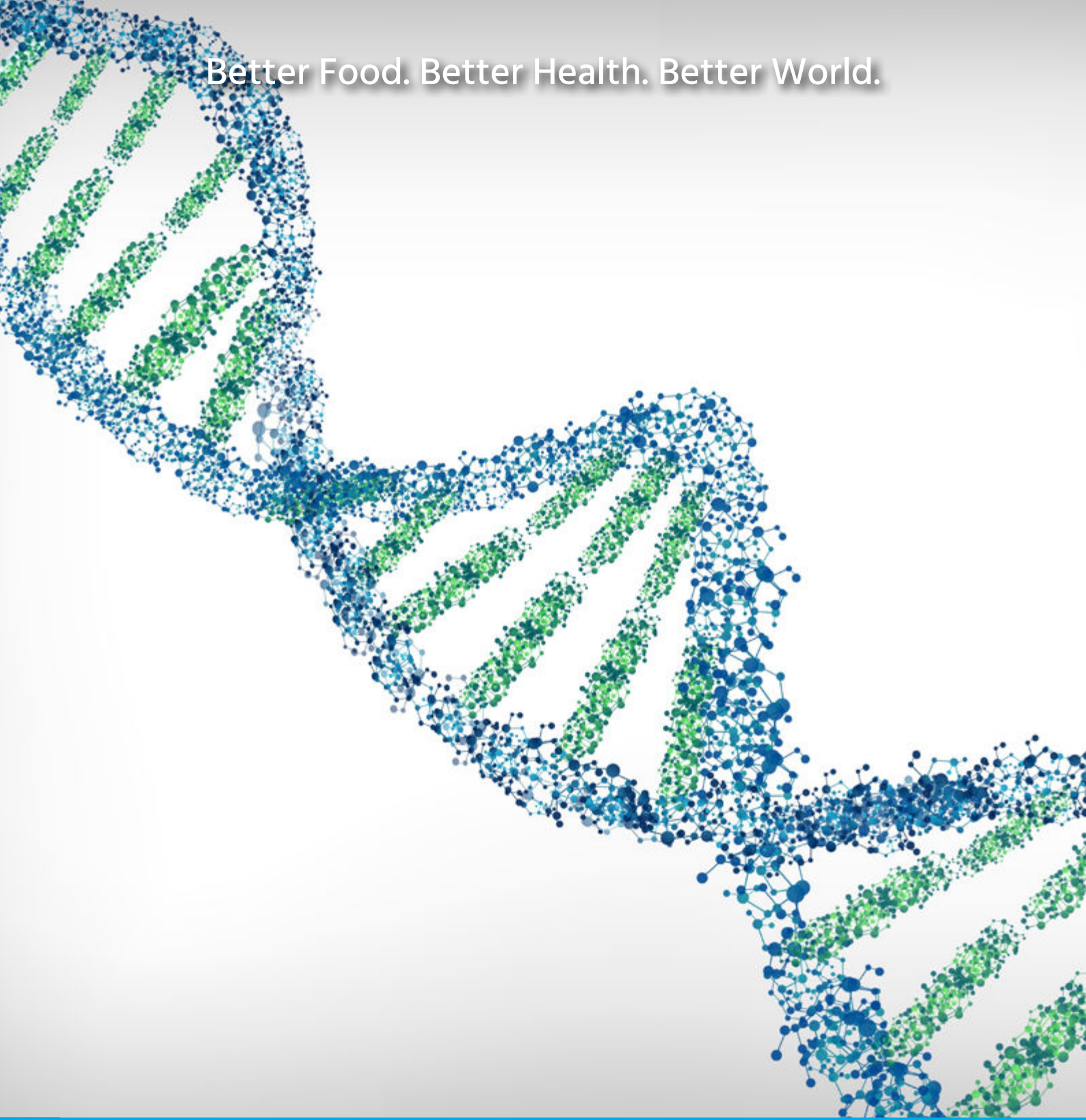


Better Food. Better Health. Better World.



DNA Metabarcoding Service



DNA is a universal molecule that has unequivocal traits for every living organism, so it allows a unique characterization. DNA can be recovered from many biological materials and **DNA-based** techniques often enable the identification of samples regardless of the processing undergone. For this reason, they are the most important analytical tools for **food authenticity**.

Several methods based on DNA were developed and applied in the agri-food field: Real time PCR, a technique of choice also for quantification (qPCR); the Droplet Digital PCR (ddPCR), recently applied for absolute quantification; isothermal amplification (LAMP, RPA, etc.), fast and efficient; DNA sequencing (Barcoding), gold standard for the identification of species and adulterations determination.

NGS

Next Generation Sequencing

Next Generation Sequencing (NGS) refers to the set of nucleic acid sequencing technologies that have in common the ability to sequence millions of DNA fragments in parallel. With its **high throughput sequencing capabilities**, NGS has revolutionized genomic research offering, in a single experiment, the ability to collect a large amount of sequence information a hundred times faster and cheaper than the conventional Sanger approach.

