

Supplementary appendix

Chen XF, Wu XF, Wu H, et al. Camrelizumab plus gemcitabine and oxaliplatin (GEMOX) in patients with advanced biliary tract cancer: a single-arm open-label, phase 2 trial.

Supplementary Table S1. Patient baseline characteristics.

Supplementary Table S2. Responses and survival by PD-L1 expression and tumor mutational burden.

Supplementary Figure S1. Kaplan-Meier Estimates of Progression-Free Survival and Overall Survival by PD-L1 Expression Status.

Supplementary Figure S2. Immune cells in center or invasive margin between responders and non-responders.

Supplementary Figure S3. Kaplan-Meier Estimates of Progression-Free Survival and Overall Survival by TMB Status or gene mutation.

Supplementary Figure S4. The association between survival and ctDNA status or bTMB.

Supplementary Figure S5. The association between survival and ctDNA status in non-responders and responders.

This supplementary material has been provided by the authors to give readers additional information about their work.

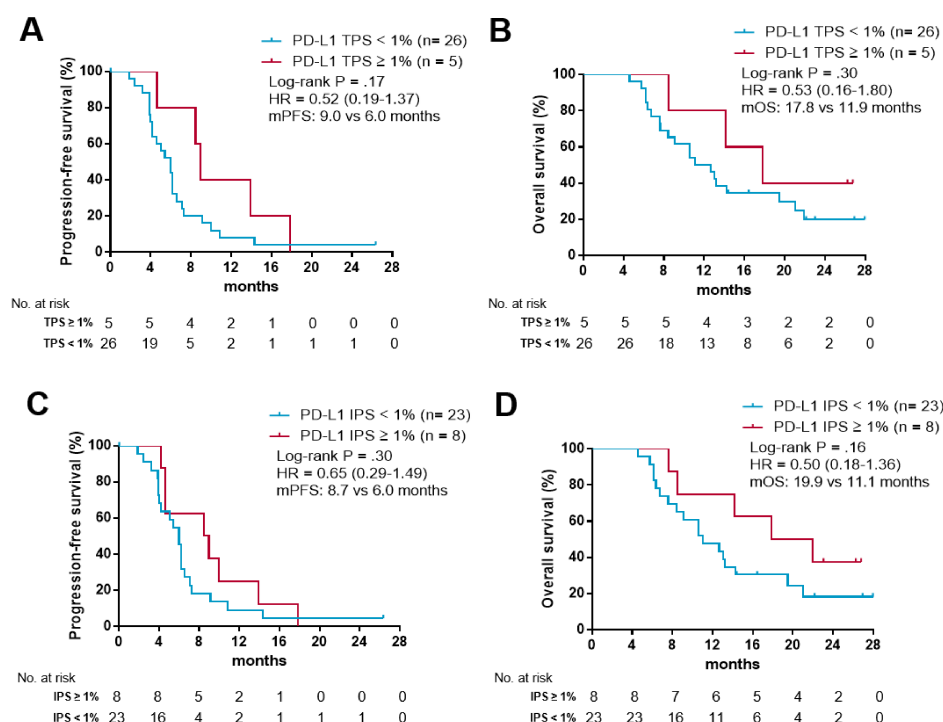
Characteristic	camrelizumab + GEMOX (N = 37)
Age – yr	
Median	64
Range	41-74
Primary site – no. (%)	
Cholangiocarcinoma	22 (59)
Gallbladder cancer	15 (41)
Gender – no. (%)	
Male	26 (70)
Female	11 (30)
Disease stage – no. (%)	
IV	37(100)
Sites of distant metastases	
Liver	34 (92)
Lymph node	13 (35)
Peritoneum	12 (32)
Lung	6 (16)
ECOG performance-status score – no. (%)	
0	13 (35)
1	24 (65)

