M1BB Session 4 Animal testing

1.

Good morning!

Get yourself a good cup of coffee / tea and let's get started!

1. Oral presentations --> dates and topics
2. Questions on the vocabulary?
3. Questions on the activities given before our Zoom session?

1. Researchers use human cells instead of mice to study the effects of a new chemical.

10 correct answers
out of 10 respondents

✓	Replacement	100%	10 votes
	Reduction	0%	0 votes
	Refinement	0%	0 votes

2. Researchers use statistical methods to calculate the number of animals needed for a reliable experiment.

11 correct answers
out of 11 respondents

	Replacement	0%	0 votes
✓	Reduction	100%	11 votes
	Refinement	0%	0 votes

4. 3. Researchers give pain relief to animals after a surgical procedure.

12 correct answers
out of 12 respondents

	Replacement	0%	0 votes
	Reduction	0%	0 votes
✓	Refinement	100%	12 votes

5. 4. A laboratory improves the animals' living conditions by providing nesting materials and more space.

9 correct answers
out of 10 respondents

	Replacement	10%	1 vote
	Reduction	0%	0 votes
✓	Refinement	90%	9 votes

6. 5. Researchers use a computer model to predict how a substance might affect human cells before considering animal studies.

8 correct answers
out of 11 respondents

✓	Replacement	73%	8 votes
	Reduction	27%	3 votes
	Refinement	0%	0 votes

7. 1. Scientists grow human skin cells in a laboratory to study how a cosmetic ingredient affects them.

11 correct answers
out of 12 respondents

✓	Cell culture	92%	11 votes
	Organoid	8%	1 vote
	Organ-on-chip	0%	0 votes
	Computer model	0%	0 votes

8. 2. Scientists create a small, three-dimensional structure from stem cells that reproduces some features of the intestine.

11 correct answers
out of 13 respondents

	Cell culture	0%	0 votes
✓	Organoid	85%	11 votes
	Organ-on-chip	15%	2 votes
	Computer model	0%	0 votes

9. 3. A device uses living human cells and flowing liquid to reproduce some functions of a lung.

11 correct answers
out of 11 respondents

	Cell culture	0%	0 votes
	Organoid	0%	0 votes
✓	Organ-on-chip	100%	11 votes
	Computer model	0%	0 votes

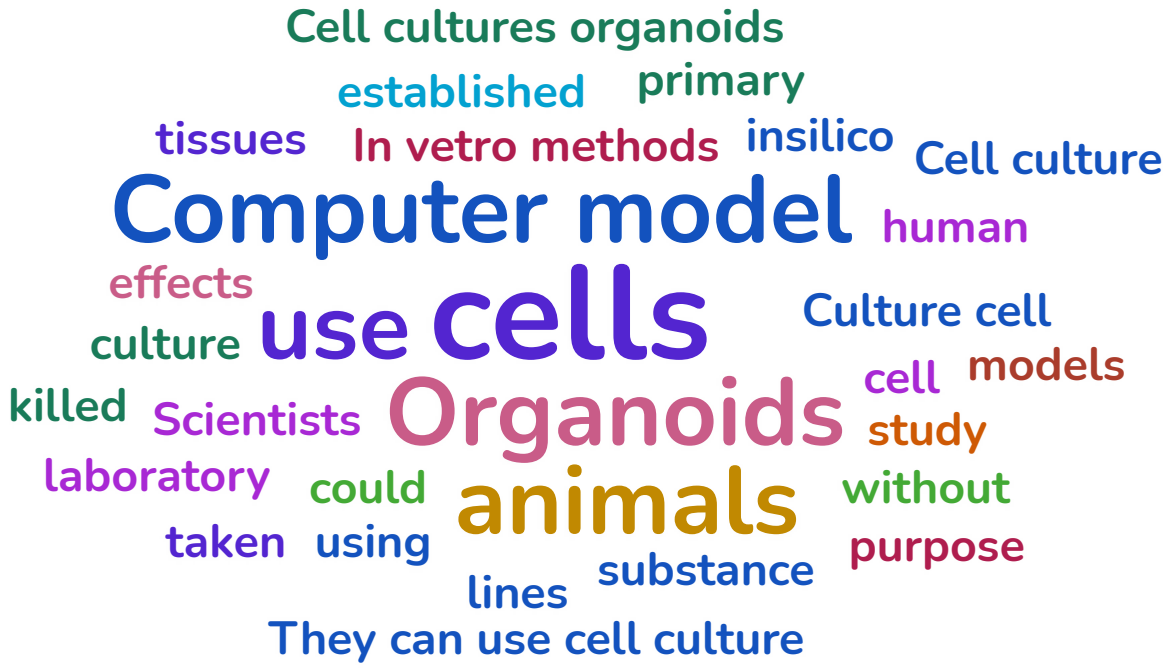
10. 4. Scientists use software to predict how a molecule may interact with a biological target.

