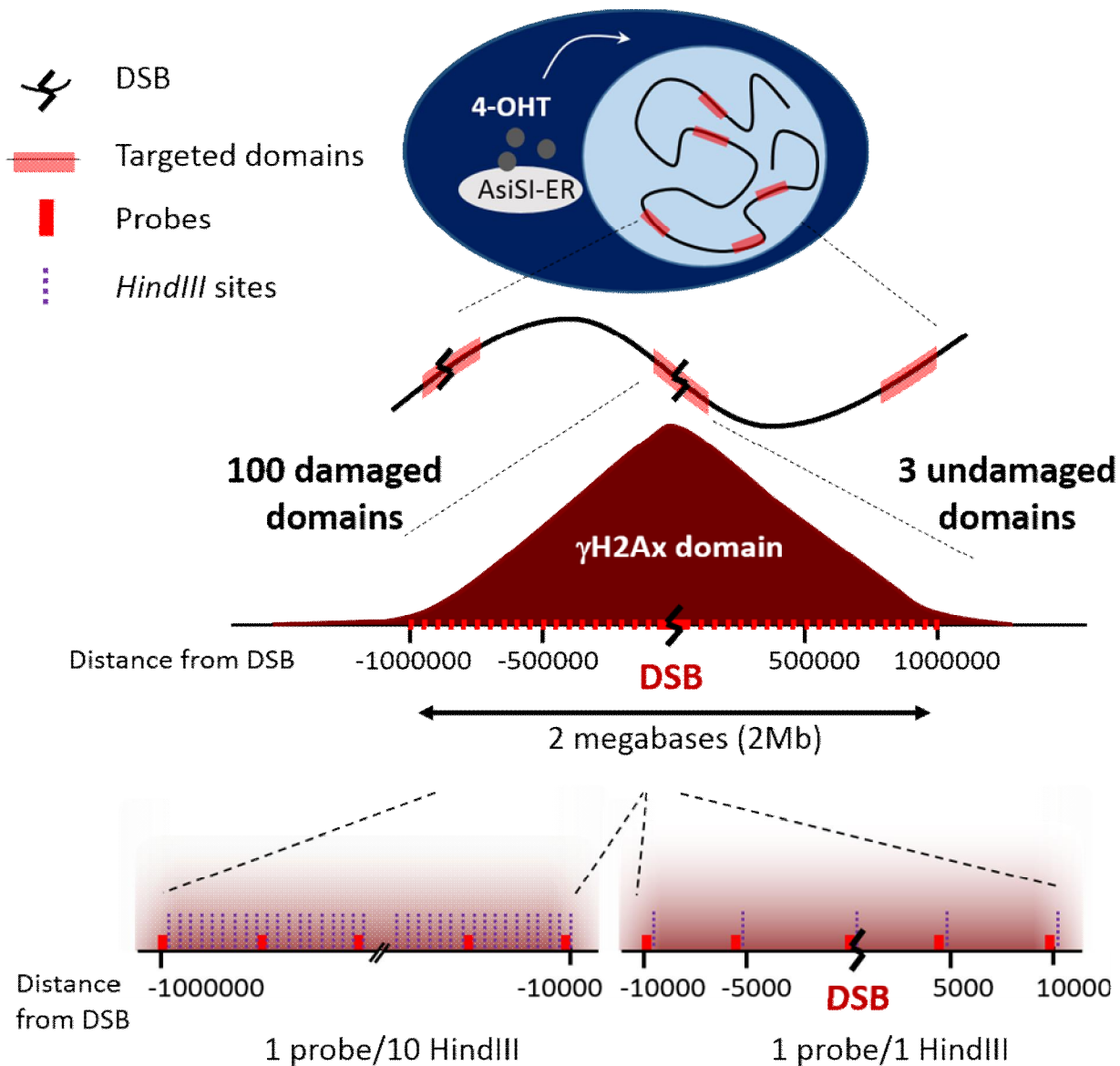


## Supplementary Note



### Supplementary Note: Strategy for probes design.

Experimental pipeline: DlvA cells express a restriction enzyme AsiSI fused to the ligand binding domain of the oestrogen receptor (ER) and to the Auxin Inducible Degron (AID). 4OHT treatment induces AsiSI relocalisation in the nucleus and roughly a hundred DSBs on the genome that have been previously mapped by  $\gamma$ H2AX ChIP-seq, (Aymard, F. *et al*, *Nat Struct Mol Biol.* 4, 366-74, 2014). Subsequent Auxin (IAA) treatment leads to the degradation of AsiSI, allowing repair. Probes for the capture step were designed within 2 megabases (2Mb) windows surrounding the 100 best cleaved DSBs. 3 control regions of equivalent size (2Mb) but devoid of DSB were included. An average of 50 probes were designed per domain with a high coverage at the immediate vicinity of the DSB on a  $\pm$  10kb window (one probe per HindIII fragment i.e. 1 probe /5kb) and a lower coverage on the rest of the domain (1 probe for 10 HindIII fragments, i.e. approximately 1 probe/ 50kb). The list of probes is available Supplementary Table 1.