

32. The DNA damage response

1 unit, John Petrini, October 15, 2025

Generic definition of sensors, transducers, mediators, and effectors

Lesions detected

Cell cycle phase dependence

Sensors

Rad17

RPA

Mre11 complex

ATM-ATR and signaling

Downstream effectors

Spatial organization

Pathway examples

Genetic proof of pathway

Biochemical assessments

Discussion Paper:

Gorgoulis V, Vassiliou LV, Karakaidos P, et al., Activation of the DNA damage checkpoint and genomic instability in human precancerous lesions. *Nature*, 2005, 434, 907-913.

Review Paper:

Halazonetis, T, Gorgoulis V, Barteka J. An Oncogene-Induced DNA Damage Model for Cancer Development. *Science*, 2008, 319, 1352-1355.

Scientific Court Groups for discussion paper –

Group A:

Defending the conclusions of the paper:

Alfroz, Jalwa - Leader

Beattie, Kai

Magnus, Karina

Mutaher, Mohammed

Styers, Hannah

Group B:

Opposing the conclusions of the paper:

Ahmed, Nibras

Li, Ruofei Faye

McIlhenny, Lauren

Pope, Eleanor

Sussman, Carleigh

Volpe, Christina - Leader