QueenMary
University of London

Virtual Lab: Flow cytometry

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in collaboration with the Genetic Science Learning Centre

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Summary

Laboratory simulations add value to the traditional practical teaching model. Studies show improved learning outcomes when mixing traditional teaching methods with virtual labs, and that simulations boost motivation, learning and self-efficacy (1, 2).

The Genetic Science Learning Center (GSLC, University of Utah) is a leading developer of online academic content in genetic science, including a collection of virtual labs.

This collaboration will develop an online, interactive virtual laboratory of the flow cytometry method. Flow cytometry is an important technique in medical disciplines with many applications, where the characteristics of thousands of individual cells can be analysed within a few minutes.

Diagnosis of B-cell acute lymphoblastic leukemia was selected as the clinical application to be highlighted. Flow cytometry is used to quickly and effectively diagnose this subtype of leukemia and steer the course of treatment.

Animated graphics will illustrate the molecular processes to support understanding of this technique. Spoken audio and sound effects will be integrated and reinforced with text captioning. Further content will be found on accompanying Learn More pages.

The flow cytometry virtual lab can not only support teaching of this important diagnostic and research technique at QMUL, but will also be disseminated via the Learn.Genetics website, the most widely-used online life science education resource in the world.

Contributors

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Website

learn.genetics.utah.edu/content/labs/

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References

1. Bonde, M. *et al.* (2014). *Nature Biotechnology* 32(7): 694-697
2. Makransky, G. *et al.* (2016). *BMC Medical Education* 16: 98