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Département de physiologie
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DP SEMINAR

Tuesday, January 29th– 12h15
Department of Physiology, Bugnon 7, 1005 Lausanne
Seminar room, 6th floor

Genotoxic stress responses and DNA repair in the context of the cell cycle

Prof. Matthias Altmeyer
SNF Professor, Research Group Leader
Department of Molecular Mechanisms of Disease
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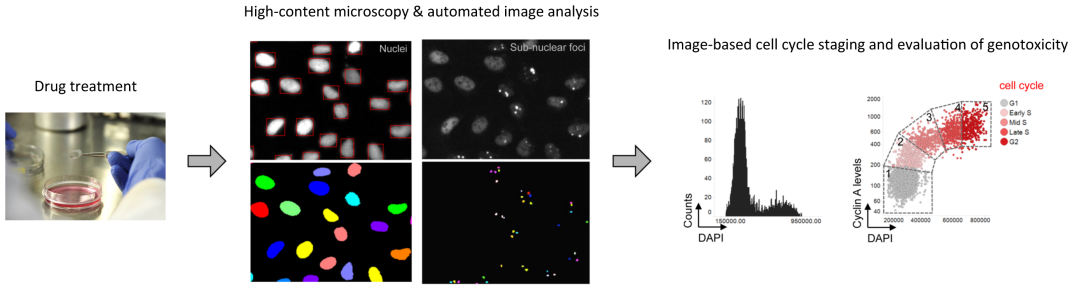
Host : Prof. Christian Widmann



The DNA damage response (DDR) and the replication stress response (RSR) represent highly conserved pathways that cooperate to prevent accumulation of DNA lesions and thereby guard cells against genomic instability. Both pathways are frequently deregulated in human cancers, allowing cancer cells to acquire mutations at significantly increased rates. While such defects in genome maintenance mechanisms promote cancer development, they can also provide a therapeutic opportunity if we can identify the specific vulnerabilities they entail.

Our lab employs high-content microscopy for cell cycle resolved single cell and cell population analyses to dissect how maintenance of genome stability is coordinated with cell cycle progression, chromatin dynamics and epigenetic memory, with a particular focus on how the DNA double-strand break repair pathway choice is regulated and on cellular mechanisms of chemotherapeutic drug toxicity *(1-3)*.

(1) Pellegrino et al. *Cell Rep.* 2017 May 30;19(9):1819-1831.
(2) Michelena et al. *Nat Commun.* 2018 Jul 11;9(1):2678.
(3) Teloni et al. *Mol Cell.* 2018 Dec 24. pii: S1097-2765(18)31006-2.