Supplementary Table S1. Patient baseline characteristics

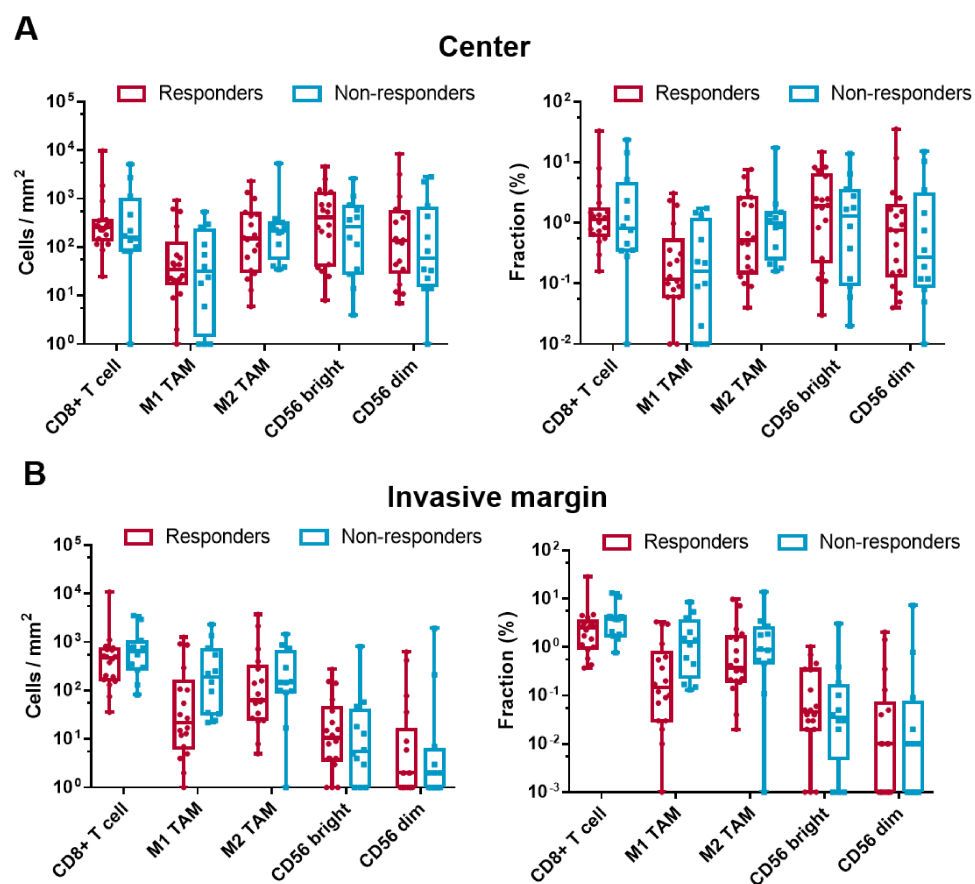
	Overall responses	Median progression-free survival	Median overall survival
Tumor proportion score			
<1%	14/26 (53.8)	6.0 (4.2-7.1)	11.9 (8.4-21.9)
≥1%	4/5 (80)	9.0 (8.5-NR)	17.8 (14.2-NR)
Total	18/31 (58.1)	6.1 (4.6-8.5)	13.0 (9.1-21.0)
Immune proportion score			
<1%	13/23 (56.5)	6.0 (4.2-7.1)	11.1 (8.4-21.0)
≥1%	5/8 (62.5)	8.7 (4.6-NR)	19.9 (14.2-NR)
Total	18/31 (58.1)	6.1 (4.6-8.5)	13.0 (9.1-21.0)
Tumor mutational burden			
Bottom 75%	12/24 (50)	6.0 (4.3-9.0)	11.4 (8.4-21.0)
Top 25%	6/10 (60)	6.1 (4.0-NR)	13.1 (8.5-NR)
Total	18/34 (53)	6.0 (4.6-8.4)	12.0 (9.1-17.8)
Blood mutational burden			
Bottom 75%	13/22 (59.1)	6.4 (5.4-9.1)	10.8 (7.6-19.5)
Top 25%	4/8 (50)	4.1 (2.4-NR)	11.6 (8.5-NR)
Total	17/30 (56.7)	6.1 (4.3-8.4)	10.8 (8.4-14.2)
Circulating tumor DNA			
Positive at 8 weeks	7/17 (41.2)	4.3 (3.9-6.2)	9.1 (7.6-NR)
Negative at 8 weeks	10/13 (76.9)	7.3 (6.2-NR)	13.0 (8.5-NR)
Total	17/30 (56.7)	5.7 (4.3-7.3)	10.8 (8.0-14.2)

Data consists of number of overall responses/number of patients (%). NR, not reached.

