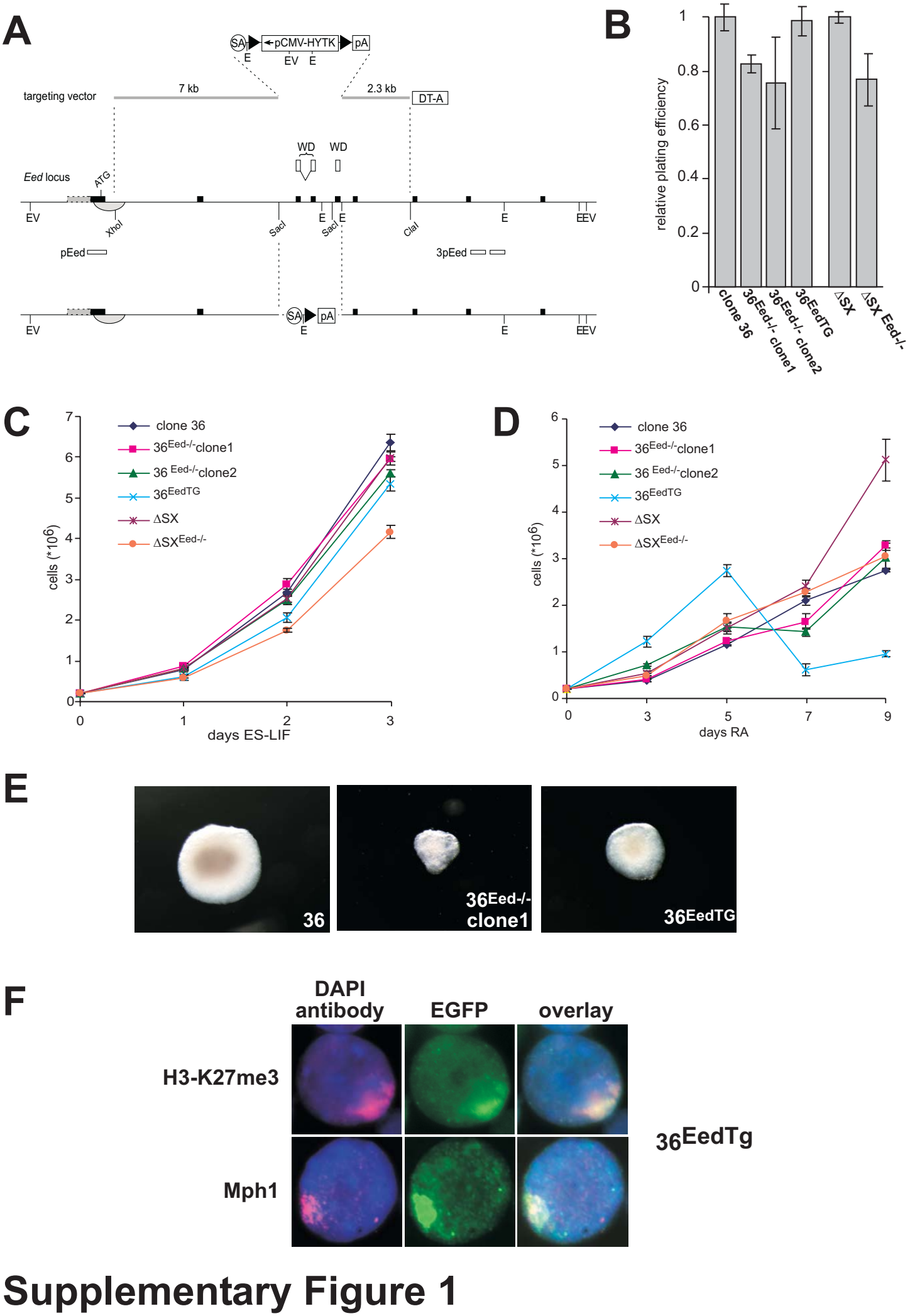
Supplementary figure 1. Characterization of Eed deficient ES cells.

A. Schematic representation of the *Eed* gene locus, targeting vector (above) and targeted allele. Exons (black boxes), loxP sites (triangles), WD40 domains encoded by exons 3 to 5, the position of probes (open bars), and GC-rich region (gray crescent) are indicated. **B.** Bars represent the relative colony forming efficiency of indicated ES cell lines (clone 36 was set to 1). Error bars represent the standard deviation. **C.** Proliferation and self-renewal is not dependent on Eed. Cumulative cell numbers of indicated ES cell lines cultured in the presence of LIF for 3 days. To correct for the colony formation defect in $Eed^{-/-}$ ES cells $36^{Eed-/-}$ and ΔSX cells were seeded in an appropriate ratio compared to clone 36 cells. **D.** Normal proliferation of differentiated Eed deficient cells under adherent cell culture conditions. The graph shows cumulative cell numbers for clone 36, $36^{Eed-/-}$, 36^{EedTG}, ΔSX and $\Delta SX^{Eed-/-}$ ES cells differentiated with all-*trans*-retinoic acid for 9 days. **E.** Impaired embryoid body formation of *Eed* deficient ES cells. Representative images of embryoid bodies derived from clone 36 and $36^{Eed-/-}$ ES cells after one week. **F.** Expression of the EGFP-Eed fusion protein in 36^{EedTG} cells causes restoration of PRC2 function. Immunofluorescence / RNA FISH showing recruitment of the EGFP-Eed fusion protein (green) in 36^{EedTG} cells by *Xist* restoring efficient tri-methylation of histone H3K27 (red). Below, combined immunofluorescence / RNA FISH showing Mph1 recruitment by *Xist* in 36^{EedTG} cells. DNA was stained with DAPI (blue).



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