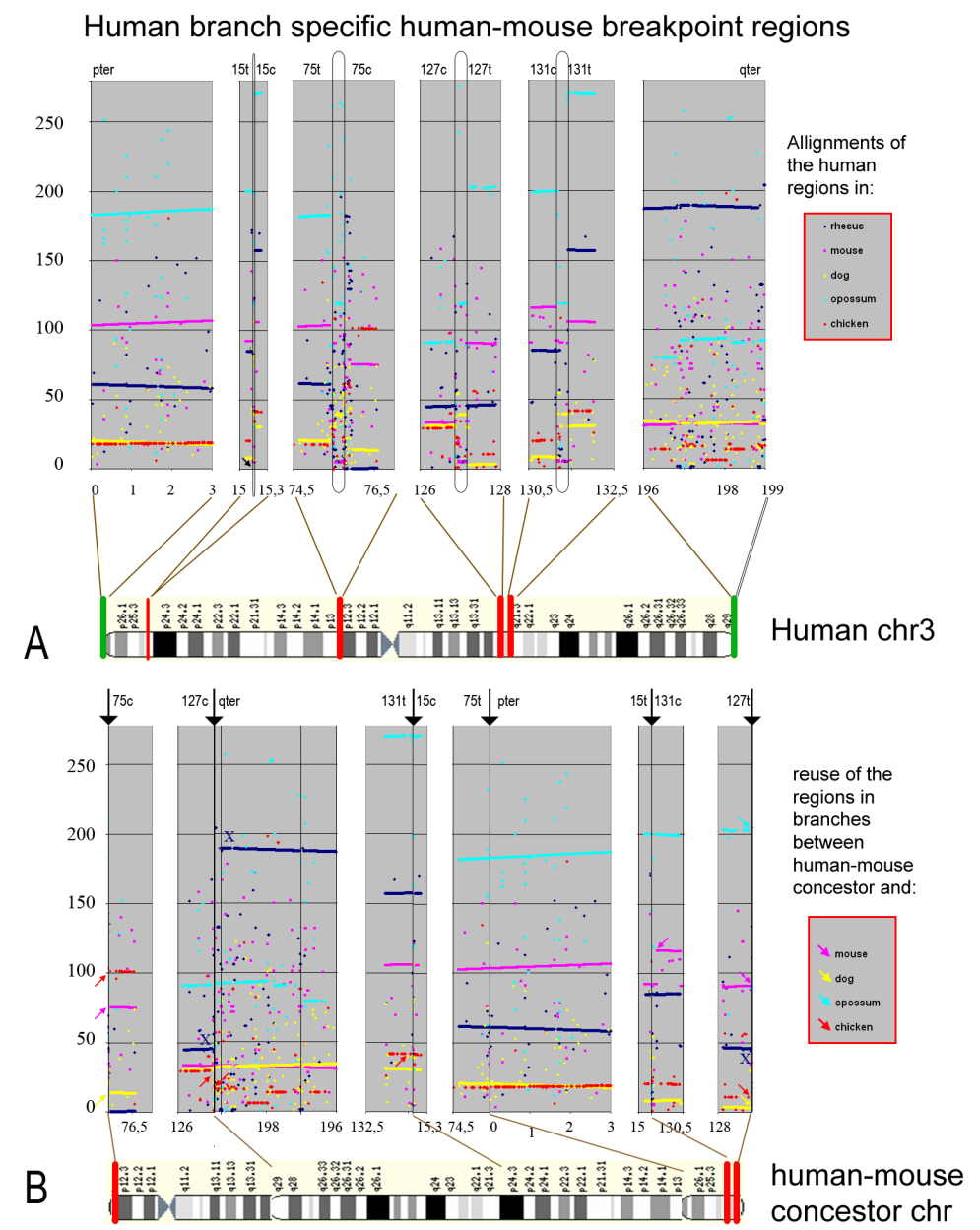


**Supplementary material 8**.

**Reuse of chr3 human-branch-specific human-mouse synteny breakpoints.**

**A.** Each red band on chr3 ideogram (below) corresponds to TBSD site; green bands – to subtelomeric regions. Charts show comparison between human chr3 sequence (Mb position on horizontal axis) and rhesus, mouse, dog, opossum and chicken chromosome sequences (Mb position on vertical axis). Above: 15t, 75t, 127t and 131t: the breakpoint region telomeric to 15, 75, 127 and 131 Mb position TBSD; 15c, 75c, 127c and 131c: the breakpoint region centromeric to 15, 75,127 and 131 Mb position TBSD). TBSDs on charts are shown by vertical empty rounded bars.

**B.** The same comparative dot-plots after 4 inversions, which reconstitute human-mouse ancestral status of chr3. The TBSDs are removed from the plots, since they were not present in the ancestral chromosome. Black arrows show ancestral positions of TBSD adjacent sequences. Arrows of different colors show that the 75c, 127c, 131t, 131c and 127t were reused for breaks in evolution. More specifically, 75c represented a split-point in ancestral chromosome corresponding to human chr3 and chr21, after human – mouse divergence. The ancestral regions 127c and131t were rearranged during opossum-chicken divergence; 131c - during mouse evolution; 127t was at the telomere in the ancestral chromosome and in dog, but was re-used at an additional inversion in mouse and in chicken.Note also that TBSD ancestral sites correspond to subtelomeric sequences (see red bands on ancestral chr3 ideogram).