribing a dose based on the determining the maximal multiple, the determining the permissible dose, the determining the percent depth-dose, and the optimizing.
2. The method of claim 1, further comprising delivering the prescribed dose as energy to the target in the host.
3. The method of claim 1, wherein the particular treatment volume density is optical density.
4. The method of claim 1, wherein the target invasive entity comprises one of a fungus, a bacteria, or a virus.
5. The method of claim 1, wherein the target comprises one of an internal organ, skin, canal, or cavity.

6. The method of claim 1, wherein the target comprises one of a lung, nostril, oral cavity, rectal cavity, vaginal cavity, stomach, esophagus, or vascular blood volume.
7. The method of claim 1, wherein the host is one of a human, animal, or plant.
8. The method of claim 1, wherein the particular energy-based therapy comprises UVR.
9. The method of claim 1, wherein the particular energy-based therapy comprises UVB.
10. A method for providing therapy to a target using a smart device, the method comprising:
  - determining, using the smart device, an amount of UV exposed to the target;
  - for an invasive entity, determining, using the smart device, a dose-for-sterilization calculation for a particular type of exposure at the target based on a particular quantity of the target; and
  - presenting, using the smart device, a length of time for exposing the target to the amount of UV based on the determined dose-for-sterilization calculation.
11. A method for monitoring a patient exposed to a known carcinogen at an exposing event, the method comprising:
  - a period of time after the exposing event, performing a FOLH1 PET/CT on the patient to detect any FOLH1-avid tissue; and
  - performing a diagnostic or confirmatory biopsy of the detected FOLH1-avid tissue to determine if the FOLH1-avid tissue is a cancer.
12. A method for adaptively treating a volume of cells with electromagnetic irradiation, the method comprising:
  - conjugating a chemical nuclei to an agent with FOLH1 binding capacity;
  - administering the nuclei-agent construct into a body of cells for exposing a volume of cells of the body of cells to the nuclei-agent construct;
  - waiting for a period of time after the administering to allow binding to occur; and
  - exposing the volume of cells to electromagnetic irradiation for modifying the chemical nuclei within the volume of cells.
13. The method of claim 12, wherein the volume of cells is a tissue or tumor.

14. The method of claim 12, wherein the body of cells is in an animal or plant.
15. The method of claim 12, wherein the chemical nuclei is  $^{10}\text{B}$ .
16. The method of claim 12, wherein the agent comprises monoclonal antibodies, small molecules or antibody fragments.
17. The method of claim 12, wherein the agent can bind to both the chemical nuclei and FOLH1.
18. A method for measuring the absorbed dose of energy delivered via a target within a volume of cells, the method comprising:
  - measuring a specific activity and initial activity of a chemical nuclei that is attached to an agent with target binding capacity;
  - quantifying target molecule(s) (FOLH1) for the volume of cells;
  - inputting the measured value and the quantified value into a mathematical simulation to estimate the possible outcomes of an uncertain event.
19. A method for enabling androgen deprivation upregulation, the method comprising:
  - applying energy to a volume of cells;
  - waiting for a period of time after the energy application for an FOLH1 target to upregulate or to appear de novo; and
  - after the waiting, exposing the volume of cells to an embodiment with target binding capacity.
20. The method of claim 19, wherein the embodiment comprises monoclonal antibodies, small molecules or antibody fragments.
21. A method for optimizing the absorbed dose of electromagnetic irradiation delivered via a target within in a volume of cells, the method comprising:
  - identifying the initial activity of a chemical nuclei that is attached to an agent with target binding capacity;
  - identifying a dose rate or absorption rate of the chemical nuclei or into cells within the volume;

- identifying the absorbed dose;
- identifying the time required for target replenishment after complete or partial target depletion;
- identifying the time required for target replenishment so that 50-100% of the initial dose of chemical nuclei can be absorbed as a subsequent dose; and
- waiting for a period of time based between doses.

22. A therapy system for a patient appendage comprising:

- a hollow body comprising:
  - an interior surface defining at least a portion of a hollow space that is operative to receive at least a portion of the patient appendage;
  - a plurality of suction passageway openings provided through the interior surface;
  - a plurality of light passageway openings provided through the interior surface;
- and
- a plurality of magnetic energy passageway openings provided through the interior surface;
- a light apparatus operative to provide light through the plurality of light passageway openings;
- a suction apparatus operative to suck fluid from the hollow space through the plurality of suction passageway openings; and
- a magnet apparatus operative to provide magnetic energy through the plurality of magnetic energy passageway openings.

23. A therapy system for a patient cavity comprising:

- a body comprising:
  - an exterior surface that is operative to be inserted into at least a portion of the patient cavity;
  - a plurality of suction passageway openings provided through the exterior surface;
  - a plurality of light passageway openings provided through the exterior surface;
- and
- a plurality of magnetic energy passageway openings provided through the exterior surface;
- a light apparatus operative to provide light through the plurality of light passageway

openings;

a suction apparatus operative to suck fluid from an environment through the plurality of suction passageway openings; and

a magnet apparatus operative to provide magnetic energy through the plurality of magnetic energy passageway openings.