



**Figure 4. Human Neocentromeres (Indicated by an Arrow) Lack Centromeric  $\alpha$ -Satellite DNA but Have CENP-A and Heterochromatin**

Anti-CENP-A staining in green and anti-CENP-B staining in red (which marks  $\alpha$ -satellite DNA) identify a Chromosome 4 neocentromere that lacks  $\alpha$ -satellite (*main panel*). This Chromosome 4 is otherwise normal, having been transmitted for at least three meiotic generations in normal individuals. Inset shows anti-HP1 staining, which indicates that despite the lack of satellite DNA, heterochromatin forms around active neocentromeres. (Reprinted, with permission, from Amor et al. 2004b [©National Academy of Sciences].)