

Table S1. Univariate logistic regression predicting hepatocellular carcinoma (HCC) risk

	Youden cutoff	without HCC	with HCC	OR (95%CI)	P value*
Ascites					
IL-1β	0	6	14	7 (1.59, 30.8)	0.046
	> 0	12	4		
IL-2	< 36.64	6	15	10 (2.06, 48.56)	0.032
	\geq 36.64	12	3		
IL-5	< 15.68	6	15	10 (2.06, 48.56)	0.032
	\geq 15.68	12	3		
IL-7	< 0.63	4	13	9.1 (2, 41.45)	0.032
	\geq 0.63	14	5		
IL-13	< 0.35	4	14	12.25 (2.54, 58.97)	0.028
	\geq 0.35	14	4		
IL-15	< 10.64	4	12	7 (1.59, 30.8)	0.046
	\geq 10.64	14	6		
IL-17A	< 0.56	3	12	10 (2.06, 48.56)	0.032
	\geq 0.56	15	6		
IL-23	0	8	14	7.58 (1.65, 34.9)	0.046
	> 0	13	3		
IFN-α	< 0.06	3	13	13 (2.59, 65.2)	0.028
	\geq 0.06	15	5		
IFN-γ	0	2	12	16 (2.73, 93.62)	0.028
	> 0	16	6		
GM-CSF	< 20.68	5	13	6.76 (1.57, 29.07)	0.046
	\geq 20.68	13	5		
Plasma					
IL-1β	< 1.33	3	11	7.33 (1.58, 33.97)	0.046
	\geq 1.33	16	8		
IL-2	< 8.39	3	12	9.14 (1.95, 42.9)	0.032
	\geq 8.39	16	7		
IL-4	< 10.34	5	13	6.07 (1.49, 24.76)	0.046
	\geq 10.34	14	6		
IL-5	0	8	17	11.69 (2.08, 65.61)	0.032
	> 0	11	2		
IL-15	< 11.56	3	15	20 (3.82, 104.6)	0.008
	\geq 11.56	16	4		
IL-17A	0	3	12	9.14 (1.95, 42.9)	0.032
	> 0	16	7		
TNF-α	< 4.72	3	11	7.33 (1.58, 33.97)	0.046
	\geq 4.72	16	8		
IFN-α	0	4	14	10.5 (2.34, 47.2)	0.028
	> 0	15	5		
MIP-1α/CCL3	< 13.94	3	11	7.33 (1.58, 33.97)	0.046
	\geq 13.94	16	8		
GM-CSF	< 6.94	2	12	14.57 (2.57, 82.73)	0.028
	\geq 6.94	17	7		
LIF	< 7.76	6	14	6.07 (1.49, 24.76)	0.046
	\geq 7.76	13	5		

*The Benjamini-Hochberg multiple test correction was applied.

Table S2. Cytokine distribution in the two compartments in 24 cirrhotic patients without HCV/HBV infection

