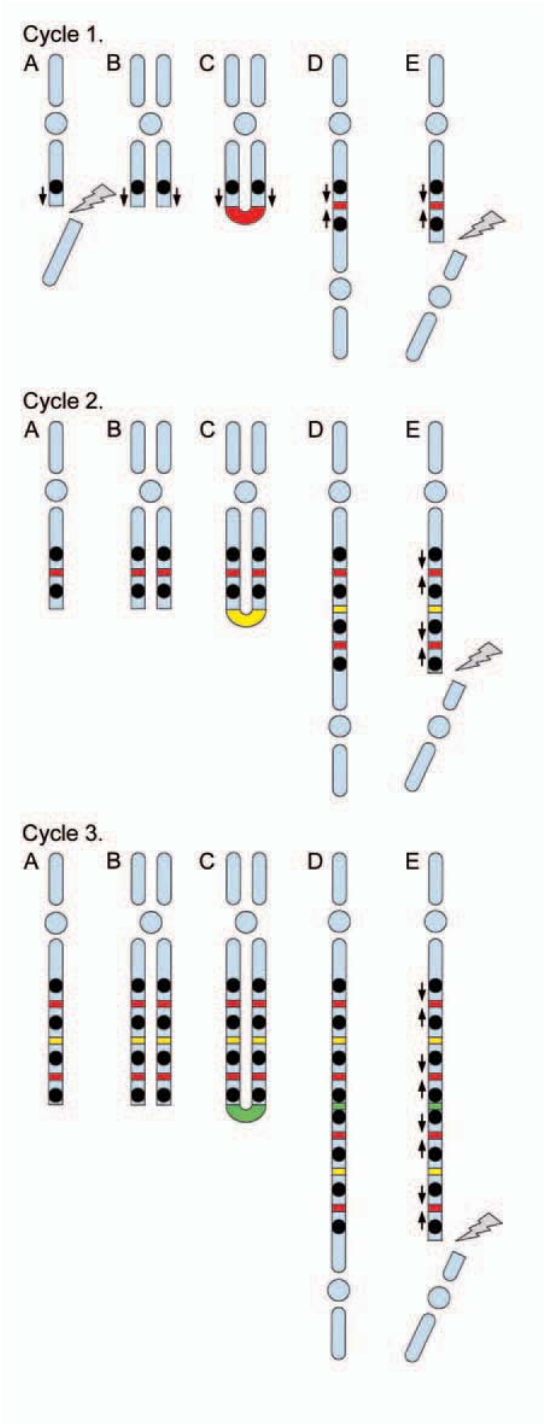
Supplementary Figure 4.



Schematic representation of breakage-fusion-bridge cycles. The first three cycles are illustrated, with *ERBB2* shown as black circles and the break-fusion junctions shown as coloured rectangles. Each cycle starts with an uncapped chromosome lacking telomeric sequences (A). For cycle 1 this is the result of a double stranded break (indicated by grey arrow), for cycle 2 and 3 the uncapped chromosome is the result of the previous round of break-fusion-bridge cycle. Once the cell enters the S-phase of the cell cycle the chromosomes are copied giving two sister chromatids (B). The sister chromatids fuse via the non-homologous end joining pathway of double strand break repair, removing uncapped chromosomes and thereby allow cell division to proceed (C). Separation of the sister chromatids gives rise to a dicentric chromosome (D) centred on the breakage-fusion junctions (coloured differently in each round). Each of the centromeres of the dicentric chromosome go to a different daughter cell giving rise to an anaphase bridge and resultant double strand break (E). At the end of the third cycle eight copies of *ERBB2* are present along with four copies of the first breakage-fusion junction (red), two of the second breakage-fusion junction (yellow) and one of the third breakage-fusion junction (green). The orientation of the amplified sequences within the growing homogeneously staining region is indicated with black arrows.