Claims

1. A substrate for growing a comestible meat product, comprising:

a surface texture created by a plurality of parallel features extending along a length of the substrate and formed into a surface of the substrate, wherein the plurality of parallel features promote cell alignment, wherein the surface texture inhibits release of non-human cells grown on the substrate for at least 7 days or until the non-human cells achieve an observed metabolic signature or a cell differentiation change.

2. The substrate of claim 1, wherein the plurality of parallel features comprises one or more of channels, recesses, protrusions, ridges, grooves, scratches, edges, indentations, blind holes, hills-and-valleys, undercuts, or threading.

3. The substrate of claim 1, wherein the substrate forms part of a three-dimensional lattice of substrates.

4. The substrate of claim 1, wherein the plurality of parallel features of the substrate are configured to receive cell culture media in a flow direction parallel to the plurality of parallel features.

5. The substrate of claim 1, wherein the surface texture is applied to a first side of the substrate.

6. The substrate of claim 1, further comprising a region devoid of the surface texture.

7. The substrate of claim 1, further comprising a plurality of regions, each region comprising a different surface texture.

8. The substrate of claim 1, wherein the substrate is substantially planar.

9. The substrate of claim 1, wherein the surface texture comprises a repeating pattern.