

CLAIMS

What is claimed is:

1. A plant fat-based scaffold for the growth of cell-based animal tissue for human consumption, said scaffold comprising:
 - a. at least one plant-based saturated fatty acid or wax having an incorporation temperature and a sterilization temperature; and
 - b. a cell binding protein that enables the adherence of animal tissue cells to the scaffold for growth;wherein the scaffold can exist in a liquid state at the sterilization temperature of the at least one plant-based saturated fatty acid or wax; and wherein the scaffold can exist in solid state at the incorporation temperature and during cell adhesion and growth.
2. The plant fat-based scaffold in Claim 1 wherein the scaffold is edible.
3. The plant fat-based scaffold of Claim 1, further comprising one or more secondary components chosen from nutrients and minerals to promote cellular growth, preservatives, coloring agents, flavor increasers, cell binding assistance molecules, and structural support components.
4. A method for forming a plant fat-based scaffold designed for the growth of cell-based animal tissue for human consumption, said method comprising:

- a. selecting at least one plant-based saturated fatty acid or wax to form a scaffold;
- b. sterilizing the scaffold at least partially by heating the scaffold to above the melting point or smoking point of the at least one plant-based saturated fatty acid or wax;
- c. incorporating the scaffold in a lower temperature fluid or gas to form a solid scaffold;
- d. seeding the solid scaffold with a population of animal cells for growth; and
- e. separating at least 50 percent of the scaffold from the animal cells after cell growth is complete or after animal tissue is formed;

wherein the majority of the scaffold can be separated from the animal cells by melting the scaffold back into a liquid phase and removing the liquid scaffold from the tissue product without damaging the cell tissue.

5. The method of Claim 4, wherein after separating the scaffold from the animal cells, the scaffold can be recycled as raw material for the formation of another scaffold.

6. A method for growing an animal tissue product from a population of animal cells using a plant fat-based scaffold, said method comprising:

- a. seeding a plant-fat based scaffold with a population of animal cells;

- b. supplying the animal cells with one or more growth nutrients, wherein the animal cells may be supplied with one or more growth nutrients to expedite growth;
 - c. evaluating the growth of the cells to identify when they reach a desired size or shape; and
 - d. separating the scaffold from the animal cells after growth is complete.
7. The method of Claim 6, wherein the one or more growth nutrients is incorporated into the scaffold.
8. The method of Claim 7, wherein the scaffold comprising the one or more growth nutrients can be partially melted, by raising the temperature to above the optimal growth temperature of the cells but below the upper end of the temperature endurance range of the cells, during the growth phase in order to release the one or more growth nutrients.
9. A method for growing cell-based animal tissue product with a plant fat-based scaffold, said method comprising:
- a. introducing at least one plant-based fats or waxes, wherein a scaffold for cell growth is provided;

- b. seeding the scaffold with a population of animal cells while the scaffold is partially solid and partially liquid, wherein the scaffold forms a solid at an optimal growing temperature of the animal cells; and
 - c. cooling the scaffold into a solid form after the animal cells are seeded.
10. The method of claim 9, wherein the scaffold comprises two or more different types of fats or waxes, each having different melting temperatures.
11. The method of claim 10, wherein the scaffold is seeded while at least one fat or wax is in a liquid state and at least one fat or wax is in a solid state.
12. The method of claim 9, including the step of introducing one or more cell binding proteins while the scaffold is partially solid and partially liquid.