

Headlines

With Rabbi Ari Sollish

Halachic Debates of Current Events

Intown Jewish Academy

PART 1

Where's the Beef? Jewish Legal Considerations of Lab Grown Meat



Case Study: Where's The Beef?

WORLD'S FIRST LAB-GROWN BURGER IS EATEN IN LONDON

www.bbc.com/news/science-environment-23576143 (August 5, 2013)

The world's first lab-grown burger has been cooked and eaten at a news conference in London.

Scientists took cells from a cow and, at an institute in the Netherlands, turned them into strips of muscle that they combined to make a patty.

One food expert said it was “close to meat, but not that juicy” and another said it tasted like a real burger.

Researchers say the technology could be a sustainable way of meeting what they say is a growing demand for meat.

The burger was cooked by chef Richard McGeown, from Cornwall, and tasted by food critics Hanni Ruetzler and Josh Schonwald...

Prof Mark Post, of Maastricht University, the scientist behind the burger, remarked: “It’s a very good start.”

The professor said the meat was made up of tens of billions of lab-grown cells. Asked when lab-grown burgers would reach the market, he said: “I think it will take a while. This is just to show we can do it.”

Sergey Brin, co-founder of Google, has been revealed as the project’s mystery backer. He funded the £215,000 (\$330,000) research.

Discussion Questions

What are the advantages of lab grown meat? What might some ethical challenges be to lab grown meat? What might some Jewish legal challenges be to lab grown meat?

Miracle Meat

TEXT 1 *Talmud, Sanhedrin 59b*

כי הא דר"ש בן חלפתא הוה קאזיל באורחא, פגעו בו הנך אריותא דהוו קא נהמי לאפיה, אמר (תהלים קד, כא) הכפירים שואגים לטרף, נחיתו ליה תרתי אטמתא, חדא אכלוה וחדא שבקוה, אייתיה ואתא לבי מדרשא, בעי עלה דבר טמא הוא זה או דבר טהור, א"ל אין דבר טמא יורד מן השמים.

As Rabbi Shimon ben Chalafta was walking along the way, he encountered those lions that were roaring at him, intending to eat him. He said: "The young lions roar after their prey, and seek their food from G-d" (Psalms 104:21), and they deserve to receive food. Two thighs of an animal descended from heaven for him. The lions ate one of these thighs, and they left the other one. He took it and entered the study hall, and inquired about it: Is this thigh a kosher item or a non-kosher item? The Sages said to him: Certainly it is kosher, as a non-kosher item does not descend from heaven.

TEXT 2 *Talmud, ibid. 65b*

רב חנינא ורב אושעיא הוו יתבי כל מעלי שבתא ועסקי בספר יצירה ומיברו להו עיגלא תילתא ואכלי ליה.

Rav Chanina and Rav Oshaya would sit every Shabbat eve and engage in the study of Sefer Yetzira, and a third-born calf [igla tilta] would be created for them, and they would eat it in honor of Shabbat.

Four Scenarios

1. Stem cells taken from non-kosher animal—is the lab grown meat kosher?
2. Stem cells taken from a kosher animal that is alive—is the lab grown meat kosher?
3. Stem cells taken from a kosher animal that has died but has not been ritually slaughtered—is the lab grown meat kosher?
4. Stem cells taken from a kosher animal that has been ritually slaughtered—is the lab grown meat "fleishig" or "pareve"?

Non-Kosher Source

TEXT 3 *Mishnah, Bechorot 1:2*

בהמה טהורה שילדה כמין בהמה טמאה מותר באכילה, וטמאה שילדה כמין בהמה טהורה אסור באכילה, שהיוצא מהטמא טמא והיוצא מן הטהור טהור.

If a kosher animal gives birth to a non-kosher animal, the newborn is permitted, whereas if a non-kosher animal gives birth to a kosher animal, the newborn is forbidden, because whatever emerges from an impure animal is impure, and whatever emerges from a pure animal is pure.

