



Lab-Grown Meat: Can You Eat a Kosher Cheeseburger?

*Produced as a project of the CJLS Fellows in Prophetic Halakhah
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She'eilah (Question):

In the last decade, scientists have developed ways of growing meat in the laboratory, and it's getting closer and closer to the grocery store. Can it be kosher? After millions of cell divisions, would it still be meat? Or could you use it for a cheeseburger?

A. Limb Taken From a Living Animal אֶבֶר מִן הַחַי (Ever Min ha-Hai)

1. Exodus 22:30	1. שמות כב:ל
You shall be holy people to Me: you must not eat flesh torn by beasts in the field; you shall cast it to the dogs.	וְאִנְשֵׁי־קֹדֶשׁ תִּהְיוּ לִי וּבֶשֶׂר בְּשׂוּדָה טְרֵפָה לֹא תֹאכְלוּ לִקְלָב תִּשְׂלַכּוּן אֹתוֹ:
2. Deuteronomy 12:23	2. דברים יב:כג
But make sure that you do not partake of the blood; for the blood is the life, and you must not consume the life with the flesh.	רַק חֹזֶק לְבַלְתִּי אֲכַל הַדָּם כִּי הַדָּם הוּא הַנֶּפֶשׁ וְלֹא־תֹאכַל הַנֶּפֶשׁ עִם־הַבֶּשֶׂר:
3. Sifrei Devarim, Re'eh 76	3. ספרי דברים, ראה עו
You must not consume the life with the flesh (Deuteronomy 12:23): This refers to a limb cut from a living animal.	וְלֹא תֹאכַל הַנֶּפֶשׁ עִם הַבֶּשֶׂר (דברים כב:כג), זֶה אֶבֶר מִן הַחַי.
4. Rabbi Daniel Nevins, " The Kashrut of Cultured Meat ," CJLS YD 81.2017 (21st century, U.S.)	
It is forbidden to eat even a minute amount of flesh taken from a living animal, but with cultured meat, there is no intention to consume the source cells themselves. The act of "eating" is said to involve "pleasure in the throat," but these cells will never be placed in a human throat, and would	



be undetectable if they were. They certainly do not meet the halakhically significant threshold of “giving flavor.” Like most cells, these will eventually degrade and die.

Far more significantly, the final product is extremely unlikely to contain remnants of the original stem cells. It is only much later—after their descendant cells will have transformed from stem into muscle and fat cells, multiplied by the trillions within a growth medium, and been structured under tension to form strips of muscle tissue and then layered into meat—that an edible product will emerge. By one estimate, from ten source cells it could be possible in ideal conditions over two months to culture 50,000 tons of meat. [Scientists] have claimed that a billion pounds of in vitro meat could be produced from one animal. Even if such estimates are wildly optimistic, in any given portion of the end-product it is exceedingly unlikely that there will be consumption of the actual source cells taken from an animal.

Although it is theoretically possible that one or more of the original cells might survive into the final product and be unwittingly eaten by someone, liability for the limb ban for Jews is triggered only with the consumption of an olive’s bulk. A kosher consumer could be confident (at the level of one in many hundreds of trillions) that the cultured meat they consume will contain no cells that ever lived in an animal.

B. Kosher from Kosher

5. <i>Mishnah Bekhorot</i> 5:2	5. משנה בכורות ה:ב
<p>If an animal [that is able to be kosher] gives birth to one resembling a species [that is unable to be kosher], [the offspring] is permitted for eating. If an animal [that is unable to be kosher] gives birth to one resembling a species [that is able to be kosher], [the offspring] is forbidden for eating.</p> <p><i>*In other words, if an animal that is able to be kosher gives birth to an offspring, that offspring is always able to be kosher, even if it looks different (even like an animal that cannot be kosher).</i></p>	<p>בְּהֵמָה טְהוֹרָה שֶׁיִּלְדָּה כְּמִין בְּהֵמָה טְמֵאָה, מֵתָר בְּאֲכִילָהּ. וְטֵמֵאָה שֶׁיִּלְדָּה כְּמִין בְּהֵמָה טְהוֹרָה, אָסוּר בְּאֲכִילָהּ, שֶׁהֵיכָזָא מִהֵטֵמָא, טֵמָא.</p>



