



Figure 2. Distinct outer repeat heterochromatin and central kinetochore domains at fission yeast centromeres. (A, top) Representation of a fission yeast centromere. The central domain (pink, kinetochore) is composed of *imr* and *cnt* elements, the outer repeats contain transcribed *dg* and *dh* repeats (green, heterochromatin). All three centromeres have a similar overall arrangement; however, the number of outer repeats differs: *cen1* (40 kb) has two, *cen2* (65 kb) has three, and *cen3* (110 kb) has approximately 13. Clusters of transfer RNA (tRNA) genes (double arrowheads) occur in the *imr* region and at the extremities of all three centromeres. (Middle) Schematically shows transcription patterns of marker genes placed within the outer repeats, central domain, or beyond the centromere. (Bottom) Images showing the phenotype of *S. pombe* colonies of *ade6*⁺ transgenics inserted at various sites within the centromere. Cells expressing *ade6*⁺ from a transgene inserted in sequences outside the centromere form white colonies. When *ade6*⁺ is inserted at sites within the outer repeats, expression is silenced and red colonies are formed. Expression of *ade6*⁺ from the central domain is typically variegated, resulting in red, white, and sectorial colonies. (B) A schematic representation of *S. pombe* chromosomes. The three chromosomes are depicted showing the four main regions of heterochromatin: centromere, telomere, *mat2/3*, and rDNA regions.