

**Supplementary Fig. 2.** Effect of adjuvant treatment in R1 patients according to tumor location. For R1 patients with perihilar cholangiocarcinoma (PHC), (A) adjuvant chemotherapy (CTx) and (B) radiation therapy (RTx) improved 5-year overall survival (5YSR). For R1 patients with distal bile duct cancer (DBC), (C) CTx and (D) RTx improved 5YSR.