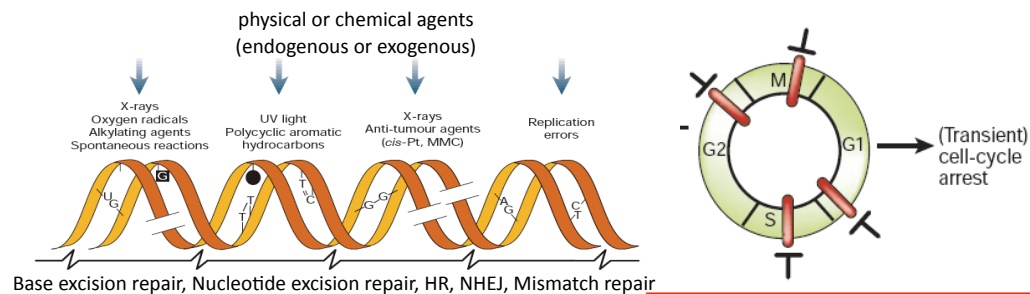


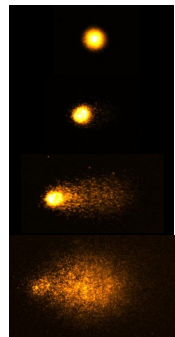
# E08- Genotoxicity Signaling

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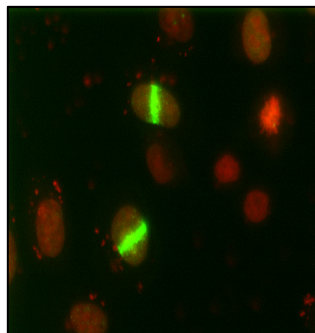
Our team is working on genotoxic stress, focusing on the molecular signaling pathways triggered in cells and the repair of DNA double strand breaks (DSB), known to generate genetic instability. We aim to study the effects on cell physiology of DNA damage induced by food dietary chemicals or bacterial genotoxin. Our project associates applied signaling analysis, with the development of biological effects biomarkers, and basic research. We aim to get new insights on the signaling pathways involved at the DNA damage level and how these damages get repaired. For this purpose, our group uses ex vivo and in vitro approaches, combining cell biology, molecular biology and biochemistry techniques. Our goal is to get a better knowledge on the complex inter-connections between DNA damage, DNA repair, cell cycle regulation and linked pathologies.



- ✓ Follow DNA damage in living cells and develop genotoxic exposure biomarkers
- ✓ Study how cells signal and repair DNA damage in different context (mutations, level of exposure,...)
- ✓ Develop new assays to screen genotoxic substances and detect genotoxic pollutants



Comet assays to detect DNA damage



$\gamma$ H2AX signal  
(after laser irradiation)  
Propidium Iodide (nucleus)

## Perspectives :

Our biomarkers could be used in a systematic approach, to assay people exposure to genotoxic substances, to screen the genotoxic potential of substances or test toxicity of treatments. We will particularly study the E. coli colibactin, leading to DSB production, to gain knowledge on the complex interconnexion between DNA damage/DNA repair and linked pathologies. Altogether, the different parts of this research program will allow us to a better understanding of the genotoxic signaling and of the repair mechanisms set-up after DNA damage.

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