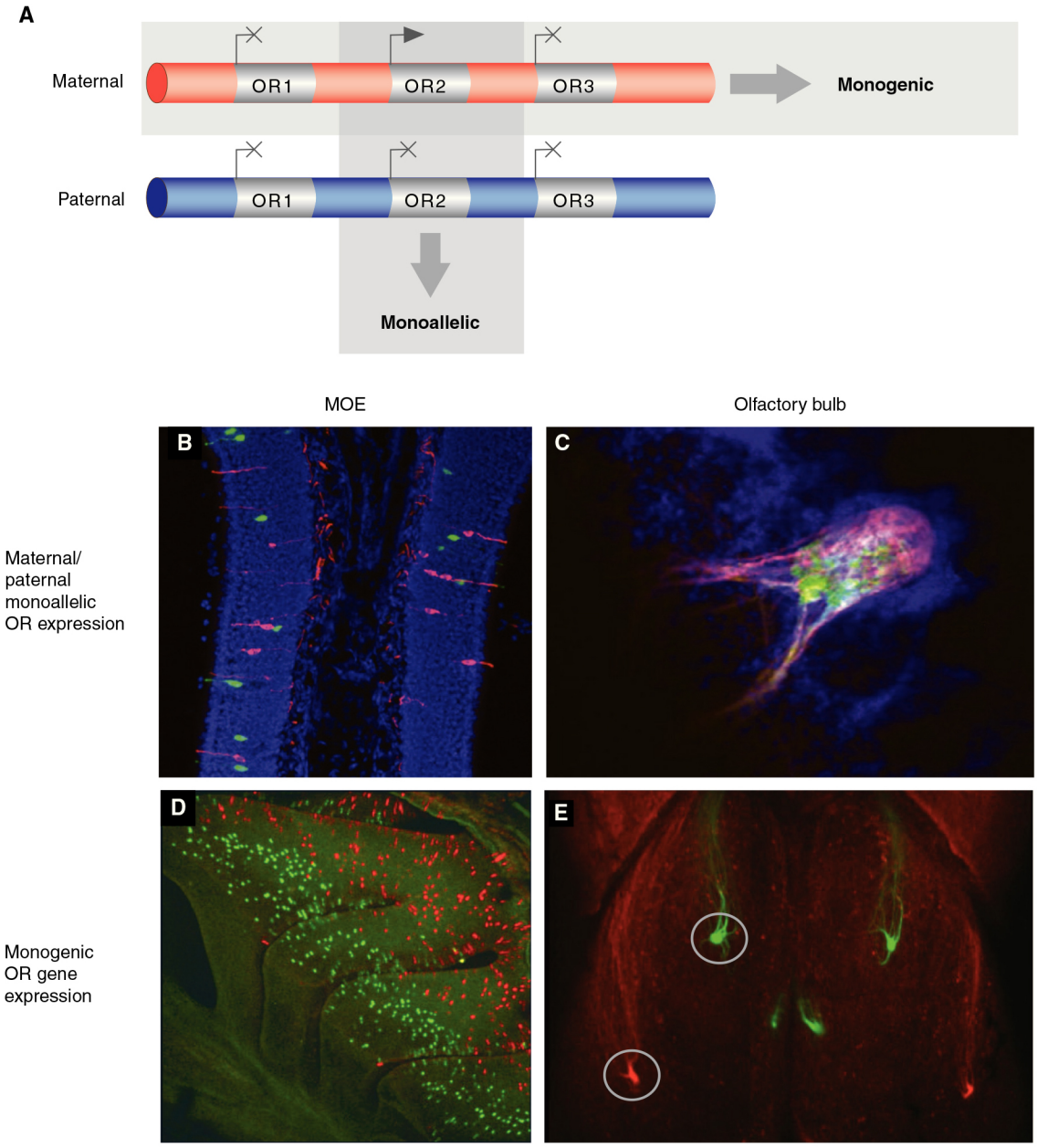

Figure 7. Monogenic and monoallelic OR gene expression in the MOE and olfactory bulb. (*A*) A schematic representation of an OR gene cluster containing three genes, illustrating the monogenic and monoallelic nature of OR expression. (*B*,*C*) Immunofluorescence hybridization illustrates the monoallelic nature of OR gene expression. Maternal and paternal alleles of an OR gene are tagged with lacZ (red) and green fluorescent protein (GFP, green) by knocking-in two reporter genes. (*B*) A section of the MOE shows that there is a lack of coexpression of both parental alleles in a single OSN nucleus. (*C*) A section of the olfactory bulb shows that neurons expressing an OR from either the paternal or maternal allele coalesce in the same glomerulus. (*D*,*E*) OR expression is monogenic and expressed in a zonal fashion. Two different OR genes have been tagged with red fluorescent protein (red) and GFP (green), respectively. (*D*) Whole-mount imaging of the MOE shows the zonal distribution of expression between the two genes. (*E*) The axons of the neurons that express different OR genes coalesce in distinct and spatially separated glomeruli in the olfactory bulb. (Images kindly donated by Dr. Thomas Bozza.)