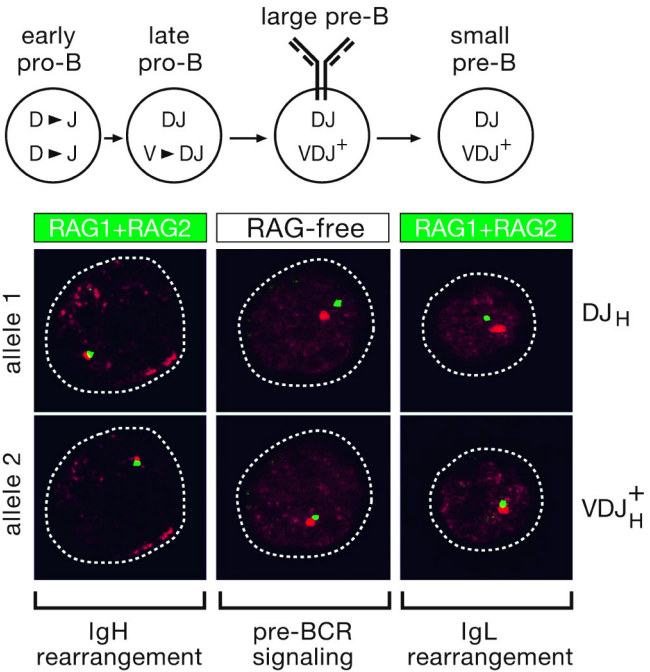

Figure 8. Allelic Exclusion by Decontraction of the *IgH* Locus in pre-B Cells

In early pro-B cells, D_H-J_H rearrangements occur simultaneously on both *IgH* alleles, whereas only one allele undergoes V_H-DJ_H recombination at a time in late pro-B cells. The nuclei of sorted pro-B and pre-B cells were analyzed by three-dimensional DNA-FISH with fluorescent probes from the distal (*red*) and proximal (*green*) regions of the *IgH* locus. The two *IgH* alleles of the same cell are shown on two representative confocal sections. Pre-BCR signaling results not only in rapid loss of the RAG protein, but also in decontraction of the *IgH* locus. Although both alleles are decontracted, the *IgH* locus is fully extended only in the case of the incompletely DJ_H-rearranged allele. The two signals of the functionally rearranged allele (VDJ^+) are separated by a shorter distance due to the deletion of intervening DNA sequences. The FISH data are taken from Roldán et al. (2005).