6. Rambam, <i>Mishneh Torah</i> , Laws of Forbidden Foods 3:1 (12th century, Egypt)	6. רמב"ם, משנה תורה, הלכות מאכלות אסורות ג:א
Any food which emerges from one of the forbidden species that one is to be whipped for eating—this food is biblically forbidden to eat. For example: milk from impure domesticated and wild beasts, and eggs from impure birds and fish. For it says, “and the daughter of the ostrich”—this refers to its eggs. And this rule applies to any [animal] that is forbidden like the ostrich, and for all things similar to eggs.	כל מאכל היוצא ממין מן המינין האסורין שלוקין על אכילתן הרי אותו המאכל אסור באכילה מן התורה. כגון חלב בהמה וחיה הטמאים וביצי עוף ודג הטמאים שנאמר "ואת בת היענה" זו ביצתה. והוא הדין לכל האסור כיצנה ולכל הדברים הדומין לביצה:

C. Magical Mystery Meat

7. Babylonian Talmud, <i>Sanhedrin</i> 59b	7. תלמוד בבלי, סנהדרין דף נט עמוד ב
Is there really such a thing as meat from heaven? Yes, because of the time when Rabbi Shimon b. Halafta was walking on the road, and he was attacked by lions that were growling at him. He cited, “The lions roar for prey” (Psalms 104:21), and then two flanks of meat fell down for him. One, they [the lions] ate; the other, they left. He brought it with him to the House of Study and asked about it—is this item impure or is it pure? They said to him: Nothing impure comes from heaven!	מי איפא בשר היורד מן השמים? - אין, כי הא דרבי שמעון בן חלפתא הוה קאזיל באורחא, פגעו ביה הנד אריותא דהוו קא נהמי לאפיה, אמר: הכפירים שאגים לטרף (תהילים קד:כא). נחיתו ליה תרתי אטמא, חדא אכלוה וחדא שבקוה. איתיה ואתא לבי מדרשא, בעי עלה: דבר טמא הוא זה או דבר טהור? - אמרו ליה: אין דבר טמא יורד מן השמים.

D. Contemporary Rabbinic Experts

There are two companies close to bringing lab-grown meat to the grocery store. One in Israel is making beef using cells found in the uterus of a cow. The other in the US is developing lab-grown chicken that is created from chicken eggs.



8. Rabbi David Lau (21st century, Israel)	8. ר' דוד לאו
<p>The source of the principle [permitting lab-grown meat] is explicitly found in the case of the semen of a kosher animal that enters the body of a female animal. It congeals and creates an entity like an egg [in the uterus], which is ruled permissible [in the Talmud]. The Talmud rules it as permissible because it is fertilized from a male deer [and both are kosher animals].</p> <p>Lab-grown meat will be sold as “a vegetarian product very close to meat.”...It is kosher <i>pareve</i> like a vegetarian product...but not as a <i>pareve</i> product that can be cooked and eaten with dairy products.</p>	<p>מקור הדברים מפורש לגבי שכבת זרע של בהמה טהורה שנכנס לגוף הנקבה ונקרש ויצר כמין ביצים, ונפסק [בתלמוד] להיתר. הגמ' מתירה שם 'חלי דיחמורתא' מן הטעם שהיא שכבת זרעו של אייל טהור....</p> <p>ככל שהבשר המתורבת יוגדר וישווק כ'מוצר צמחי הקרוב ביותר לבשר'...הרי דינו של בשר מתורבת זה הוא כשר פרווה כמצור צמחי...אך לא כמוצר פרווה לענין עירבו, בישולו ואכילתו עם מוצרי חלב.</p>

9. Rabbi Daniel Nevins, “ The Kashrut of Cultured Meat ,” CJLS YD 81.2017 (21st century, U.S.)
<p>We anticipate that it would be confusing for kosher consumers to differentiate between conventional pastured meat, which is “meaty” and may not be mixed with dairy products, and cultured meat, which if deemed pareve, could be mixed with any food. The concern of misleading impressions, מְרָאִית עֵין, could be triggered by a kosher cheeseburger...True, kosher consumers have long since passed the stage of assuming that anything that looks like meat or milk is what it appears to be. We regularly eat soy or wheat-gluten based “meat” at dairy meals, and pareve “milk” from soy, almonds, cashews, coconuts and other plants at meat meals. The task of keeping kosher now depends on kosher seals and supervisors to ascertain that there are no forbidden ingredients or mixtures of food....</p> <p>We conclude that cultured meat ought to be regarded as “meaty” because,</p> <ol style="list-style-type: none"> 1. we rule stringently on matters of possible biblical prohibition (סִפֵּק דְּאוֹרְיִיתָא לְחוּמְרָא) 2. in order to preserve the classical kosher separation of meat and milk, and 3. to avoid confusion so long as both forms of meat are on the market. <p>Caution would dictate that cultured meat, which is intended to be identical in both substance and style to pastured meat, should be treated as “meat according to the rabbis,” in kashrut terms.</p>