

# INTRODUCING THE 3R CONCEPTS INTO PRE-COLLEGE CLASSROOMS

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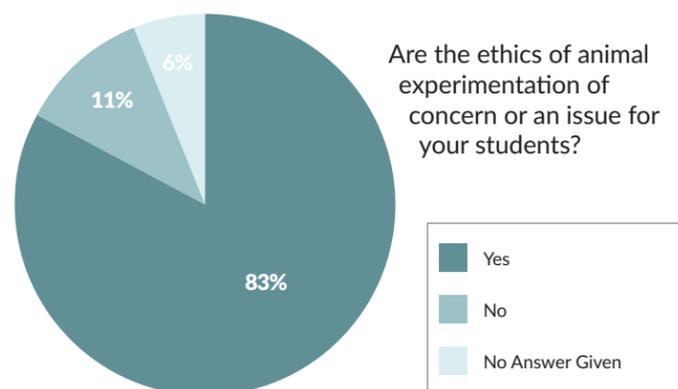
## INTRODUCTION

This poster provides a snapshot of precollege teachers (46) within the U.S.—gauging their knowledge and familiarity of the 3Rs and non-animal testing methods (i.e. *in vitro* methods), initiative to address the topic in the classroom, and their students' level of interest in the topic.

While recognizing the ethical considerations related to animal experimentation, the current generation of teachers and students are also eager to understand the relevance, reliability, and reproducibility of *in vitro* methods as the modern wave of technologies in toxicology, and possible replacement of animal use for testing purposes.

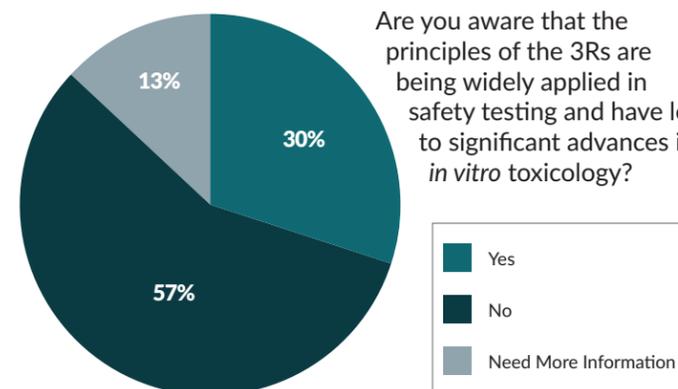
Our data indicate an education field eager to learn about new concepts that might impact our daily activities in an ethical way, and to get up to speed with advances in science.

### Ethical Concern



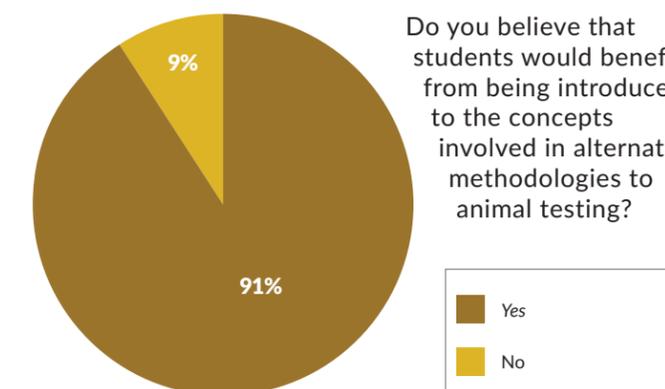
Are the ethics of animal experimentation of concern or an issue for your students?

### 3Rs Awareness



Are you aware that the principles of the 3Rs are being widely applied in safety testing and have led to significant advances in *in vitro* toxicology?

### Perceived Benefit



Do you believe that students would benefit from being introduced to the concepts involved in alternative methodologies to animal testing?

