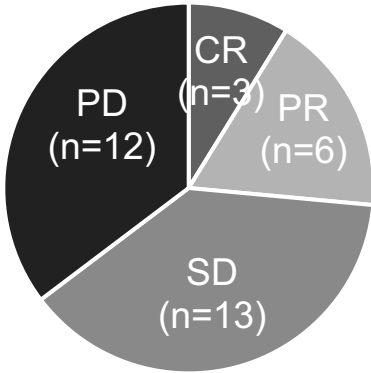


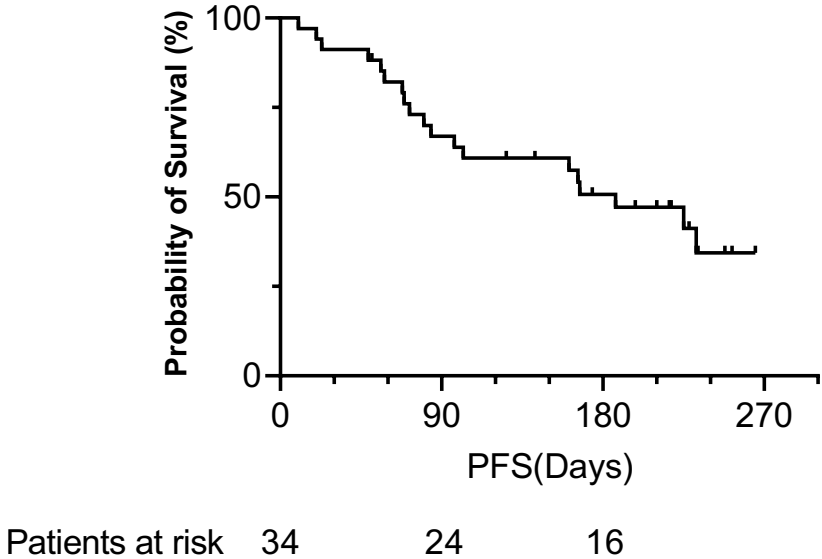
# Supplementary Figure S1

**A**

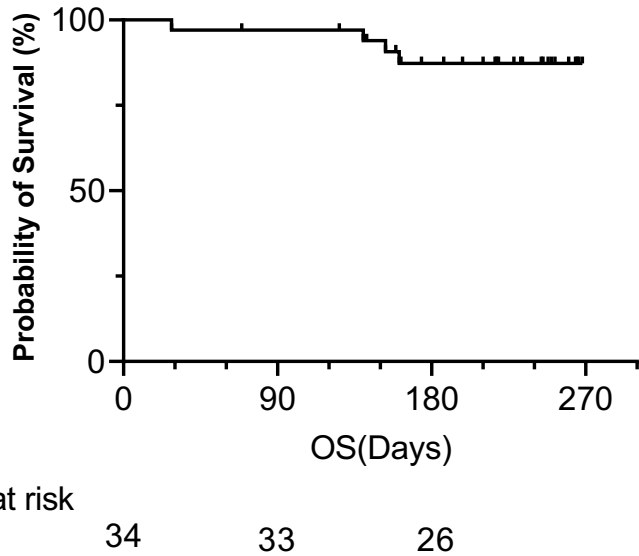
Best Response (mRECIST)



**B**



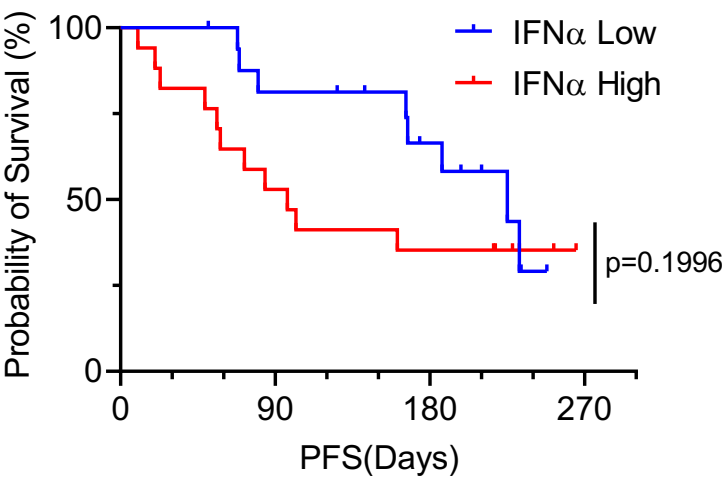
**C**



**Figure S1.** A total of 34 HCC patients were treated with Atezo/Bev therapy. **(A)** The initial response to Atezo/Bev was evaluated by mRECIST. **(B, C)** Kaplan–Meier curves of progression-free survival (PFS) **(B)** and overall survival (OS) **(C)**. Atezo/Bev; Atezolizumab and bevacizumab, CR; complete response, PR; partial response, SD; stable disease, PD; progressing disease.

