



## 'Cultured Meat' Burgers - will they be sold in Kosher Outlets?

Professor Mark Post, of the University of Utrecht, recently reported the successful production of what he calls 'cultured meat' – an outgrowth of the new biotechnological field known as 'tissue engineering'. His team's technique involves extracting a small quantity of so-called "satellite" stem cells from the muscle of live cows. In vivo, these stem cells repair damaged tissue by generating new muscle cells but, with the help of a "growth gel" cocktail, Post's scientists have managed to induce them to replicate many times, producing tiny slivers of muscle tissue. These, in turn, can be combined and last month, Post arranged a public tasting of a 'cultured meat' burger which cost €250,000 to develop.

Whilst he estimates that it may be another 10 years before this process – which has enormous potential environmental and economic benefits – finds practical application on a commercial scale, it is interesting to speculate what the halachic implications of this development might be.

### **Is cultured meat kosher?**

Although natural products such as milk and eggs are permitted for consumption by the Torah if they come from a 'kosher' animal, it is forbidden to consume flesh taken from a live animal; observers may therefore be quick to pronounce cultured meat 'treife' on these grounds. However, a case for permissibility could be argued as follows:

- i) The bovine stem-cell extract may not qualify to be considered 'flesh'.
- ii) As the cells from the original extract proliferate, their number would become vanishingly small as compared to the billions of new cells produced in culture and they would thereby be deemed halachically insignificant due to the laws of bitul (annulment).
- iii) Though derived from an animal extract, the new cells are actually the metabolic products of cell growth and many cycles of division, in which case the principle of nishtaneh (ie the product takes on a new identity) may apply, rendering the cultured meat fit for kosher consumption.

### **Is cultured meat fleishig (meaty)?**

If the derived product takes on a completely new 'identity', it follows that 'cultured meat' should consequently be considered parev. However, there are precedents in halachah that may mitigate against this. For example, mixtures of chicken and dairy products are not expressly forbidden by the Torah, which proscribes 'cooking a kid in its mother's milk' (Shemot 23:19).



(Strictly, this prohibition only applies to animal species which suckle their young.) Nevertheless, it is forbidden rabbinically to consume meat from poultry together with dairy products, to avoid the risk that people might become accustomed to cook or consume mixtures of dairy and animal meat dishes.

In a similar vein, one might contend that as cultured meat will be produced to look and taste like meat and will be called meat, it should perhaps be treated as fleishig for the purposes of kashrut, so as not to unintentionally mislead those who are unaware of its origins.

If and when cultured meat becomes available for public consumption, it will be interesting to discover what position will be taken by the halachic authorities of our time on these two issues.

**Date Uploaded:** Tuesday 24th September 2013

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### Source

**URL:** <https://www.kosher.org.uk/article/cultured-meat-burgers-will-they-be-sold-kosher-outlets>