

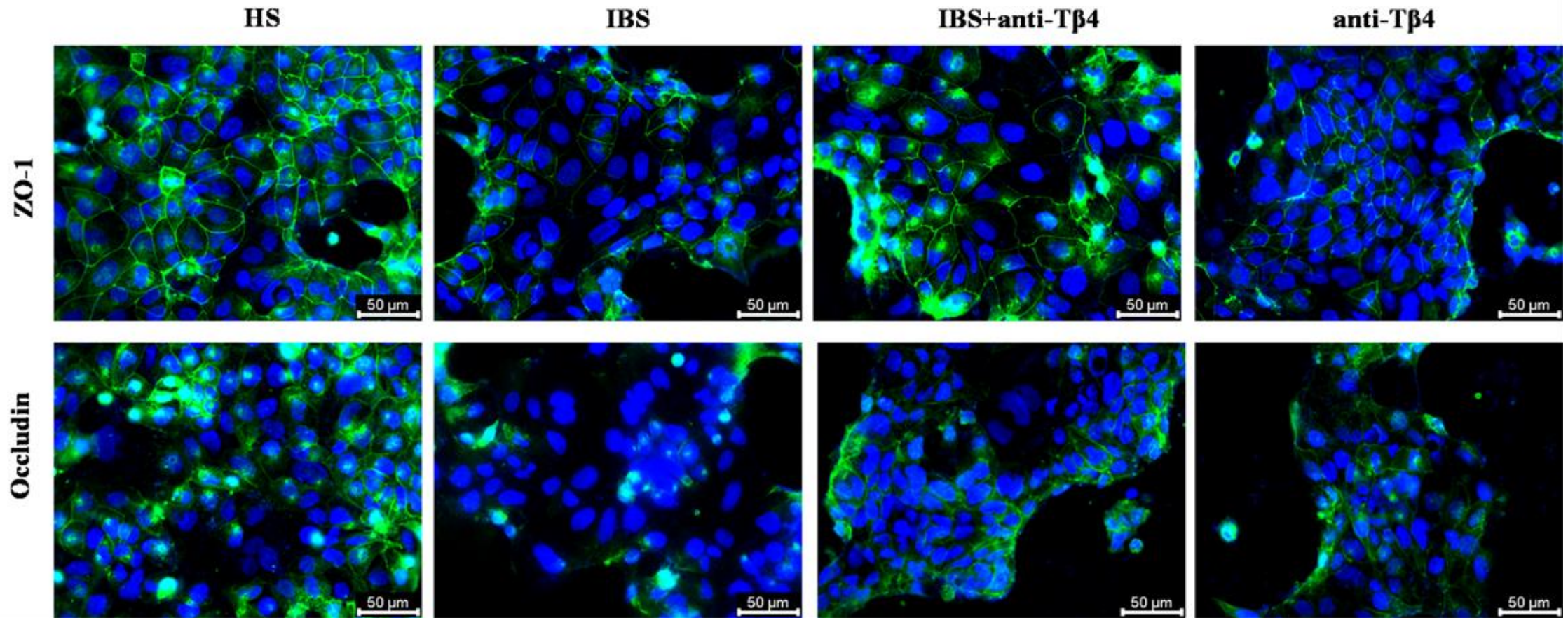


Figure S1 T β 4 in colonic mucus is a key factor to damage ZO-1 in Caco2. The Caco2 cells incubated T β 4 antibody (anti-T β 4) in mucus produced from healthy and IBS individuals, and the representative immunofluorescence for ZO-1. Scale bar, 50 μ m.

