

# Revolutionizing STEM Education Through Virtual Biology Labs

Introducing VHEalthLab: Open-access virtual laboratories making quality STEM education accessible to all students across Europe

Dear Reader,

Welcome to the second issue of the VHEalthLab newsletter! Since our inaugural issue, we've achieved significant milestones in bringing virtual biology labs to educators across Europe. This issue highlights two significant events that demonstrate the growing momentum behind virtual laboratories in biology education.

In October, we hosted an international conference that brought together educators and policymakers from across the world, and in November, we successfully piloted our virtual labs with pre-service teachers in Spain and Romania. These events reflect our commitment to creating educational resources that are not only technologically advanced but also pedagogically sound and accessible to all.

With our platform now live, we're thrilled to share the progress we've made and introduce you to more members of our consortium who are making VHEalthLab a reality.

Kind regards,

Dr Stella A. Nicolaou (Project Coordinator)

On behalf of the VHEalthLab Consortium



## International Conference Success: Transforming Biology Education

On October 30, 2025, the University of Nicosia hosted the international conference "Transforming the Future of Biology Education Through Virtual Labs," bringing together educators, policymakers, and technology experts from 15 countries in a dynamic hybrid format.

The event showcased approaches to biology education and demonstrated the transformative potential of virtual laboratories. Key presentations included:

### Morning Sessions:

- Dr Persoulla Nicolaou discussed the Common Biology Curriculum for Europe
- Dr Eleni Dafli (Aristotle University of Thessaloniki) presented virtual patient education using OpenLabyrinth
- Dr Panayiota Mylona, Inspector of Biology for the Cyprus Ministry of Education, Sport and Youth, emphasized implementing open-access virtual labs in secondary schools

### Afternoon Sessions:

- Dr Blanca Puig and Aurea Cadarso (Universidade de Santiago de Compostela) presented inquiry-based learning strategies with virtual labs
- Dr Gabriel Lazar demonstrated the VHealthLab platform
- Hands-on workshop led by Dr Mary Halebian (University of Nicosia), Aurea Cadarso, and Christos Maratheftis (Cyprus Ministry of Education)



### A Vision for Equitable Education

*"Virtual labs represent a transformative opportunity to bridge educational gaps and provide equitable access to high-quality biology education across Europe,"* said Dr Stella Nicolaou. *"Today's conference demonstrates the collaborative spirit needed to revolutionize how we teach and learn biology."*



## Educators in Greece: Science Labs Anywhere Workshop

On October 10, 2025, the VHealthLab team conducted a focused workshop in Thessaloniki, Greece, titled "Science Labs Anywhere: The VHealthLab Experience," bringing together biology educators from leading Greek universities to explore the platform and discuss curriculum integration.

### Workshop Overview

**Date:** October 10, 2025

**Time:** 16:15-17:45

**Venue:** Aristotle University Research Dissemination Center (KEDEA), Thessaloniki

**Format:** In-person workshop

**Led by:** Dr Eleni Dafli (Aristotle University of Thessaloniki)



The image shows a workshop program and funding information. The program is a table with two columns: time slots and topics/speakers. The funding information is on the right, including the European Union logo and text.

Time	Topic	Speaker
16:15-16:30	Welcome & Introduction	Eleni Dafli School of Medicine, Aristotle University of Thessaloniki
16:30-16:45	Current curriculum and status in the International Hellenic University	Evgenia Lymperaki Biomedical Sciences Department of School of Health Sciences of the International Hellenic University (IHU)
16:45-17:00	Current needs and status in Biology	Alexandros Triantafyllidis <sup>1</sup> , Konstantinos Gkagkavouzis <sup>2</sup> & Spiros Papakostas <sup>3</sup> <sup>1</sup> School of Biology, Aristotle University of Thessaloniki <sup>2</sup> Department of Science and Technology, International Hellenic University <sup>3</sup> Department of Biochemistry and Biotechnology, University of Thessaly
17:00-17:15	Higher Education and Challenges in Biological Sciences (in Greek)	Matoula Papoutsopoulou Department of Biochemistry and Biotechnology, University of Thessaly
17:15-17:35	Demonstration of the VHealthLab platform and Virtual labs	Eleni Dafli School of Medicine, Aristotle University of Thessaloniki
17:35-17:45	Closing remarks/Discussion	

**Co-funded by the European Union**

VHealthLab workshop: Science Labs Anywhere: The VHealthLab Experience  
10th October 2025  
Thessaloniki

Venue: Aristotle University Research Dissemination Center (KEDEA)