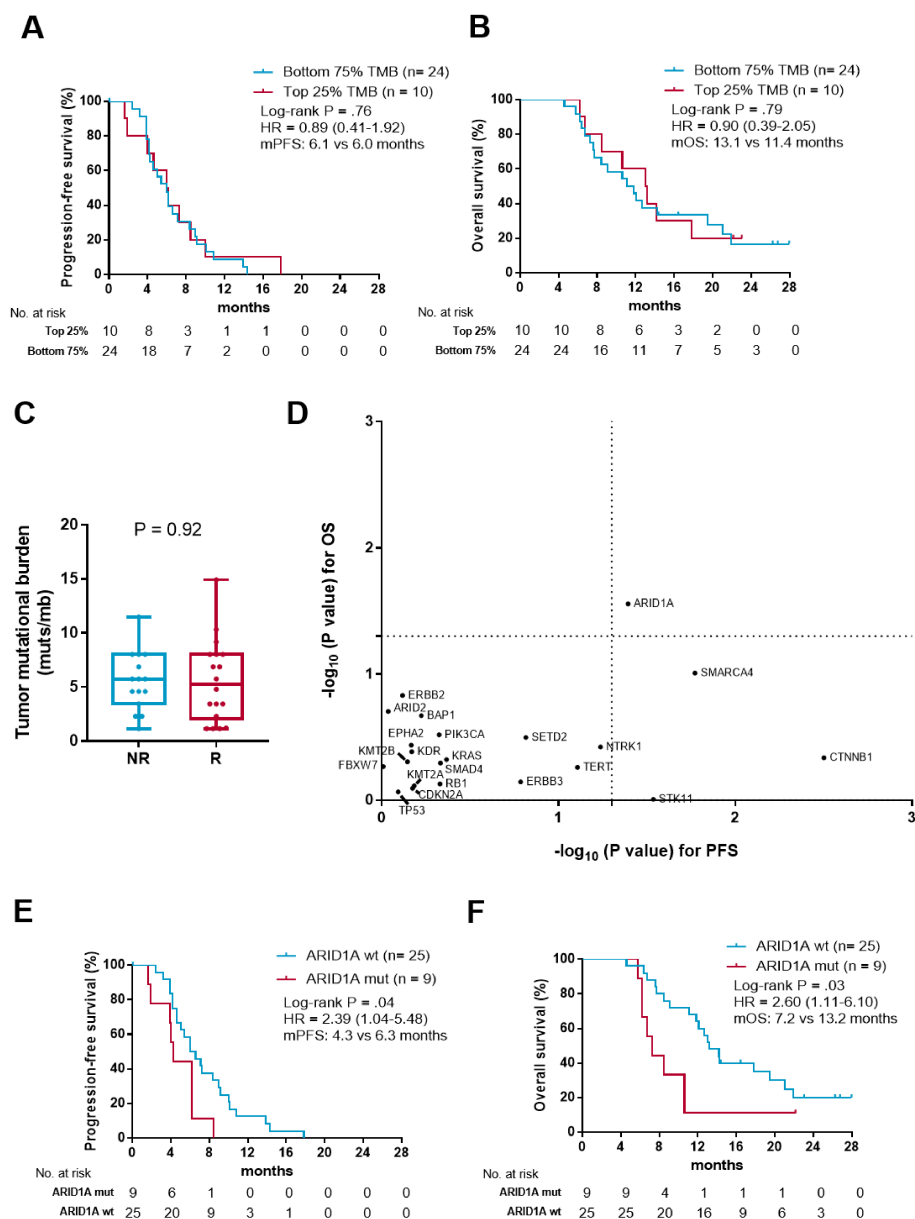
Supplementary Table S2. Responses and survival by PD-L1 expression and tumor mutational burden