TEXT 4 *Shulchan Aruch, Yoreh Dei'ah, Hilchot Behaimah Vechaya Tehorah 81:1*

חלב בהמה וחיה טמאה או טריפה, וצירה ומי רגליה, אסורים כבשרה.

It is forbidden to consume the milk, brine, or urine of a non-kosher animal or a treifah, just as eating its meat is forbidden.

Discussion Questions

1. What do Texts 3 and 4 tell us about the status of stems cells extracted to produce lab grown meat? What might we therefore rule in the four scenarios detailed above? In the fourth scenario, would stem cells extracted from a properly slaughtered kosher animal be considered “fleishig” or “pareve”?
2. What is the status of stem cells extracted from an animal? Should they be considered “meat,” or rather a non-meat substance that has been extracted from the animal?

Stem Cell Definition

TEXT 5 *Oxford Dictionary*

Stem cell: An undifferentiated cell of a multicellular organism which is capable of giving rise to indefinitely more cells of the same type, and from which certain other kinds of cell arise by differentiation.

Meat or Non-Meat?

TEXT 6 *Mishneh Torah of the Rambam, Hilchot Ma'achalot Asurot 9:7*

המבשל שליא או עור וגידין ועצמות ועקרי קרנים וטלפים הרכים בחלב פטור, וכן האוכלן פטור.

One who cooks a placenta, skin, sinews, bones, the roots of the horns, or the soft portion of the hoofs in milk, is not liable [for the prohibition of cooking meat and milk together]. Similarly, one who eats of such a mixture is not liable.

TEXT 7 *Chiddushei Rav Chaim Halevi, Hilchot Ma'achalot Asurot 3:11*

ומתבאר זאת מדברי הרמב"ם בפ"ג מה' מאכלות אסורות הל"ו שכתב ז"ל אעפ"י שחלב בהמה טמאה וביצי עוף טמא אסורין מן התורה אין לוקין עליהן שנאמר מבשרם לא תאכלו על הבשר הוא לוקה ואינו לוקה על הביצה ועל החלב והרי האוכל אותן כאוכל חצי שיעור שהוא אסור מן התורה ואינו לוקה עכ"ל, והרי בטהור הנולד מן הטמאה ודאי דלוקין עליו ואף על גב דתרווייהו איסוריהו משום יוצא מן הטמא ניהו, אלא ודאי כמו שכתבנו, דטהור הנולד מן הטמאה איסורו הוא מחמת עצמו, והרי הוא נכלל באיסורא דטמאים האמור בתורה, וממילא די ש בהו גם מלקות ככל הטמאים, משא"כ חלב וביצים של טמאים איסורן אינו מחמת עצמן כיון דאינן מין בשר ואין בהן איסורא דטמאים האמור בתורה, ורק דאסורין הן מאיסורא דיוצא מן הטמא, וע"כ אין בהם מלקות, ומשום דאע"ג דאסור מן התורה מ"מ דין איסור זה של יוצא מן הטמא כאיסורא דחצי שיעור שאין בו רק איסורא ולא מלקות.

The Rambam writes that even though it is forbidden to consume the milk of a non-kosher animal or the eggs of a non-kosher bird, one is not liable for doing so, because the verse, "From their meat you shall not eat" (Leviticus 11:8), only explicitly mentions eating the meat of such species, but does not mention their milk or eggs... At the same time, it is clear that one is liable for eating an animal resembling a kosher animal born from a non-kosher animal, even though both of these two cases are forbidden due to the same rule of "whatever emerges from an impure animal is impure"...

[How can we explain this? If both of them are forbidden only due to emerging from an impure animal, why does one warrant liability while the other does not? One can see from here that there must be two independent concepts of forbidden items that emerge from an impure animal:]

1. An animal that was born from a non-kosher species, where the new creature has the same status as the animal it emerged from, and hence one who eats it is liable just as one who eats the mother is liable.
2. Milk and eggs of non-kosher animals are also forbidden, but do not have the exact same status as the animal they emerged from, since they are not actually meat, and one who consumes them is not liable.

