

## The 8<sup>th</sup> Barcelona VPH Summer School Barcelona was held on June 2-6, 2025, and focused on Integrative Medicine!



**The 8th Barcelona VPH Summer School** was proudly co-organized by **BCN MedTech** at the Department of Engineering, **Universitat Pompeu Fabra (UPF)**, and the **Virtual Physiological Human Institute (VPHi)**, in collaboration with the **UPF Department of Medicine and Life Sciences** and the **QUAES-UPF Chair**.

This year's Summer School provided junior engineers, early-career researchers, and medical professionals with an in-depth, multidisciplinary perspective on cutting-edge research in **in silico medicine**. The program followed a comprehensive journey — from foundational scientific principles and clinical needs to real-world applications of computational models.

The event received strong backing from esteemed institutions including the **European Society of Biomechanics**, the **Spanish Network of Excellence in Biomechanics**, and **CompBioMed**.

## A Week of Innovation and Collaboration

Over the course of the week, **more than 60 participants** and **16 distinguished international speakers** representing leading institutions from around the globe joined us in Barcelona.



This year, the programme focused on **Integrative Medicine**, guiding participants through a full pipeline—from basic science and clinical needs to model application.

		8th VPH SUMMER SCHOOL				
		INTEGRATIVE MEDECINE				
		Department of Engineering, Universitat Pompeu Fabra				
		Monday, June 2nd	Tuesday, June 3rd	Wednesday, June 4th	Thursday, June 5th	Friday, June 6th
		<i>Basic Science and Clinical Understanding</i>	<i>Acquisition, processing, quantification</i>	<i>Organ, cell, molecular</i>	<i>Implementation, validation, coupling</i>	<i>Understanding, decision-support, therapy support</i>
Sala Nau	08:30 - 09:30	08:30 - 09:00 Registration 09:00 - 09:30 Welcome				
	09:30 - 11:00 (Keynote Speakers)	Miguel-Angel del Pozo, CNIC (Chair: Mané Sargysian)	09:30-10:30 Paula Petrone, ISGlobal (Chair: Gabriel Bernadino)	Sandra Loerakker, Eindhoven University of Technology (Chair: Jérôme Noailly)	Rebecca Shipley, University College London (Chair: Alba Fischer)	Digital Bioethics Workshop: Elisa Livevrouw, KU Leuven (Chair: Jérôme Noailly)
	11:00 - 11:30	Coffee break	10:30-11:00 Coffee break	Coffee break	Coffee break	Coffee break
	11:30-12:30 Lectures/Workshops	Tue Secher-Jenssen, University of Southern Denmark (Chair: Gemma Piella)	11:00-12:30 Marta Melé, BSC (Chair: Bart Bijnens)	Tomás Alarcón, CRM (Chair: Zerihun Workneh)	Vasileios Vavourakis, University of Cyprus (Chair: Andreu Pascuet-Fontanet)	Wafa Skalli, SKAIROS (Chair: Miguel Angel)
	12:30 - 13:30 Lectures/Workshops	Guillaume Mabilieu, University of Nantes (Chair: Elham Alizadeh)	12:30-13:30 Guillermo Rus, University of Granada (Chair: Carlos Ruiz Wills)	Thomas Berkemeier, Max Planck Institute for Chemistry (Chair: Beatriz Eguzkitza)	Elena Gutierrez Farewik, KTH (Chair: Laura Baumgartner)	Preparation of the hands on presentations
Cafeteria on Campus	13:30 - 14:30	Lunch				
Hall Tallers	14:30 - 16:30	The Best VPHi Thesis Award presentation (Chair: Jérôme Noailly) 14:30-15:30 (Sala Nau) Hands-on 15:30-16:30	Hands-on	Hands-on	Hands-on	14:30-17:00 Hands on presentations & Certificates
	16:30 - 17:00	Poster Coffee Break				
	17:00-18:00	Hands-on	Hands-on	Hands-on	17:00-18:00 Hands-on 18:00-19:30 room available for independent work	17:00-18:00 Summer School Closure & Farewell Social Event (Guttenberg Square on Campus)
	18:00 - 19:00					

The program offered a rich and diverse experience for all participants, featuring:

- **14 keynote lectures** from Monday to Friday delivered by world-renowned researchers, setting the stage each morning with cutting-edge insights and visionary perspectives. The lectures were followed by dynamic discussions that sparked deep conversations and fostered meaningful professional connections throughout the event.