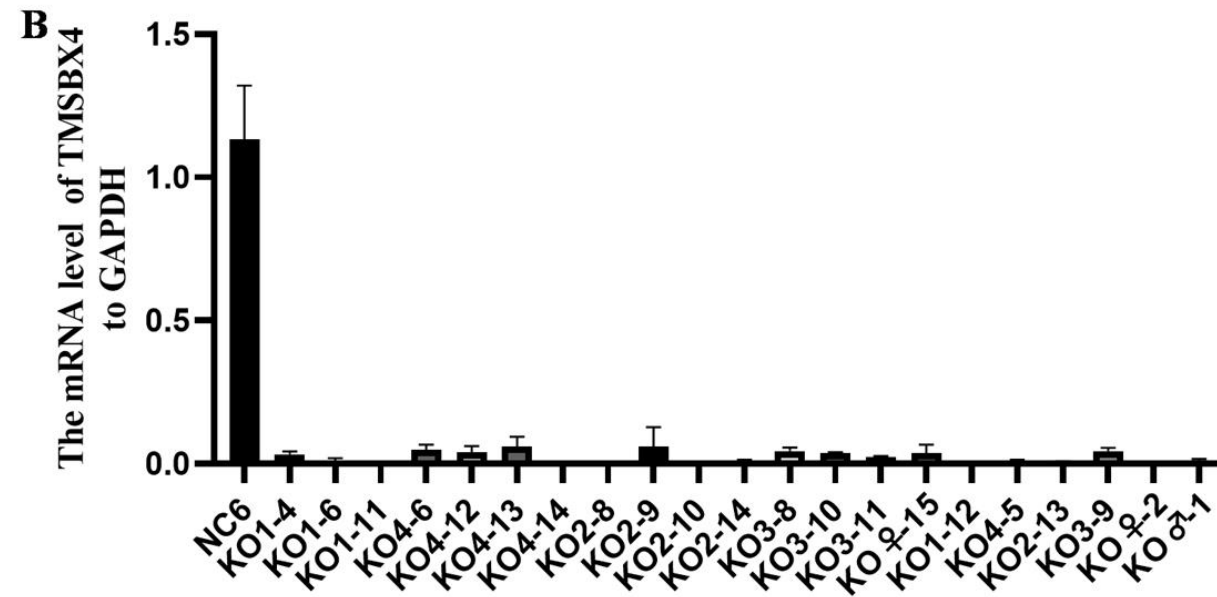
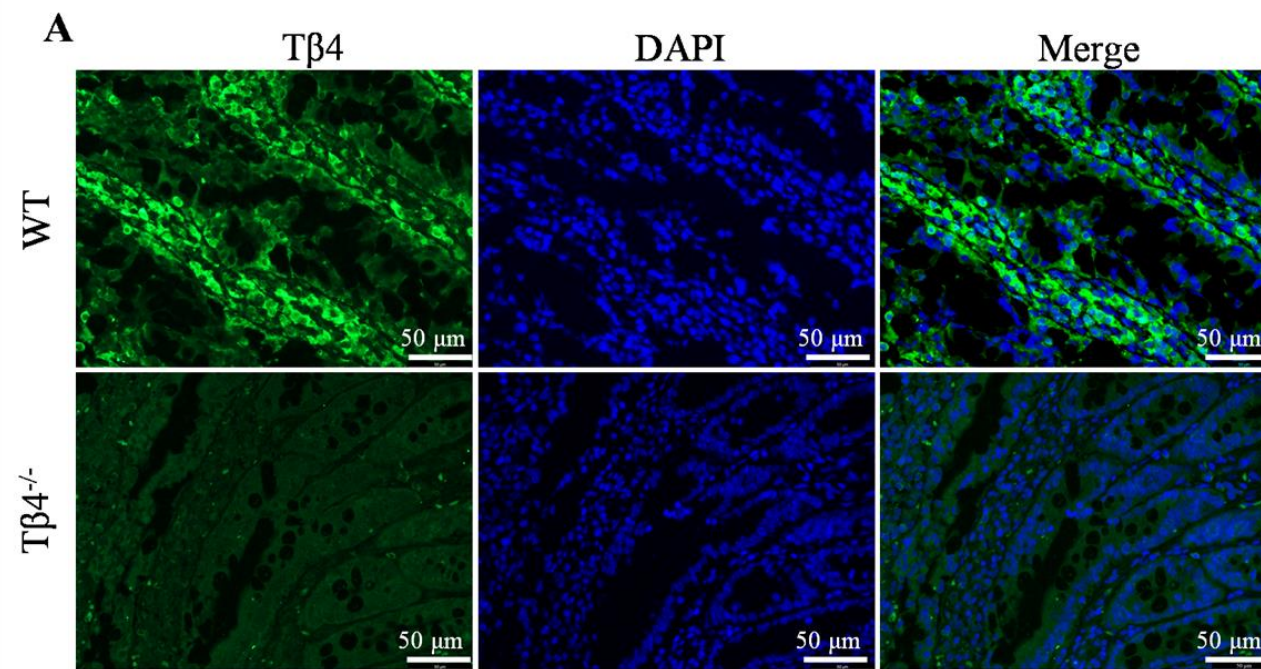


Figure S2 Identification of *T β 4*^{-/-} model. (A) Immunofluorescence images of the intestine for T β 4 in WT and *T β 4*^{-/-} rats. (B) qPCR analysis for TMSBX4.