	Ascites	Plasma	Total	<i>P value*</i>
Interleukins, TNF and IFN				
IL-1Ra	25.34 (0, 147.51)	364.25 (159.52, 696.16)	147.51 (25.34, 425.09)	0.001
IL-2	34.64 (27.69, 58.69)	11.54 (6.83, 16.41)	27 (12.19, 43.17)	0.0001
IL-4	96.62 (87.72, 118.13)	8.69 (4.78, 22.83)	66.32 (9.89, 101.27)	0.0000
IL-5	16.04 (6.93, 34.61)	0 (0, 4.16)	6.93 (0, 19.44)	0.002
IL-6	2403.61 (1656.98, 4129.58)	41.51 (22.46, 71.31)	517.6 (41.89, 2403.61)	0.0000
IL-10	21.53 (9.54, 31.56)	1.31 (0.89, 1.98)	7.21 (1.45, 24.28)	0.0000
IL-12p70	0.69 (0.56, 1.86)	2.08 (1.64, 3.16)	1.64 (0.69, 2.89)	0.007
IL-18	8.12 (6.79, 12.69)	60.37 (47.53, 90.71)	26.71 (8.12, 60.70)	0.0000
IL-23	0 (0, 26.50)	0 (0, 0)	0 (0, 2.70)	0.020
IL-27	722.36 (623.47, 1912.30)	12195 (0, 41.16)	42.84 (0.09, 682.37)	0.0004
IL-31	0 (0, 10.72)	0 (0, 0)	0 (0, 0)	0.019
TNF-α	13.41 (10.61, 16.16)	5.55 (3.96, 9.81)	10.61 (5.91, 15.23)	0.001
IFN-γ	0.85 (0, 7.26)	13.83 (8.92, 15.97)	7.71 (0.85, 14.63)	0.001
Chemokines				
MCP1/CCL2	227.41 (176.95, 514.93)	29.63 (20.65, 39.27)	124.75 (29.91, 229.76)	0.0000
MIP-1β/CCL4	108.37 (87.92, 205.86)	281.03 (241.52, 325.55)	232.7 (108.37, 291.50)	0.001
RANTES/CCL5	4.28 (3.01, 5.42)	192.24 (109.27, 260.56)	15.93 (4.28, 191.87)	0.0000
GRO-α/CXCL1	39.84 (9.14, 65.72)	0 (0, 0)	0 (0, 39.84)	0.0000
IL-8/CXCL8	37.79 (8.72, 124.11)	7.81 (0.73, 27.43)	24.54 (3.05, 62.73)	0.011
IP-10/CXCL10	508.52 (322.78, 1101.51)	142.92 (87.49, 245.25)	261.95 (143.61, 520.72)	0.0000
Growth factors				
BDNF	1.72 (1.72, 1.72)	14.87 (2.55, 37.20)	1.94 (1.72, 16.35)	0.003
LIF	58.83 (28.08, 83.19)	7.45 (4.84, 11.37)	24.42 (7.70, 70.94)	0.0001
PDGF-BB	27.24 (14.20, 40.75)	233.85 (102.06, 614.94)	48.45 (27.24, 198.34)	0.0000
SCF	10.81 (7.19, 19.59)	23085 (15.83, 46.81)	16.15 (9.57, 30.63)	0.014
VEGF-A	659.32 (432.56, 878.48)	111.37 (59.76, 254.95)	289.96 (112.11, 680.02)	0.0002
VEGF-D	16.67 (2.28, 42.59)	0 (0, 4.53)	2.28 (0, 29.97)	0.011

*The Kruskal–Wallis test was performed with Benjamini–Hochberg multiple test correction. Median levels, expressed as pg/ml, and interquartile range are reported.

Table S3. Cytokine distribution in the two compartments in 20 cirrhotic patients with HCV/HBV infection.

Cytokines	Ascites	Plasma	Total	<i>P value</i> *
Interleukins, TNF and IFN				
IL-1Ra	25.34 (0, 306.74)	497.31 (199.49, 1153.77)	249.96 (31.82, 814.23)	0.017
IL-2	32.57 (23.96, 40.71)	11.54 (6.71, 18.68)	22.2 (10.22, 37.63)	0.012
IL-4	93.73 (79.69, 106.34)	12.69 (6.79, 23.77)	71.6 (10.79, 93.73)	0.001
IL-5	8.52 (5.40, 17.29)	0 (0, 6.94)	5.35 (0, 15.56)	0.017
IL-6	2146.52 (1532.63, 2699.08)	41.13 (31.63, 86.17)	93.14 (38.07, 2124.44)	0.0002
IL-10	13.76 (8.26, 24.40)	1.33 (0.72, 4.78)	5.72 (1.11, 16.09)	0.001
IL-12p70	0.84 (0.57, 1.42)	3.17 (1.96, 4.90)	1.93 (1.01, 3.97)	0.010
IL-18	12.12 (7.85, 19.73)	80075 (50.73, 90.32)	42.45 (12.94, 85.71)	0.001
IL-27	238.15 (225.15, 1175.00)	89.15 (0, 203.32)	180795 (0, 279.01)	0.012
IFN- γ	1.41 (0, 5.43)	19.5 (15.49, 32.37)	15.44 (1.76, 27.25)	0.004
Chemokines				
MCP-1/CCL2	248.86 (158.08, 380.58)	31.37 (24.25, 39.91)	67.27 (1.31, 202.86)	0.0000
MIP-1 β /CCL4	112.72 (94.65, 134.85)	275815 (261.72, 298.03)	245.44 (118.51, 285.47)	0.001
RANTES/CCL5	3.04 (2.24, 3.46)	195.27 (127.49, 284.06)	32.8 (3.21, 205.53)	0.0000
Eotaxin/CCL1	30.93 (22.38, 45.51)	59735 (50.74, 71.14)	50.7 (30.93, 64.40)	0.016
GRO- α /CXCL1	26.35 (2.58, 49.40)	(0, 0)	(0, 32.33)	0.001
IP-10/CXCL10	411.95 (232.72, 930.84)	181.86 (111.24, 215.92)	208.2 (149.97, 411.95)	0.011
Growth factors				
BDNF	1.72 (1.72, 1.72)	21.99 (9.91, 51.72)	6.76 (1.72, 25.34)	0.001
LIF	33.27 (21.45, 120.99)	7915 (5.65, 18.06)	20.72 (7.76, 33.27)	0.001
PDGF-BB	27.24 (24.60, 84.47)	255775 (167.83, 631.07)	138.57 (27.24, 267.67)	0.0002
VEGF-A	662.97 (450.37, 938.77)	95.39 (81.52, 201.48)	233.79 (94.66, 662.97)	0.0002