Among the NGS methods, **DNA metabarcoding has emerged** and it allows for the massive sequencing of genetic markers that provide taxonomic information on the species.

What is metabarcoding?



PLANT

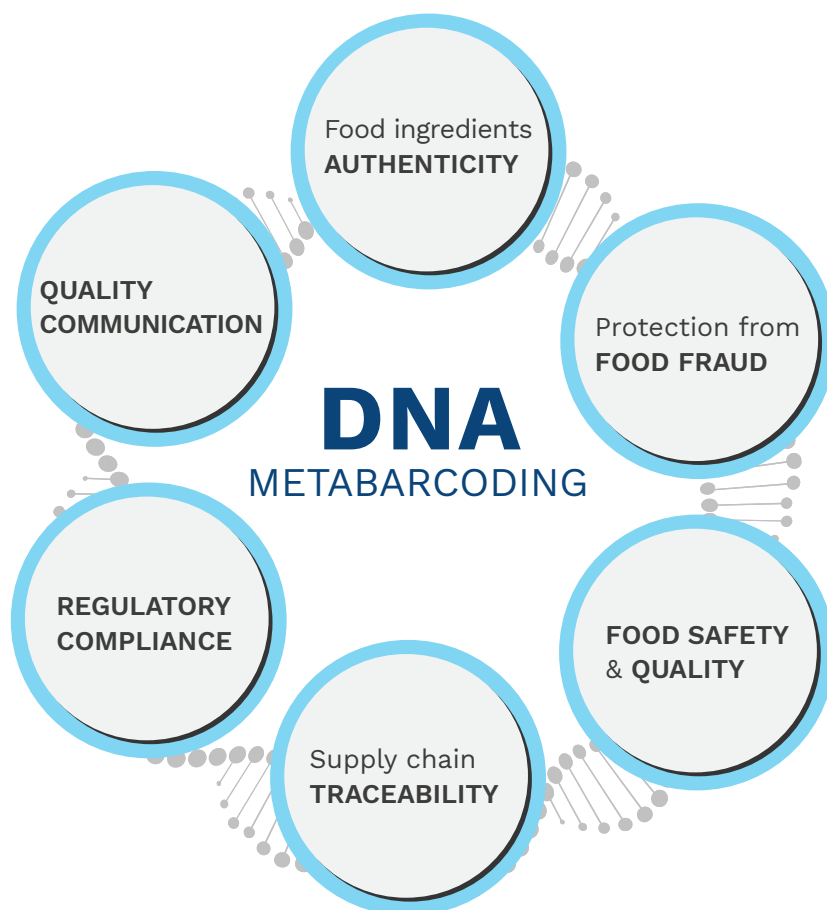


ANIMAL

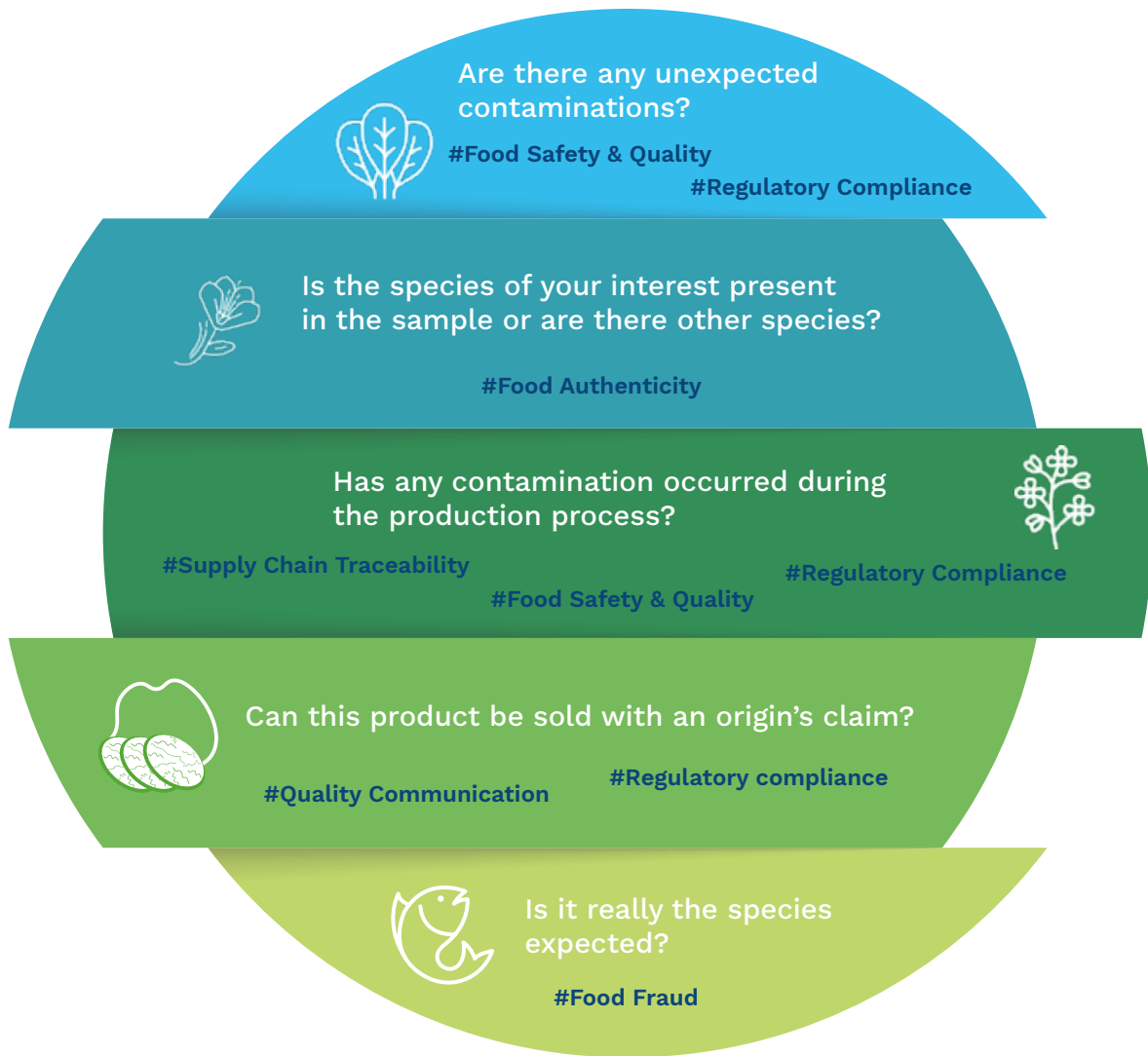


MICROORGANISMS

APPLICATIONS



... WHAT IS REALLY INSIDE YOUR PRODUCT?



PLANT SPECIES IDENTIFICATION



Spices
Highly defrauded



Food supplements and botanicals
Authenticity of extracts



Food with plant ingredients
Cross-contamination by toxic plants and ingredients screening

METABARCODING SEQUENCING

● Identification of exogenous DNA

● Species identification in the sample

● Representativeness % of species DNA (Abundance) in the sample

Mérieux NutriSciences capabilities on DNA metabarcoding