## PURPOSE

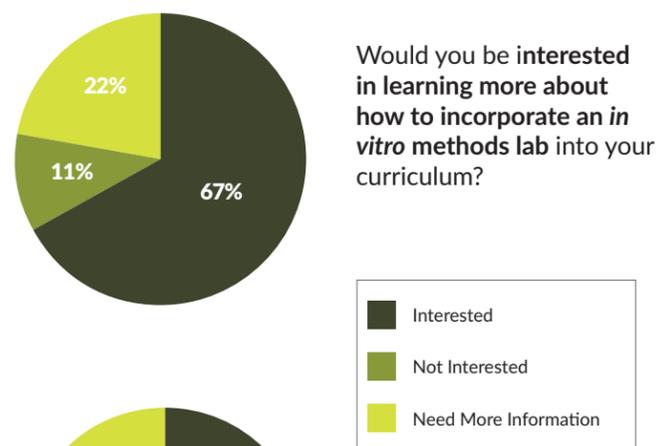
This data was collected in an effort to learn about K-12 science teachers use of, experience with, or discussion of non-animal testing methods (e.g. *in vitro* toxicity testing using animal or human cells/tissues) in their classrooms or laboratories.

## METHODS

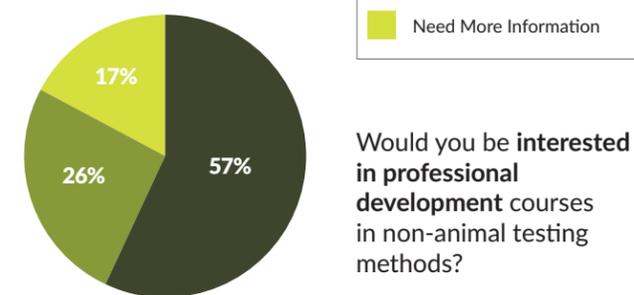
Surveys were distributed at a U.S. northeast regional science teacher conference, and to individual K-12 science teachers through Animalearn, the Alternatives Research & Development Foundation, and the Institute for In Vitro Sciences, resulting in a total of 46 completed surveys.

## KEY FINDINGS

We present and analyze the findings from our one-page survey, which asked teachers to help us understand their knowledge of, and experiences with, non-animal testing methods, as well as their students' level of interest in learning about this topic.



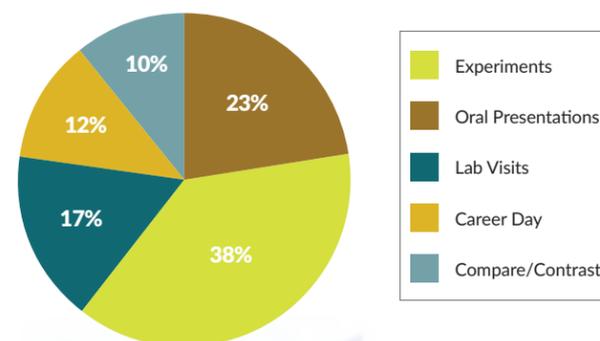
Would you be interested in learning more about how to incorporate an *in vitro* methods lab into your curriculum?



Would you be interested in professional development courses in non-animal testing methods?

### Teachers' Level of Interest

The most popular platform was hands-on experimentation, followed by oral presentations, and visits to a testing lab.



### Preferred Learning Platforms



## CONCLUSIONS

1. Teachers reported that the ethics of animal experimentation is a concern to their students. Teachers' level of awareness of the principles of the 3Rs is also relatively high.
2. Teachers express willingness to learn more and introduce the topic to students for the ultimate benefit of all parties and society at large.
3. The most popular learning platforms are based on applicability and visual relevance (experiments, lectures, visits to labs).
4. The interest in the topic, and its presence in classroom discussions, indicate good potential for infusing contemporary science concepts into the curriculum that help prepare the students for careers in science.

## FUTURE PLANS

- Plan a pilot study focused on the introduction of the 3Rs and *in vitro* methods concepts in the school curriculum.
- Analyze the impact on the students' critical thinking (measurable endpoint).
- Assess the feasibility of a wider exposure to schools (across counties or states).