# Supplementary Figure S2

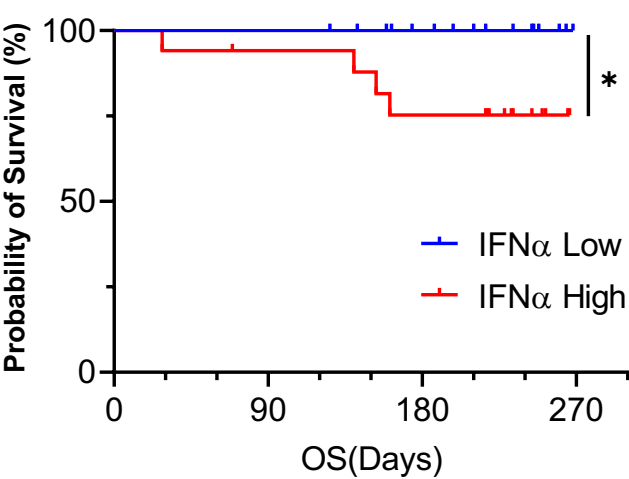
**A**



Patients at risk

IFNα Low	17	14	9
IFNα High	17	10	7

**B**

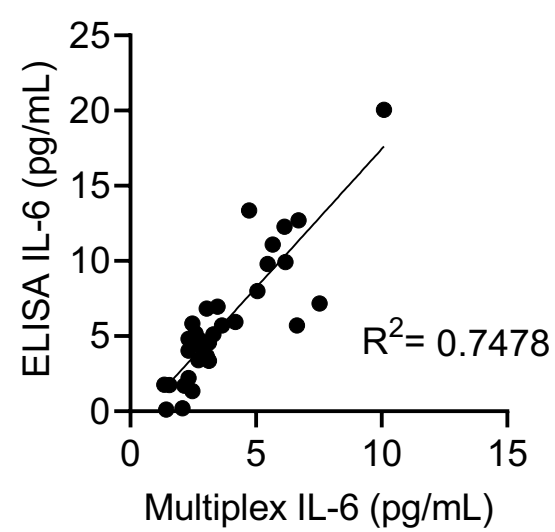


Patients at risk

IFNα Low	17	17	13
IFNα High	17	16	13

**Figure S2. (A, B)** The Kaplan–Meier curves for the progression-free survival (PFS) **(A)** and overall survival (OS) **(B)** . The patients were divided into 2 groups by the median value of plasma IFNα. \*:p<0.05.

# Supplementary Figure S3



**Figure S3.** The pretreatment plasma IL-6 level of 34 HCC patients was examined with ELISA and Luminex assay. Their correlation was analyzed with simple linear regression.

**Table S1. Patient characteristics(N=34).**

Characteristic	Unit	Value (Median, IQR)
Age	Years	73 (61-79)
Sex	Male/Female	26/8
Etiology	HBV/HCV/NBNC	11/10/13
Platelets	$\times 10^4/\mu\text{L}$	12.3 (8.9-14.9)
Total Bilirubin	mg/dL	0.85 (0.6-1.1)
AST	U/L	41 (27-53)
ALT	U/L	29 (19-37)
PT	%	92 (84-101)
Albumin	g/dL	3.6 (3.3-3.9)
Child-Pugh Score	5/6/7	16/16/2
AFP	ng/mL	32 (5.5-251)
DCP	mAU/mL	237 (48-4529)
Distant Metastasis	Present/Absent	15/19
Vascular Invasion	Present/Absent	4/30
BCLC Stage	A/B/C	1/15/18
Observation Time	Days	106 (61-147)
Tratment Line	1st/2nd	22/12
Initial Response (mRECIST)	CR/PR/SD/PD	1/6/15/12
Best Response (mRECIST)	CR/PR/SD/PD	3/6/13/12

Abbreviations: AST, aspartate transaminase; ALT, alanine aminotransferase; PT, prothrombin time  
 AFP, alpha-fetoprotein; BCLC, Barcelona clinic liver cancer; DCP, des- $\gamma$ -carboxy prothrombin  
 mRECIST:Modified Response Evaluation Criteria in Solid Tumors