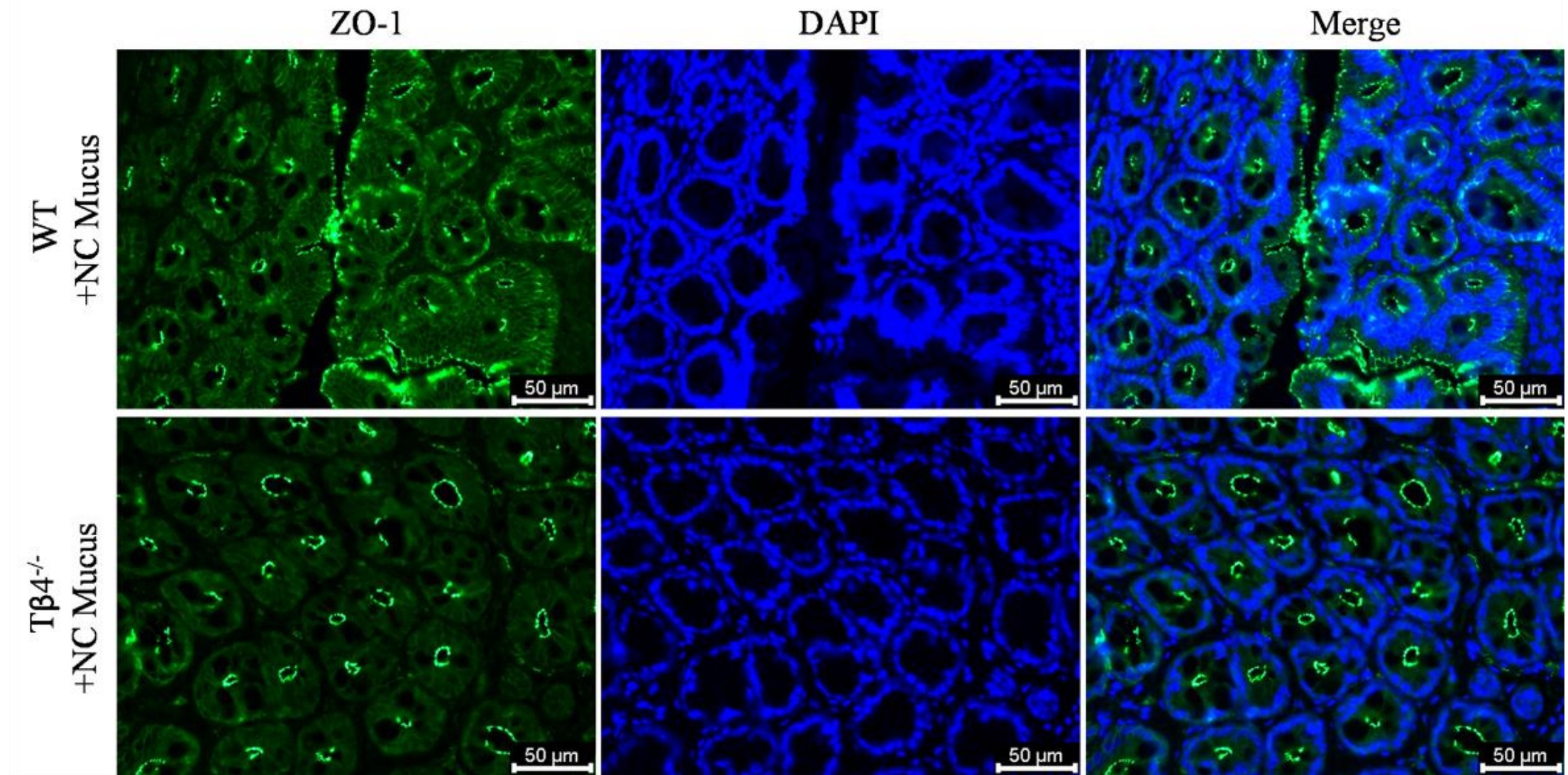


Figure S3 The mucus of healthy individuals has no damage to the TJ of WT and $T\beta 4^{-/-}$ rats. Colonic mucus from healthy (NC) individuals was transplanted into rat' colon (WT and $T\beta 4^{-/-}$ rats). Immunofluorescence images of the intestine for ZO-1. Scale bar, 50 μm .

