

New scientific publication: CircAID-p-seq

PRESS RELEASE

Trento, Italy, 21st December 2020 - IMMAGINA BioTechnology presents, together with its partners at Genexa, TB-seq, the Institute for Biophysics at CNR Trento and the Edinburgh Medical School, Biomedical Sciences a preprint publication featuring the first commercially available Phospho RNA sequencing kit called circAID-p-seq (CIRCular Amplification and IDentification of short 3' Phosphate RNA SEquences).

<https://www.biorxiv.org/content/10.1101/2020.12.16.423093v1>



Accurate positional information of ribosomes and RNA binding proteins with respect to their transcripts is crucial for the understanding of how cellular regulatory networks determining protein and RNA metabolism. We describe here how this positional information can be obtained using a unique and innovative PCR-free approach called circAID-p-seq taking advantage of the 3'P and 2,3'cP ends of RNA fragments generated in many of these technologies by nucleases in only one day. We apply the circAID technology here to a ribosomal profiling experiment along with a dedicated computational tool called CircAidMe using the Oxford Nanopore sequencing technology.

circAID-p-seq is a versatile tool not only to conduct ribosomal profiling and footprinting experiments in a cost-effective and fast manner but will also allow detecting 3'P/2,3'cP-RNA fragments from endogenous sources in biological samples such as tissues and liquid biopsies.

The 3' phosphorylated RNA fragments forming a hidden layer of the transcriptome that has received an increasing amount of interest in the research community, for instance with regard to tRNAs generated by Angiogenin that have been reported to play an important role in human diseases. We are expecting to make available a dedicated kit system for analysing tRNAs and other endogenous 3'-phosphorylated RNAs early in 2021.

Comments from companies involved



"We are very pleased to provide together with our partners a complete and integrated solution for phospho-RNA sequencing which will help to enhance the capabilities of researchers to study the translational regulatory network. To our knowledge, this is an original and unique method for 3'-P/cP RNA-seq library preparation, the first selective 3'-P/cP ribosome profiling, and the first Ribo-seq performed with the Oxford Nanopore Technologies platform. I'm proud of this project, it shows the IMMAGINA's soul: from bright ideas to great products for biotech industries and basic research!" says Massimiliano Clamer, Founder and President of IMMAGINA BioTechnology in Trento.

"At Genexa, we are very proud to have contributed the CircAidMe bioinformatic tool to this collaboration. It has truly been an exciting journey to develop the CircAidMe software as a part of the circAid-p-seq solution and to enable a smooth analysis of short 3'-phosphate RNA. We would like to thank our partners for this joint project and are sure that circAID-p-seq will enable a lot of new and exciting research" says Michael Schmid, Founder and CEO of Genexa AG from Zurich.



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“At TB-Seq we are thrilled to have contributed with our ribosome profiling analyses to this important technological development. We believe that this new methodology will provide many new opportunities for scientific discovery and applications. It was exciting to work at this project with our partners and we look forward to future opportunities to offer circAID-p-seq as part of our services” say Luciano Brocchieri and Silvia Tornaletti, founders of TB-Seq.

About Genexa:

Genexa is a service provider for bioinformatic analyses based in Zurich, Switzerland. Genexa's services are centered around the analysis of third- and next-generation sequencing data and the development of novel data analysis solutions for genomics applications.

About TB-Seq:

TB-Seq is the premier provider of ribosome profiling services in the USA, based in South San Francisco, California. Our services include RIBO-seq and RNA-seq library preparation, sequencing, and customized bioinformatics analysis.

About IMMAGINA BioTechnology:

Based in Trento, Italy, IMMAGINA BioTechnology provides high quality innovative solutions to assess translation control of gene expression, translatoome and proteome. IMMAGINA was founded 2014 when the founders started to develop Ribolace™, the only technology to capture active ribosomes. Thanks to the investment of private investors and the expansion of the R&D team, two new technologies for translatoome analysis (AHARIBO™ and CircAID™) have been developed and finally launched in 2019.

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