**Table S2. Correlation between each plasma protein and AFP level.**

Proteins	R squared	FDR adjusted P value
GDF15	0.82	<0.0001
CCL19	0.73	<0.0001
GranzymeB	0.68	<0.0001
HGF	0.46	0.001
IL18	0.26	0.026
CX3CL1	0.25	0.030
TSP2	0.22	0.036
CXCL1	0.22	0.036
IFN $\gamma$	0.18	0.090
DDK1	0.17	0.094
IL8	0.14	0.153
TNF $\alpha$	0.14	0.165
TIE2	0.13	0.181
MICA	0.12	0.182
IL6	0.08	0.341
CCL7	0.07	0.405
IFN $\alpha$	0.05	0.496
Fas ligand	0.05	0.530
IL4	0.04	0.546
CXCL10	0.02	0.722
PD-L1	0.02	0.762
Fas receptor	0.02	0.762
CCL3	0.01	0.805
VEGF	0.01	0.805
IL5	0.01	0.805
IL12	0.01	0.821
VEGF-C	0.00	0.871
IL10	0.00	0.912
CCL4	0.00	0.911
IL1b	0.00	0.911
IL7	0.00	0.911
IL2	0.00	0.922
CCL2	0.00	0.923
CXCL2	0.00	0.991

**Table S3. Comparison of patient characteristics (Median, IQR).**

Characteristic	Unit	Cohort for multiplex bead-based immunoassay(N=34)	Cohort for ELISA(N=64)	p value
Age	Years	73 (61-79)	75 (63-79)	0.811
Sex	Male/Female	26/8	50/14	0.852
Etiology	HBV/HCV/NBNC	11/10/13	15/24/25	0.705
Platelets	$\times 10^4/\mu\text{L}$	12.3 (8.9-14.9)	13.8 (11.1-16.1)	0.361
Total Bilirubin	mg/dL	0.85 (0.6-1.1)	0.7 (0.5-1.0)	0.239
AST	U/L	41 (27-53)	37 (24-52)	0.455
ALT	U/L	29 (19-37)	26 (17-35)	0.604
PT	%	92 (84-101)	93 (82-102)	0.898
Albumin	g/dL	3.6 (3.3-3.9)	3.7 (3.3-4.0)	0.629
Child-Pugh Score	5/6/7	16/16/2	34/26/4	0.828
AFP	ng/mL	32 (5.5-251)	11 (3.2-200)	0.573
DCP	mAU/mL	237 (48-4529)	276 (53-1544)	0.945
Distant Metastasis	Present/Absent	15/19	31/33	0.683
Vascular Invasion	Present/Absent	4/30	7/57	0.902
BCLC Stage	A/B/C	1/15/18	5/25/34	0.101
Treatment Line	1st/2nd/3rd-	22/12	36/17/11	0.015
Initial Response mRECIST	CR/PR/SD/PD	1/6/15/12	1/16/19/26	0.798

Abbreviations: AST, aspartate transaminase; ALT, alanine aminotransferase; PT, prothrombin time

AFP, alpha-fetoprotein; BCLC, Barcelona clinic liver cancer; DCP, des- $\gamma$ -carboxy prothrombin

mRECIST:Modified Response Evaluation Criteria in Solid Tumors

**Table S4. Cox Hazard Analysis for progressing disease.**

Characteristic	Unit	Univariate Analysis			Multivariate Analysis		
		Hazard ratio	95% CI	p value	Hazard ratio	95% CI	p value
Age	every 1 y.o.	0.964	0.935-0.993	0.016	0.954	0.920-0.989	0.012
Sex	Male/Female	1.284	0.571-2.887	0.545			
Etiology	Viral/Non-viral	1.028	0.516-2.048	0.938			
Platelets	every 1×10 <sup>4</sup> /μL	0.999	0.949-1.042	0.990			
Total Bilirubin	every 1mg/dL	0.796	0.280-2.032	0.650			
AST	every 1U/L	1.006	0.993-1.017	0.316			
ALT	every 1U/L	1.002	0.985-1.018	0.752			
PT	every 1%	1.016	1.043-0.985	0.247			
Albumin	every 1g/dL	1.149	0.607-2.221	0.674			
Child-Pugh Score	6, 7 / 5	0.76	0.386-1.497	0.428			
AFP	every 1ng/mL	1	0.999-1.000	0.292			
DCP	every 1mAU/mL	1	1.000-1.00004	0.015	1	0.999-1.000	0.105
Distant Metastasis	Present/Absent	1.349	0.693-2.627	0.378			
Vascular Invasion	Present/Absent	1.924	0.792-4.67	0.148			
BCLC Stage	C / A,B	1.241	0.636-2.426	0.526			
Treatment Line	1st / later	0.445	0.227-0.873	0.019	0.652	0.711-3.30	0.273
IL6	every 1 pg/ml	1.052	1.011-1.088	0.016	1.051	1.007-1.091	0.012

Abbreviations: AST, aspartate transaminase; ALT, alanine aminotransferase

PT, prothrombin time; AFP, alpha-fetoprotein; DCP, des-γ-carboxy prothrombin

BCLC, Barcelona clinic liver cancer