

Wednesday  
April 22, 2022  
15.00 (GMT+1)

## Computational and Quantitative Biology Lecture Series



### Olivier Elemento

Director, Englander Institute for Precision Medicine  
Associate Director, Institute for Computational Biomedicine

The seminar will be held on line. Please register at <https://bit.ly/3rFShei>

You will receive an invite with the link to the seminar.

Visit <https://cqb.dieti.unina.it/index.php/events> for the event series.

## Towards AI-Driven Cancer Precision Medicine

In this talk, I will present an overview of our precision medicine program leveraging genomics and AI to deliver high-quality, outcomes-changing personalized medicine to cancer patients at Weill Cornell Medicine. I will describe our effort to bring whole-genome sequencing into the clinic, automate the interpretation of genomes and more broadly use whole-genome sequencing as a platform for AI-driven predictive medicine. I will also describe orthogonal techniques to obtain new insights into clinical samples, such as single-cell tissue imaging using imaging mass cytometry, and describe the application of this technology coupled with analytics to turn millions of single cells into cancer subtypes that predict treatment response. In an effort to help augment the number of effective therapies targeting alterations we see in cancer patients, I will then discuss ongoing projects using AI to help develop novel therapies, focusing initially on predicting mechanisms of action of orphan molecules and positioning them in specific patient populations. I will finish by outlining some important future directions for AI in precision medicine.

**Olivier Elemento** is a professor of physiology and biophysics at Weill Cornell Medicine (WCM) and Cornell University. Since 2017, he has been the Director of the Caryl and Israel Englander Institute for Precision Medicine (<https://eipm.weill.cornell.edu/>). The Englander Institute is a multidisciplinary institute that draws over 100 faculty members from nearly all basic and clinical departments at Cornell University. The Englander Institute's mission is to use genomics, artificial intelligence (AI), patient-derived models and other technologies to develop and bring highly personalized medicine to patients at Weill Cornell's affiliated hospital, NewYork Presbyterian Hospital (NYPH) and elsewhere. The Institute also fosters patient-centered basic and clinical research in the areas of genomics, systems biology, AI and data science. Dr. Elemento is funded by numerous NIH grants, foundation grants, NIH contracts and industry alliances. He has published over 360 papers in the area of precision medicine, genomics, computational biology, artificial intelligence, systems biology and drug discovery. Dr. Elemento co-founded two venture capital-funded companies, Volastra Therapeutics and OneThree Bio.

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