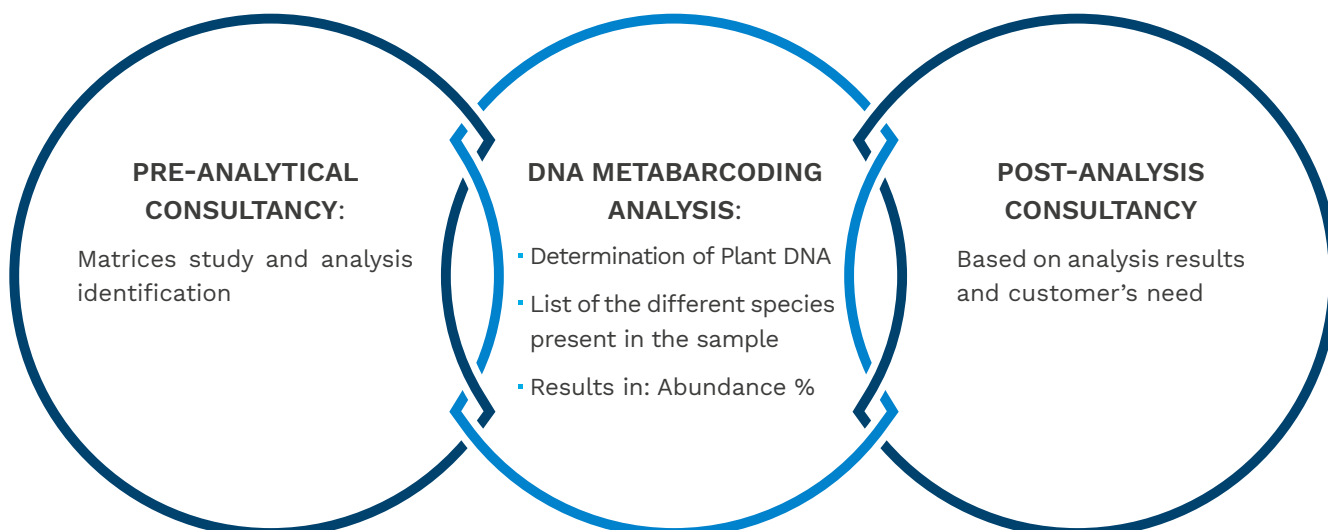
Consumers, governments and the food industry demand a strict control and monitoring of food labeling and authenticity, assuring food quality and safety. Apart from being **accurate and reliable**, the analytical methods used for assessing food authenticity must fulfill several requirements such as being **sensitive**, **highly specific**, and **having multiplexing capability, high-throughput** and low analysis time.

Mérieux NutriSciences developed and owns:

- **Its own** continuously updated **database**
- **A robust bioinformatics pipeline for data analysis**
- **Illumina** sequencing technology

Mérieux NutriSciences

offer includes independent services:



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