



## SUPPORTING INNOVATION AND TECHNOLOGY TRANSFER IN ONCOLOGY

**THERAPY**

### cPOC-Repair

Clinical Proof of Concept for DNA Repair Biomarkers



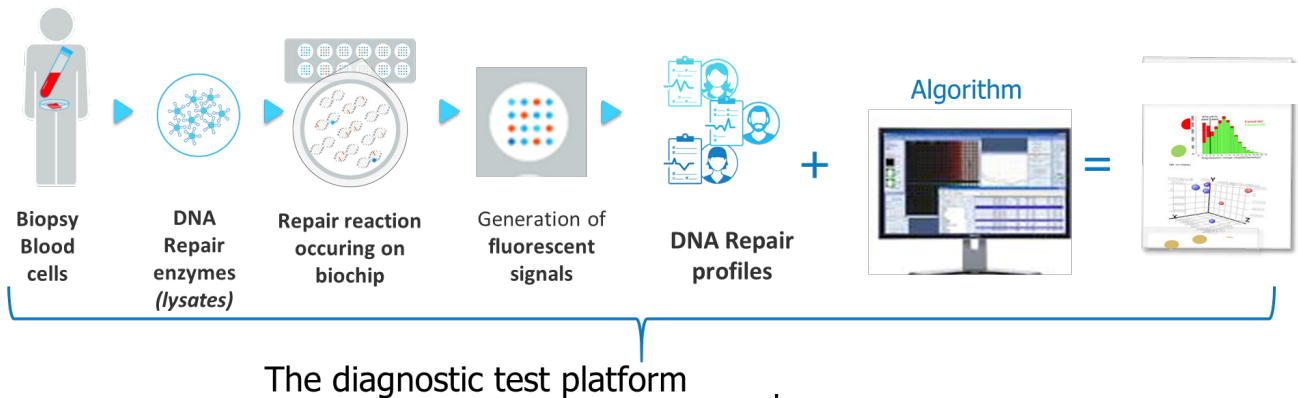
### CONTEXT & BACKGROUND

DNA Repair mechanisms are responsible for the failure of certain anticancer treatments (radiotherapy, chemotherapy). Defects in DNA Repair genes are used as biomarkers (MSI high, BRCA mutations) for selecting the patients to receive some specific classes of therapies (immunotherapy, DNA Repair inhibitors).

Today, the stratification of patients to choose the best therapeutic option is essentially based on genomic characterizations (mutations, genomic analysis).

However this is not fully adapted to the characterization of DNA repair mechanisms which are multiple, complex and redundant. There is a need to complement the genomic approach by a functional approach to characterize this enzymatic interacting network. To this aim we have developed a range of DNA Repair assays on microsupports that offer a real time qualitative, and quantitative analysis of the different DNA repair pathways.

These tools are used to establish a DNA repair signatures highly specific of the patients' profile (blood cells and tumors). They are suitable to understand the resistance mechanisms and identify strategies to overcome them.



### INNOVATIVE COMPONENT & TECHNOLOGY

The patented DNA Repair assay platform is unique. It mimics the various DNA repair processes on dedicated biochips (multiplex enzymatic DNA repair assays on microsupport). It offers a comprehensive characterization of the whole DNA Repair network at a functional level and in real time (HR, NHEJ, NER, BER, ICLR pathways).

### KEYWORDS

DNA Repair, biomarkers, multiplex functional assays



### OBJECTIVES

Our objective is to provide new precise tools 1. to stratify the patients based on their real DNA Repair capacities to identify resistance biomarkers to different therapies (DNA Repair inhibitors, Radiotherapy, chemotherapy, immunotherapy and combinations), 2. to develop more specific and effective DNA Repair inhibitors.



## DEVELOPMENT & MATURATION STAGE

The platform is available (3 different assays, scanner and automatic software for normalization) for preclinical characterization and kits development is ongoing. Clinical POCs are almost completed, preclinical data are available (cancer cells, PDX).



## TARGET PROFILE

DNA Repair mechanisms : Homologous Recombination, Non Homologous End Joining, Base and Nucleotide Excision Repair, IntraCrosslink repair



## STRENGTHS & COMPETITIVE ADVANTAGES

Unique platform specifically designed to match unmet needs regarding DNA Repair mechanisms characterization.



## INDUSTRIAL APPLICATIONS & OPPORTUNITIES

Research (CRO type): DNA Repair inhibitors mechanisms of action and efficacy,  
Translational, clinical: patients stratification, response to drugs



## INTELLECTUAL PROPERTY & PATIENT CO-OWNER(S)

Worldwide licence on 3 patents (from CEA), 2 patent applications filed by the company (2018 and 2019)