Digital Platform for Direct Molecular Detection

with Nanostring nCounter® MAX Analysis System.

nanoString®

¿What is nanostring technology?

The **exclusive Nanostring technology** allows **digital quantification of RNA molecules** directly, thanks to an identification system using a color code associated with each molecule (Figure 1.)

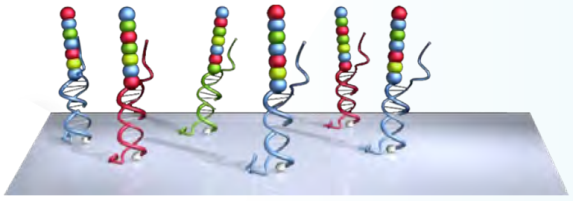

Figure 1.- Direct Molecular Detection using color barcodes. The molecular complexes formed once purified are immobilized and digitally detected by fluorescence microscopy *(digital counts or single molecule "countable" fluorescent barcodes).*

¿How does it work??

The **nCounter® MAX Digital Analysis System with Nanostring Technology** uses two pairs of specific probes that hybridize directly to the nucleic acid sample, eliminating enzymatic reactions that could bias results. One is the so-called "reporter" probe, which is marked with six fluorochromes of four different colors, and whose series-arranged combination of these gives rise to a unique "color code" for each target. The "capture" probe is conjugated with biotin, and is used for the immobilization of the probe/target complex on the streptavidin-coated cartridge (see Figure 2.)

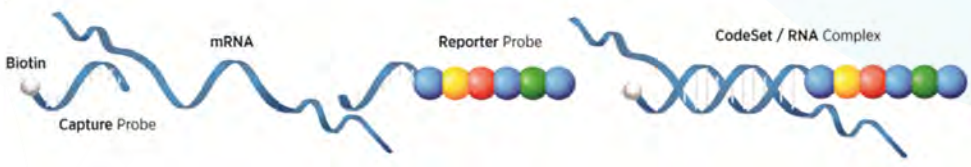

Figure 2.- Labeling of RNA (molecule "target") with "capture probe" and "reporter probe", and complex "target-probe" (RNA Complex) or unique color code.

¿What applications does this tecnology offer?

Among its many applications, it is highlighted the **quantitative analysis of gene expression**, with no need for reverse transcription or subsequent amplification, and allowing the analysis of hundreds of mRNAs, miRNSs, CNVs.

This makes this technology ideal for studies where nucleic acid is isolated from samples with components that may favor its degradation, and samples of low quality in general, such as FFPE biopsy blocks (Formalin-Fixed Paraffin-Embedded), since the detection is direct and it only requires 100 nucleotides, meaning that it is possible to work with a very small amount of sample. In addition, it is capable of multiplexing up to 800 markers in a single sample, allowing a large amount of information to be obtained in a coherent and reproducible way from low amounts of RNA/DNA.

The sensitivity of the Nanostring technology-based methods is equivalent to that of the qPCR (Quantitative Polymerase Chain Reaction) methods and its level and multiplexing capacity (800 genes in a single reaction) is between the capacity of the qPCR and NGS techniques (Next Generation Sequencing).

The nanostringenvip platform

From our Direct Molecular Detection Digital Platform, we offer a **personalized service for the design of your experiment and development of the protocol**, and we do it from start to finish. For this reason, we provide the **results of the study in a simple format** and a "user-friendly" language for non-scientific personnel, in addition, if necessary, we can offer our experience in clinical application, with experts in **analysis and interpretation of results (DNA, RNA, miRNA).**

The technology has a **large number of potential applications in different areas of clinical research:** gene expression studies (with pre-designed panels or panels that are tailored to the user's needs with the targets of interest), studies of variation in the number of copies (DNA-CNV), and also ChIP-StringAssay (Chromatin Immuno-precipitation) assays.

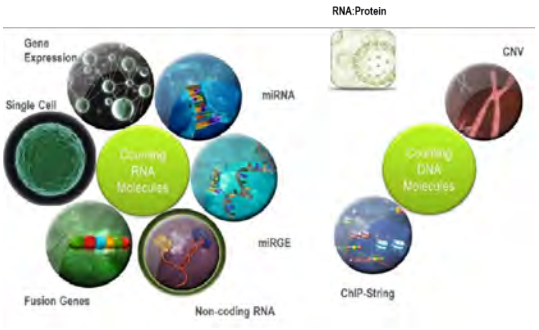

Figure 3.- Applications of the technology.

Contact

We are located in **laboratory 19 of IDIS**, in the **Complexo Hospitalario Universitario de Santiago (CHUS).**

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