- A special thematic workshop “(Dis)trust in in silico technologies” by Elisa Lievevrouw (Meaningful Interactions Lab, KU Leuven) that explored emerging trends and encouraged in-depth exploration of critical topics.





- **4 hands-on sessions** held in the afternoons, where participants engaged, providing **15.5 hours of transversal training** in key technological and methodological aspects of in silico medicine. These sessions allowed attendees to gain practical experience and apply newly acquired skills under the guidance of **8 expert researchers**.



- **Poster presentations**, also in the afternoon, provided an interactive platform for researchers to showcase their work and receive feedback.



As a valuable addition to this year's program, the **2025 VPH Best Thesis Award in In Silico Medicine** was proudly presented to Elena Redaelli. Her outstanding doctoral research introduces a novel approach for characterizing the mechanical properties of the cornea in vivo and in real-time, by integrating high-fidelity in silico models with advanced AI techniques.



An abstract background featuring a large, stylized white star shape on the left side, set against a textured orange and blue pattern. The star is composed of several overlapping, slightly irregular shapes, giving it a hand-drawn or layered appearance. The background consists of various shades of orange and blue, with some areas appearing more saturated than others, creating a dynamic and modern look.



**Dr. Elena Redaelli**  
Universidad de Zaragoza  
Winner of VPHi Best Thesis 2025

The final day featured hands-on presentations where students showcased their projects, demonstrating the skills and knowledge they had acquired throughout the event. These projects addressed real-world problems, incorporating elements of digital technology, design thinking, and user experience.



To foster deeper engagement and capture key takeaways, participants were invited to complete a short, interactive online questionnaire immediately following the presentations. This helped assess their understanding and gather valuable insights while the content was still fresh. As an added incentive, top-performing participants were recognized with Gold: Pau Lloret, Silver: Nil Pujol, and Bronze: Rafa Benito awards—celebrating their attentiveness and enthusiasm during the session.



## Celebrating Excellence

A highlight of the closing ceremony was **the Best Hands-on Award**, presented by Prof. Jerome Noailly, Chair of the 8<sup>th</sup> Barcelona VPH Summer School.

- Winning Hands-on: Patient-specific intervertebral disc modeling for fully coupled multi-species mechano-transport simulations from clinical MRI
- Winners: Xenia Yan Hueso Espinosa, Maria Reverte Palahi, Marc Carmona Torres, Pau Lloret, Valentina Gibert, Alex Just Barbero, Renate Janssen
- Instructors: Estefano Muñoz, UPF, Sai Natarajan, UPF



## Supporting Emerging Talent

We were thrilled to award **travel grants** to two outstanding young scientists, in recognition of their potential and commitment to the field:



- Mrinal Patnaik – AIIMS (All India Institute of Medical Sciences), Raipur, India
- Federica Cernuto – Università di Catania, Italy



All participants received certificates celebrating their achievements and acknowledging their readiness to apply their new skills in future professional and academic endeavours.

Through initiatives like these, the **VPH Summer School** continues to empower the next generation of researchers — championing **innovation**, **diversity**, and **excellence** in computational healthcare.

Missed it live? Watch the recordings now! [https://www.youtube.com/@disc4all\\_project](https://www.youtube.com/@disc4all_project)





## Acknowledgment:

### Sponsors & Supporting grants:

**VPH Institute, Disc4All** Training network to advance integrated computational simulations in translational medicine, applied to intervertebral disc degeneration, H2020-MSCA-ITN-ETN-2020 GA: 955735, **O-Health (ERC-2021-CoG-101044828)**, **STRATO (PID2021-126469OB-C21)**.

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