

P018 Damaged-oligonucleotides biochip : a convenient means to assess the DNA repair ability of any biological sample
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Various DNA repair mechanisms, including the Base Excision Repair (BER) pathway, act in cells to maintain genome stability. Defects in these DNA repair processes often lead to carcinogenesis. As many drugs commonly used for anti-cancer treatments do their work by damaging DNA, DNA repair may also have a critical role in response to chemotherapy. Profiling the repair capability of cancer cells is thus a crucial issue for cancer susceptibility diagnosis. Therapeutics is also concerned as a better knowledge of BER in response to chemotherapy (inhibition or stimulation) could allow adjusting treatment to maximise effectiveness while minimizing toxicity.

To this aim, we developed a multiplexed assay giving access to the repair profile of any biological sample. This biochip, functionalized with 13 different damaged oligonucleotide sequences, allows a simultaneous evaluation of excision capacity of most of enzymes involved in BER (UNG, APE1, AAG, hNTH1, OGG1, MYH...).

Our work currently focuses on the characterization of various cancer cell lines (RPMI 8226, HCC 1937, HCT 116...). Our ambition is first of all to characterize their DNA repair profile in correlation with their genotype, but also to evaluate the incidence of standards of care agents used in chemotherapy on BER pathway.

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