In healthy cells, DNA damage occurs and is repaired by proteins, such as poly (ADP-ribose) polymerase (PARP), so the cell can continue to function. This damage can be spontaneous or the result of environmental factors like radiation or some chemicals.

Cancer cells also experience damage to their DNA and use proteins, such as PARP, to repair the damaged DNA.\(^1\)

**Mechanism of action**

**Single Strand Break (SSB)**

- PARP recruited; PARylation initiation
- Ribosylation
- PARP inhibition
- Accumulation of DNA damage
- PARP1
- Cell death

**SSB converts to Double Strand Break (DSB)**

- PARP inhibition
- Replication fork collapses
- Accumulation of DNA damage
- PARP1
- Cell death

- HRD tumours (may be BRCAmut or BRCAwt)

**Platinum causes DSB**

- PARP inhibition
- Replication forks collapse at additional sites of damage
- PARP1
- PARP1
- PARP1
- PARP1
- Accumulation of DNA damage
- Cell death

**PARP inhibitors block the PARP protein, so the damaged DNA can't be repaired in the cancer cell. As the DNA accumulates damage, single-strand breaks turn into double-strand breaks. This accumulated damage can lead to the death of the cancer cell.**

References