Discussion Questions

Based on Text 7, would stem cells taken from a kosher animal be more similar to milk and eggs, or to the animal born of a non-kosher animal? Should the resultant lab grown meat be considered "fleishig" or "pareve"?

*New Onions***TEXT 8A** *Shulchan Aruch, Yoreh Dei'ah, Hilchot Kilei Hakerem 296:18*

בצל שנטעו בכרם ואח"כ נעקר הכרם, ואחר כך צמחו בצלים מן העיקר הנטוע, אף על פי שרבו הגידולים על עיקרו במאתים, הרי אותו העיקר באיסורו, שאין גידולי היתר מעלין את העיקר האסור.

If an onion was planted in a vineyard [in violation of the prohibition of kilayim, crossbreeding seeds], and the vineyard is later removed, but the onion remains and continues to grow and produce additional onions, the original part of the onion plant that grew in a prohibited state [i.e., while the vineyard was still intact] remains forbidden. This is true even when there are two hundred times more onions than the original, for the permitted new growth does not “overwhelm” the forbidden.

TEXT 8B *Vilna Gaon, Biur Hagr'a, ibid.*

משמע דוקא עיקר וכמש"ש גידולין מעלין את העיקר.

“The original part of the onion plant... remains forbidden”: This implies that only the original onion plant is forbidden [whereas the new growth is permitted].

Discussion Questions

How might we apply this ruling permitting the new onions that grew from a forbidden onion to our discussion of lab grown meat? What implications does this ruling have for all four cases we've explored? How is this onion case similar or dissimilar to our lab grown meat case?

Water-Logged Meat

TEXT 9 *Mishneh Torah of the Rambam, Hilchot Ma'achalot Asurot 14:4*

כזית חלב או נבלה או פגול או נותר וכיוצא בהן שהניחו בחמה ונתמעט, האוכלו פטור, חזר והניחו בגשמים ונתפח חייבין עליו כרת או מלקות, היה פחות מכזית מבתחלה ונתפח. ועמד על כזית אסור ואין לוקין עליו.

If exactly a kezayit [an olive-sized piece] of forbidden fats or neveilah [an animal that died without kosher slaughter] or other forbidden foods was left outside in the sun and shrank from the heat, one who eats the shrunken piece of meat is not liable [though one may not eat it].

If one leaves a piece of forbidden meat that is less than a kezayit out in the rain and it expands to the size of a kezayit, although it is forbidden to consume such meat, one is nevertheless not liable for eating it.

Discussion Questions

How might we apply this ruling regarding water-expanded forbidden meat to our discussion of lab grown meat? What implications does this ruling have for all four cases we've explored? How is this water-expansion case similar or dissimilar to our lab grown meat case?

Essential Ingredients

TEXT 10 *Shulchan Aruch, Yoreh Dei'ah, Hilchot Basar Bechalav 87:11*

אם העמיד גבינה בעור כשרה, יש בה טעם בשר אסורה, ואם לאו מותרת, אבל המעמיד בעור קיבת נבילה וטריפה ובהמה טמאה אסור בכל שהוא. הגה: משום דדבר האסור בעצמו ומעמיד אפילו באלף לא בטיל.

If one formed cheese via the lining of the stomach of a kosher animal, [if] there is in it the taste of meat, [then] it is forbidden, and if not, it is permitted. However, [cheese] that took its form via the lining of the stomach of an animal that could be kosher but was not properly slaughtered, or via a “torn” animal [i.e. one that had some sort of injury rendering it non-kosher], or via an impure animal, it forbids in any amount.

Rema: Because something that is forbidden in itself, and gives form, cannot be nullified even when outnumbered by one thousand.

