



World Health
Organization

Driving Sustainable Food Systems Through Innovation: A Critical Role in Ensuring Safe and Healthy Food for All.

EFSA Scientific Colloquium 27
“Cell culture-derived foods and food ingredients”
Brussels, 11-12 May 2023



Current trends in food production and consumption are causing the ecosystems which support humanity to collapse. But it is possible to make the shift to a more sustainable food system; all it needs is political will and evidence-based action.



Significant dietary changes will be necessary to transition to healthy diets.



More sustainable agriculture practices



Decreasing food waste



Circular economy



More sustainable farming practices



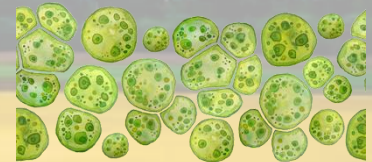
Plant based food



meat produced in bioreactors



Insects



Microalgae

Emerging and advanced technologies such as gene editing, synthetic biology, and animal cell culture technology

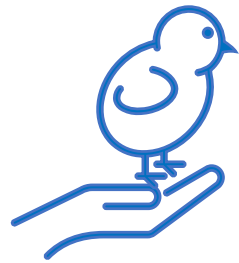
Are our Methodologies for Risk and Safety Assessment Equipped to Support the Regulatory System?



The Promises of Cell Culture-Derived Foods and Food Ingredients



**Nutritious
and healthy**



Animal Welfare



**Sustainable
production**



Food Safety



**Consumer
Experience**

The existing frameworks strike a balance between health, safety, and the environment, as well as food innovation.

Alternative proteins: how to assessing nutritional composition of cell-based foods?

Protein quality

Fatty acid composition

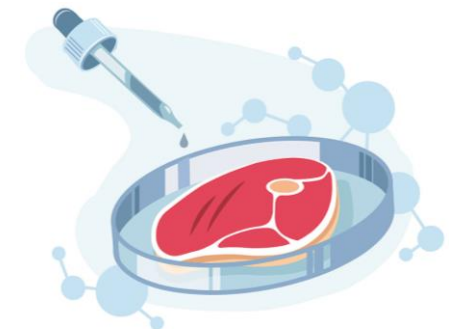
Carbohydrate composition

Vitamins and minerals

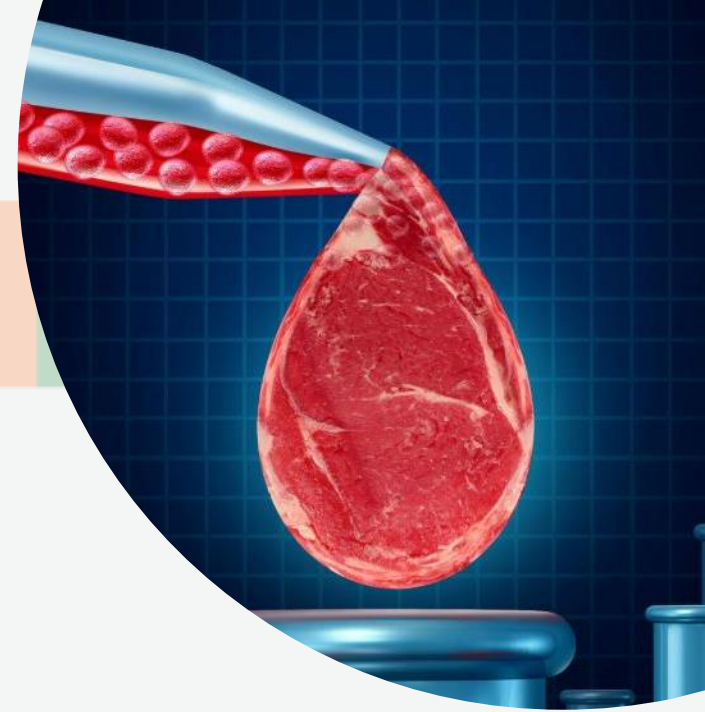
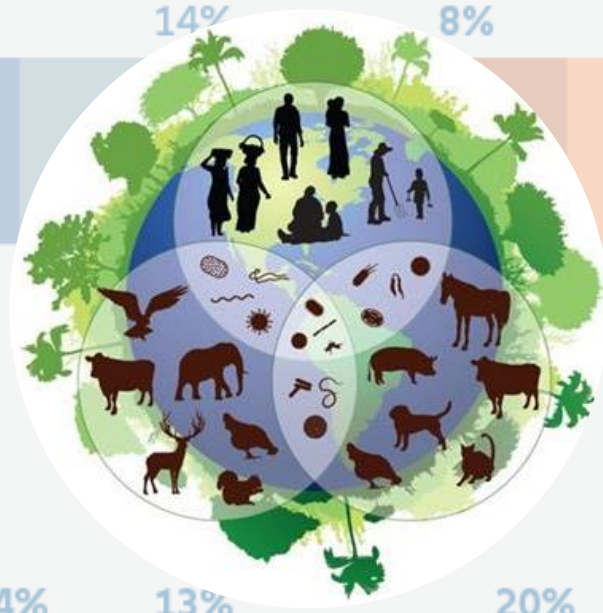
Others bioactive compounds

Addition or supplementation of nutrients and/or compounds could change growth characteristics and overall nutritional composition in unanticipated ways;

Numerous manipulations required to generate cell-based food should be viewed in the context of discussing processed foods



Current g



Global shifts in food consumption and diet towards healthy and sustainable diets

Sustainable healthy diets recommendations

Integrated Risk Benefit Assessment

The change in diet profile requires ... 14%

Total = 250

The global food system is responsible for **one-third** of human-caused greenhouse gas emissions²

Around **80%** of soy is used to feed animals which is the leading cause of global deforestation³

Agriculture accounts for **70%** of freshwater worldwide, three times as much as 50 years ago⁴

60% of global biodiversity loss could be attributed to the food we eat⁵

Producing a kilogram of beef takes an average of **15,415** litres of water versus 4,300 litres for chicken meat⁶

Agriculture is threatening **86%** of at-risk species⁴

WFP, 4. OECD, 5. WFP, 6. New Chatham House report, supported by the UN Environment Programme (UNEP)



High demand for scientific advice and risk and benefit assessment



Obstacles for Scientific advice and risk and benefit assessment

Thank you

? Questions ?