Supplementary Figure S1. Kaplan-Meier Estimates of Progression-Free Survival and Overall Survival by PD-L1 Expression Status. (A) Kaplan-Meier survival curves of PFS comparing patients treated with camrelizumab plus GEMOX with PD-L1 tumor proportion scores of at least 1% and less than 1%. (B) Kaplan-Meier survival curves of OS comparing patients treated with camrelizumab plus GEMOX with PD-L1 tumor proportion scores of at least 1% and less than 1%. (C) Kaplan-Meier survival curves of PFS comparing patients treated with camrelizumab plus GEMOX with PD-L1 immune proportion scores of at least 1% and less than 1%. (D) Kaplan-Meier survival curves of OS comparing patients treated with camrelizumab plus GEMOX with PD-L1 immune proportion scores of at least 1% and less than 1%.

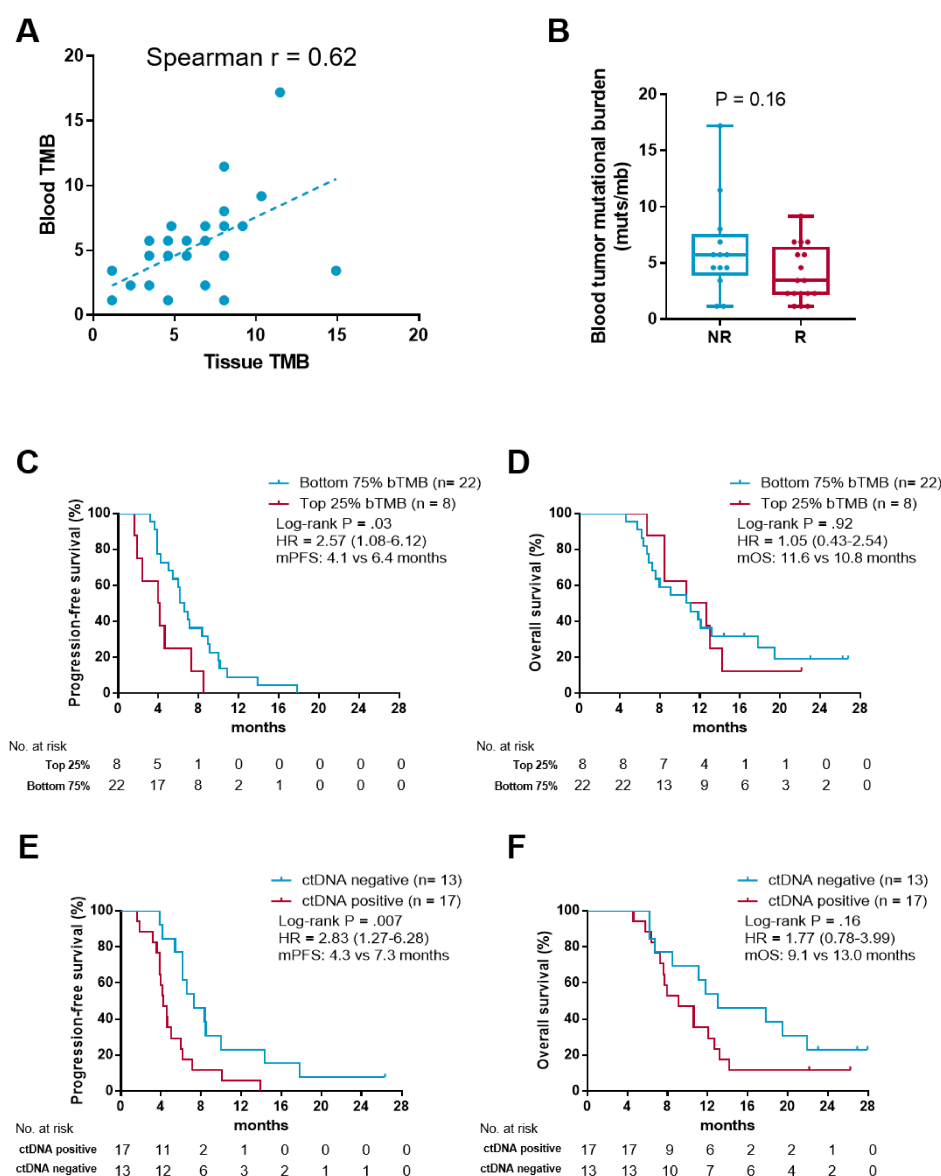


Supplementary Figure S2. Immune cells in center or invasive margin between responders and non-responders. (A) Comparison of immune cells in tumor center between responders and non-responders. (B) Comparisons of immune cells in invasive margin between responders and non-responders.



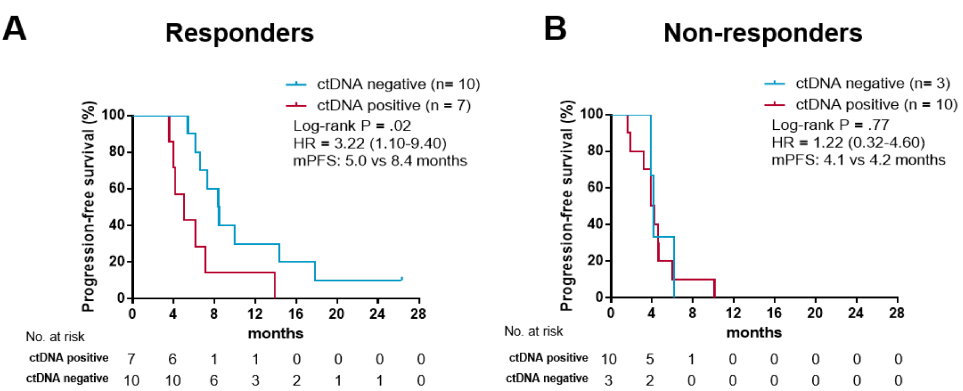
Supplementary Figure S3. Kaplan-Meier Estimates of Progression-Free Survival and Overall Survival by TMB Status or gene mutation. (A) Kaplan-Meier survival curves of PFS comparing patients treated with camrelizumab plus GEMOX with top 25% TMB and bottom 75% TMB. (B) Kaplan-Meier survival curves of OS comparing patients treated with camrelizumab plus GEMOX with top 25% TMB and bottom 75% TMB. (C) Comparison of TMB in responders and non-responders. (D) Comparisons of the association between individual altered genes and PFS or OS. (E)

