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Objectives

Abstract: More than 300,000 mammalian virus species are estimated to cause infectious disease in humans. They inhabit a wide range of human tissues, including the lungs, blood, and brain, and often remain undetected. Efficient and accurate detection of viral infection is vital to understand its impact on human health, and to make accurate predictions to limit negative effects, including the prevention of future pandemics. The increasing use of high-throughput sequencing methods in research, agriculture, and healthcare provides an opportunity for the cost-effective surveillance of viral diversity and investigation of virus-disease correlation. However, there are no existing workflows for accurate real-time detection of viral infection from sequencing data at single-cell resolution. We introduce a method that accurately and rapidly detects viral sequences in bulk and single-cell transcriptomics data, enabling the detection of ongoing infection by RNA viruses covering up to 10^{12} virus species.

Short bio: Laura is a German-Catalan

Biology Ph.D. candidate at the California Institute of Technology (Caltech) in Pasadena, USA. After earning her bachelor's and master's degrees in microbiology and biotechnology at Leiden University in The Netherlands, she followed her passion for genetics and entered the world of computational biology. Currently, she is developing a pipeline for the detection of viral sequences in next-generation sequencing data in the laboratory of Prof. Lior Pachter. She is passionate about bridging the gap between biology and bioinformatics, having worked in both wet lab and computer science roles. Her most recently published program 'gget' facilitates access to large genomic databases and has been downloaded over 50,000 times. When she is not busy detecting bugs, you can find her hiking in the San Gabriel Mountains.

Speakers

Speaker: Laura Luebbert, German-Catalan Biology Ph.D. candidate at the California Institute of Technology (Caltech) in Pasadena, USA.
Host: Marta Melé, Transcriptomics and Functional Genomics Lab Group Leader, Life Sciences, BSC

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