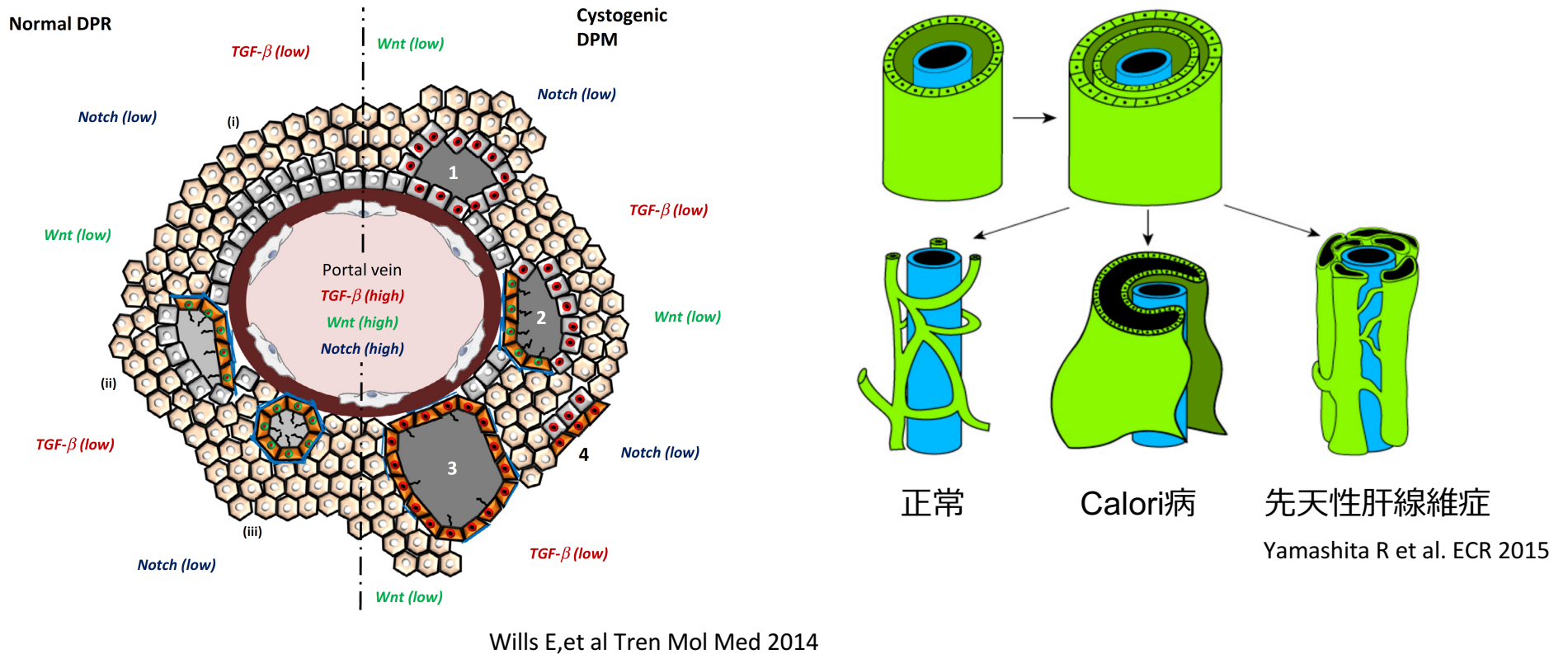
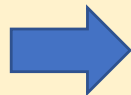


# 図2: 胎生期における胆管形成不全 (Ductal Plate Malformation)



Ductal plate形成初期

$TGF\beta$ , Notch  
signaling



胆管細胞へのspecification

Hhex, HNF6, SOX9 ↑  
HNF4a, TBX3, C/EBPα, FOXA ↓



Ductal Plate Remodeling

線毛機能  
PRKCSH, PKHD1, PKD