Kaplan-Meier survival curves of PFS comparing patients treated with camrelizumab plus GEMOX with or without ARID1A mutation. (F) Kaplan-Meier survival curves of OS comparing patients treated with camrelizumab plus GEMOX with or without ARID1A mutation.



Supplementary Figure S4. The association between survival and ctDNA status or bTMB. (A) The correlation between blood TMB and tissue TMB. (B) Comparison of bTMB between responders and non-responders. (C) Kaplan-Meier survival curves of PFS comparing patients treated with camrelizumab plus GEMOX with top 25% TMB and bottom 75% bTMB. (D) Kaplan-Meier survival curves of OS comparing patients treated with camrelizumab plus GEMOX with top 25% TMB and bottom 75% bTMB. (E) Kaplan-Meier survival curves of PFS comparing patients with positive post-treatment ctDNA and negative post-treatment ctDNA. (F) Kaplan-Meier survival

curves of OS comparing patients with positive post-treatment ctDNA and negative post-treatment ctDNA.



Supplementary Figure S5. The association between survival and ctDNA status in non-responders and responders. (A) Kaplan-Meier survival curves of PFS comparing patients with positive post-treatment ctDNA and negative post-treatment ctDNA in responders. (B) Kaplan-Meier survival curves of PFS comparing patients with positive post-treatment ctDNA and negative post-treatment ctDNA in non-responders.