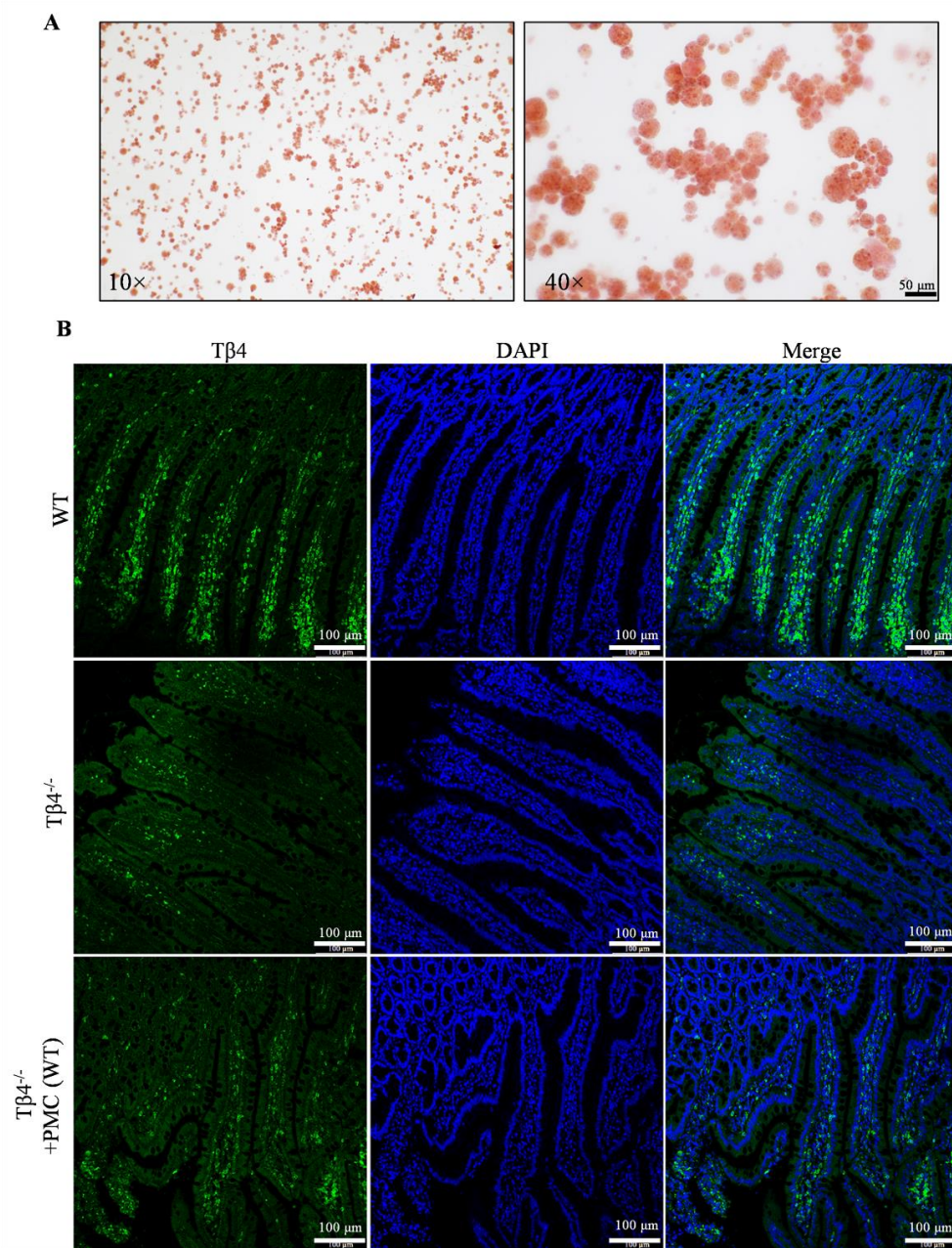


Figure S4 The identification of “*Tβ4*^{-/-}>wt-PMCs” rats. (A) Safranin O staining. (B) Immunofluorescence images of the intestine for Tβ4.