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them. Project number: 2023-1-CY01-KA220-HED-000166031

### Workshop Focus

The session brought together educators from multiple institutions to discuss current needs and explore virtual laboratory solutions:

1. Current curriculum review - Evgenia Lymperaki presented the status of biology education at the International Hellenic University
2. Addressing educational needs - Alexandros Triantafyllidis, Konstantinos Gkagkavouzis, and Spiros Papakostas discussed current needs and challenges in biology education across Greek universities
3. Higher education challenges - Matoula Papoutsopoulou (University of Thessaly) addressed broader challenges in biological sciences education
4. Platform demonstration - Dr Eleni Dafli provided hands-on demonstration of the VHealthLab platform and virtual laboratories, allowing participants to experience the tools firsthand

### Why This Matters

This workshop represented an important opportunity for Greek biology educators to engage directly with the VHealthLab platform and contribute insights about curriculum needs. By bringing together representatives from Aristotle University, International Hellenic University, and University of Thessaly, the session fostered collaboration and ensured the virtual laboratories align with real educational challenges in Greek higher education institutions.

## Virtual Labs in Action: Workshop in Santiago de Compostela

On November 17, 2025, the VHEalthLab team successfully conducted a workshop at the Faculty of Education Sciences, Universidade de Santiago de Compostela, marking an important milestone in testing our virtual laboratories with future educators.

### Workshop Overview

**Participants:** 29 pre-service teachers from scientific backgrounds (21 onsite, 8 online via Teams)

**Format:** Hybrid session integrated into master's degree studies

**Language:** Galician

**Led by:** Dr Blanca Puig and Aurea Cadarso

### Workshop Objectives

The session focused on three key goals:

1. Introducing the European VHEalthLab project and its applications for STEM education in secondary schools
2. Providing hands-on access to the virtual laboratories and analyzing integrated activities
3. Presenting pedagogical guidelines for teaching with virtual labs, with emphasis on educational inclusion and scientific inquiry

### Why This Matters

This workshop represents a crucial step in our development process. By engaging pre-service teachers—the educators of tomorrow—we're ensuring that virtual laboratories are pedagogically sound, user-friendly, and truly serve the needs of diverse learners. The hybrid format also demonstrated the flexibility of our approach, accommodating both in-person and remote participants seamlessly.



## Reaching Educators in Romania: Virtual Labs Webinar



Webinar live   
28 Noiembrie 2025  
Ora 16:00

### Transformarea educației STEM prin folosirea laboratoarelor virtuale



Lecții de Biologie create cu LIVRESQ



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**Participants: Over 200  
educators from across  
Romania**

**Date: November 28, 2025**

**Time: 16:00 (4:00 PM)**

**Format: Online via Zoom**

**Language: Romanian**

**Led by: Dr Gabriel Lazar  
(Ascendia SA) with LIVRESQ**

On November 28, 2025, the VHealthLab team successfully conducted an online webinar in Romanian, "Transformarea educației STEM prin folosirea laboratoarelor virtuale" (Transforming STEM Education Through the Use of Virtual Labs), bringing virtual laboratories to educators across Romania.

### Webinar Focus

The session covered four key areas:

1. Presenting the completed VHealthLab project and its comprehensive educational ecosystem for biology created in LIVRESQ
2. Demonstrating all 14 virtual biology laboratories with complex examples, virtual experiments, and STEM resources accessible through the platform
3. Platform navigation showing educators how to organize courses, enroll users, track student progress, and transform educational materials into complete learning experiences
4. Interactive exploration of the LIVRESQ and CoffeeLMS platforms, providing participants with hands-on understanding of the virtual lab environment

### Why This Matters

This webinar demonstrated the project's commitment to reaching educators in their native languages across all partner countries. By conducting the session in Romanian, the team ensured that virtual laboratories are accessible and relevant to local educational contexts. The online format reached educators across Romania regardless of location, showcasing the scalability and flexibility that virtual labs bring to STEM education.



