[](http://www.google.com/imgres?safe=active&sa=X&biw=911&bih=442&tbm=isch&tbnid=uuHKtjWzh3TDkM:&imgrefurl=http://paulharrisonline.blogspot.com/2013/08/how-does-test-tube-hamburger-taste.html&docid=vwY4D4_bkcGYEM&itg=1&imgurl=http://www.harrisonline.com/GRAPHICS/testtube-hamburger.jpg&w=450&h=270&ei=VLaMUtuSI4XYyQH3v4CQBw&zoom=1&ved=1t:3588,r:3,s:0,i:90&iact=rc&page=1&tbnh=174&tbnw=237&start=0&ndsp=7&tx=105&ty=100)**A Lab-Grown Burger Gets a Taste Test**

**By** [**HENRY FOUNTAIN**](http://topics.nytimes.com/top/reference/timestopics/people/f/henry_fountain/index.html)

August 5, 2013

A hamburger made from cow muscle grown in a laboratory was fried, served and eaten in London on Monday in an odd demonstration of one view of the future of food.

According to the three people who ate it, the burger was dry and a bit lacking in flavor. One taster, Josh Schonwald, a Chicago-based author of a book on the future of food, said “the bite feels like a conventional hamburger” but that the meat tasted “like an animal-protein cake.”

But taste and texture were largely beside the point: The event, arranged by a public relations firm and broadcast live on the Web, was meant to make a case that so-called in vitro, or cultured, meat deserves additional financing and research. Proponents of the idea, including Dr. Mark Post, the [Dutch researcher who created the hamburger](http://www.maastrichtuniversity.nl/web/Main/Research1/ResearchUM/FirsteverPublicTastingOfLabgrownCulturedBeefBurger.htm) at the University of Maastricht, say that lab-made meat could provide high-quality protein for the world’s growing population while avoiding most of the environmental and animal-welfare issues related to conventional livestock production.

Neil Stephens, a social scientist at Cardiff University in Wales who has studied the development of cultured meat and who attended the tasting, said the event generated a lot of interest. “The exciting thing will be to see the response,” he said.

Dr. Post, one of a handful of scientists working in the field, said there was still much research to be done and that it would probably take 10 years or more before cultured meat was commercially viable. Reducing costs is one major issue — he estimated that if production could be scaled up, cultured beef made as this one burger was made would cost more than $30 a pound.

The [two-year project](http://www.nytimes.com/2013/05/14/science/engineering-the-325000-in-vitro-burger.html?pagewanted=all) to make the one burger, plus extra tissue for testing, cost $325,000. On Monday it was revealed that Sergey Brin, one of the founders of Google, paid for the project. Dr. Post said Mr. Brin got involved because “he basically shares the same concerns about the sustainability of meat production and animal welfare.”

The meat was produced using stem cells — basic cells that can turn into tissue-specific cells — from cow shoulder muscle from a slaughterhouse. The cells were multiplied in a nutrient solution and put into small petri dishes, where they became muscle cells and formed tiny strips of muscle fiber. About 20,000 strips were used to make the five-ounce burger, which contained breadcrumbs, salt, and some natural colorings as well.

The meat, which contained no fat, was fried in a pan with copious amounts of butter by an English chef and presented on a plate with a bun, lettuce and tomato slices to Dr. Post, Mr. Schonwald and Hanni Rützler, an Austrian food scientist. Pleas from the journalists and others in the audience for a bite were dismissed by Dr. Post, who said he did not have enough to go around.

He said he was “very happy” with the burger after tasting it, although he acknowledged that the lack of fat was a problem. “We’re working on that,” he said.

“I think it’s a very good start,” he added. “It was to mostly prove that we could do this.”

[Recent studies](http://pubs.acs.org/doi/abs/10.1021/es200130u) have shown that producing cultured meat in factories could greatly reduce water, land and energy use, and emissions of methane and other greenhouse gases, compared with conventional meat production using livestock. Depending on how the stem cells were obtained, no animals might need to be killed to make the meat.

Asked if cultured meat might be attractive to vegetarians, Dr. Post said: “Vegetarians should remain vegetarian. That’s even better for the environment.”

His goal, he said, was to “let beef eaters eat beef in an environmentally friendly and ethical way.”

The tasting event was originally expected to take place last fall but was delayed, Dr. Post has said, because of the need to make more tissue for testing.

DIRECTIONS: Read the article and mark the text. **Annotate** while you read! Then, answer the following questions in complete sentences, using evidence from article where appropriate.

**Number** the paragraphs **Underline** main ideas key vocabulary

* **?** questions that occur to you **\*** information that you need to remember

2. Give 1 positive and 1 negative for growing “meat” in a lab:

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3. Why do you think the hamburger cost so much to make?

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4. Using context clues from the article, what do you think “stem cells” are?

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5. Would animals need to be killed to make these types of meals? Why / why not?

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6. Explain what this “lab burger” has to do with Mitosis:

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7. Do you support this idea? Explain why or why not.

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8. You have been hired as part the companies add campaign. You have been asked to create a poster or billboard that will be seen by millions. How would you advertise this product?