12 correct answers
out of 12 respondents

	Cell culture	0%	0 votes
	Organoid	0%	0 votes
	Organ-on-chip	0%	0 votes
✓	Computer model	100%	12 votes

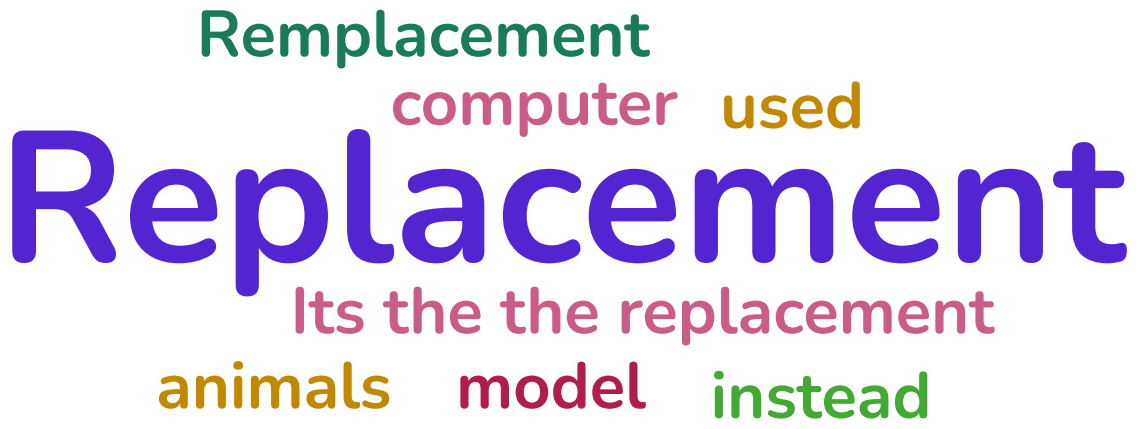
11. A team of scientists wants to study a new substance that could help treat an inflammatory disease. They want to understand how the substance affects human cells and reduce the use of laboratory animals. 1. Which alternative method could help the scientists study the effects on human cells?

10 respondents



12. **A team of scientists wants to study a new substance that could help treat an inflammatory disease. They want to understand how the substance affects human cells and reduce the use of laboratory animals. 2. Which of the 3Rs is relevant if the scientists use a computer model instead of animals?**

2 correct answers
out of 5 respondents

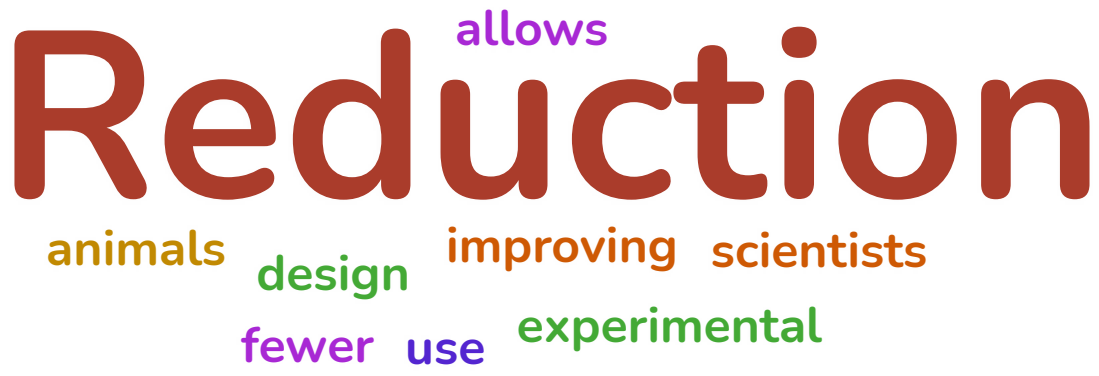


Correct answer

Replacement

13. **A team of scientists wants to study a new substance that could help treat an inflammatory disease. They want to understand how the substance affects human cells and reduce the use of laboratory animals. 3. Which of the 3Rs is relevant if the scientists improve their experimental design to use fewer animals?**

6 correct answers
out of 7 respondents



Correct answer

Reduction

14. 4. In your opinion, can alternative methods completely replace animal testing in all types of research? Why or why not?

13 answers

1 Why?

It could be possible with the computer model and for that we need to create big data of all the experiments in animal vertebrate to create in silico models

Alternantive methods can replace animal testing in many cases but not all, they allow scientifts to study human cells an reduce suffering

Because Computers and new technology are very smart now. Soon, we will not need animals at all

The stem cell method makes it possible to continue experimenting on life subject while stopping using animals

Using bioinformatic and more generaly computer science to build models for predicting and experimentary.

Cells cultures are getting better and better same with others technic. In the future it will be cheaper than animals testing and also closer to human

It depends on the scientific goal, some of theses methods show limitations to get the accurate scientific outcomes. they provide options to reduce the use of animal testing

2 Why not?

Because The human body is very complex. Computers cannot copy everything yet

For me, trying to use the absolute minimum number of animals is risking to sale drugs that not safe because they are not sufficiently treated

To reach an environment that mimic the biological environment as close as possible it can be a challenge that the alternative methods can not yet be solved

No it’s not possible because alternative methods can’t completely replace animal testing in all types of research yet. Some methods can’t reproduce a living organism.

Living organisms have complex system that are difficult to fullly replicate in lab with organoid or computer model

No because animal body is to complex. Its Impossible to build this

15. Step 5: what have you understood?

2 answers

1 **Animal testing & bioinformatics**

Bioinformatics can helps to replace animals by using computer models to predict the differents results

2 **Animal testing & biostatistics**

Biostatistics can helps to reduce animal testing.

16.



Follow-up: your contribution

In small teams, imagine a new tool / device / software / model that would replace, reduce or refine animal testing, and prepare a short description of this tool, explaining why it is a game-changer.

Feel free to be creative, even if the tool is not completely realistic. You have 10mn to prepare this (speaking English in small rooms of course).

17. Conclusion: do you think animal testing could end?

10 respondents