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# VHEalthLab

## PLATFORM LAUNCH: NOW LIVE

We're thrilled to announce that the VHEalthLab e-learning platform has officially launched and is now accessible at <https://vhealthlab.elearning.ro/>

### What You'll Find on the Platform

The platform currently features:

- **Interactive Virtual Laboratories:** Hands-on simulations in biology that can be accessed 24/7 from anywhere
- **Teacher Training Modules:** Three comprehensive modules designed to help educators implement virtual labs effectively:
  - Module 1: Introduction to VHEalthLab and Inquiry-Based Learning
  - Module 2: Pedagogical Strategies for Implementing VLs with the IBL Approach
  - Module 3: Addressing Diverse Learning Needs and Gender Gap in VLs
- **Multilingual Content:** Resources available in English, Greek, Spanish, and Romanian
- **Pedagogical Guides:** Supporting materials for inclusive education and scientific inquiry

### Built for Accessibility

The platform is designed with accessibility at its core:

- **Open access** - Free worldwide, eliminating cost barriers
- **Low technical requirements** - Optimized for standard devices with moderate bandwidth
- **Browser-based** - No special software installation required
- **Sustainable** - Supported by Erasmus+ funding and consortium partners



OPEN ACCESS



MULTILINGUAL



BROWSER-BASED



[Experience here](https://vhealthlab.elearning.ro/)

## A European Collaboration for Excellence

VHEalthLab brings together leading educational institutions and organizations across four countries, combining expertise in education, technology, and policy:

CY

**University of Nicosia****Program Coordinator**

Led by Dr Stella Nicolaou,  
Associate Professor of Immunology

**UNIVERSITY  
of NICOSIA**

CY

**Ministry of Education, Sports & Youth****Policy & Implementation**

Ensuring curriculum alignment and standards



ES

**University of Santiago de Compostela****Pedagogical Guidelines**

Educational frameworks and promotion



GR

**Aristotle University****Lab Design**

Creating innovative virtual laboratory experiences

**ARISTOTLE  
UNIVERSITY OF  
THESSALONIKI**

RO

**Ascendia SA****Platform Development**

Technical infrastructure and user experience



Learn more about our partners at

[VHEalthlab.eu/partners](https://VHEalthlab.eu/partners)



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## Meet More of the VHealthLab Team

### featuring Aristotle University of Thessaloniki



#### **Professor Panagiotis Bamidis**

Professor of Medical Physics, Informatics and Medical Education, and Director of the Lab of Medical Physics and Digital Innovation in the School of Medicine at Aristotle University of Thessaloniki. He designs and evaluates Digital Health and Assistive Technologies systems that improve activities of elderly and vulnerable groups while advancing health professional education. As coordinator of more than 12 large European projects and principal investigator for over 100 funded projects, he brings extensive expertise to VHealthLab. He serves as President of the Hellenic Biomedical Technology Society and has received prizes for Best Track Record in funded research projects.

#### **Dr Eleni Dafli**

Cardiologist and Clinical/Laboratory Reader in the Lab of Medical Physics and Digital Innovation at Aristotle University of Thessaloniki. Her expertise lies in medical informatics and information technologies in healthcare education, particularly virtual patients and clinical simulations. Her Ph.D. thesis on virtual patients and clinical simulations in medical education earned her a scholarship of excellence from the AUTH Research Committee. She brings extensive experience from European and national research projects and has received 10 awards for her research from national and international organizations.



#### **Ioanna Dratsiou**

Research Associate in the Laboratory of Medical Physics and Digital Innovation at Aristotle University of Thessaloniki. She holds a Bachelor's degree in Primary Education and an MSc in Learning Technologies, and is currently pursuing her Ph.D. on supporting university educators' professional development through digital skills upskilling. Her research focuses on digital pedagogy, educational innovation, and technology-enhanced learning in health and education sectors. She also works on cognitive and physical training interventions for older adults to promote active and healthy aging.





### **Dr Anastasia Rodina-Theocharaki**

Biomedical Engineer and postdoctoral researcher with over a decade of expertise in European Commission-funded research and development projects. As a project manager, she has successfully led numerous Erasmus+ projects, driving innovation in biomedical and medical higher education across Europe. Her expertise focuses on digital pedagogies, medical and biomedical education innovation, future medical doctors' soft skills development, and student-centered learning methodologies. She is passionate about integrating emerging technologies in education and healthcare.

## **from Ascendia SA**

### **Dr Gabriel Lazar**

Director of Research and Development at Ascendia SA, an edtech company, bringing over three decades of teaching expertise. He graduated from the University of Bucharest with a Master's degree in Engineering and a Ph.D. in Physics, completed with a postdoc stage in France at Jules Verne University, Amiens. He has coordinated or been a member of numerous nationally and internationally funded research projects, published over 150 articles in scientific journals with more than 2,000 citations. His current research focuses on the use of digital tools in education, making him instrumental in developing VHealthLab's technical platform.



### We Invite You to:

- Explore the platform at <https://vhealthlab.elearning.ro/>
- Test our virtual laboratories and share your feedback
- Express interest in piloting VHEalthLab modules in your institution

### Stay Connected with VHEalthLab

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