*The Kruskal–Wallis test was performed with Benjamini–Hochberg multiple test correction. Median levels, expressed as pg/ml, and interquartile range are reported.

Table S4. Cytokine distribution in the ascites of cirrhotic patients with and without HCV/HBV infection.

	without HCV/HBV infection	with HCV/HBV infection	Total	<i>P value</i> *
Interleukins, TNF and IFN				
IL-1Ra	25.34 (0, 147.51)	25.34 (0, 306.74)	25.34 (0, 175.24)	0.9334
IL-2	34.64 (27.69, 58.69)	32.57 (23.96, 40.71)	34.365 (26.90, 56.48)	0.9334
IL-4	96.62 (87.72, 118.13)	93.73 (79.69, 106.34)	96.215 (80.34, 112.48)	0.9334
IL-5	16.04 (6.93, 34.61)	8.52 (5.40, 17.29)	13.565 (5.43, 29.19)	0.9334
IL-6	2403.61 (1656.98, 4129.58)	2146.52 (1532.63, 2699.08)	2204.17 (1569.3, 3520.4)	0.9334
IL-10	21.53 (9.54, 31.56)	13.76 (8.26, 24.40)	18.93 (8.88, 30.37)	0.9334
IL-12p70	0.69 (0.56, 1.86)	0.84 (0.57, 1.42)	0.78 (0.55, 1.75)	0.9334
IL-18	8.12 (6.79, 12.69)	12.12 (7.85, 19.73)	9.44 (7.10, 16.50)	0.9334
IL-27	722.36 (623.47, 1912.30)	238.15 (225.15, 1175.00)	657.6 (234.59, 1722.28)	0.9334
IFN-γ	0.85 (0, 7.26)	1.41 (0, 5.43)	0.905 (0, 6.88)	0.9334
Chemokines				
MCP-1/CCL2	227.41 (176.95, 514.93)	248.86 (158.08, 380.58)	238.135 (169.39, 433.07)	0.9334
MIP-1β/CCL4	108.37 (87.92, 205.86)	112.72 (94.65, 134.85)	111.795 (90.99, 172.64)	0.9334
RANTES/CCL5	4.28 (3.01, 5.42)	3.04 (2.24, 3.46)	3.305 (2.77, 4.72)	0.9334
Eotaxin/CCL1	31.91 (28.16, 40.52)	30.93 (22.38, 45.51)	31.725 (26.37, 45.09)	0.9334
GRO-α/CXCL1	39.84 (9.14, 65.72)	26.35 (2.58, 49.40)	39.03 (2.69, 63.90)	0.9334
IP-10/CXCL10	508.52 (322.78, 1101.51)	411.95 (232.72, 930.84)	477.695 (294.40, 992.48)	0.9334
Growth factors				
BDNF	1.72 (1.72, 1.72)	1.72 (1.72, 1.72)	1.72 (1.72, 1.72)	0.9334
LIF	58.83 (28.08, 83.19)	33.27 (21.45, 120.99)	45.995 (24.11, 87.43)	0.9334
PDGF-BB	27.24 (14.20, 40.75)	27.24 (24.60, 84.47)	27.24 (19.08, 44.35)	0.9334
VEGF-A	659.32 (432.56, 878.48)	662.97 (450.37, 938.77)	661.145 (422.79, 904.68)	0.9334

*The Kruskal–Wallis test was performed with Benjamini–Hochberg multiple test correction. Median levels, expressed as pg/ml, and interquartile range are reported

Table S5. Cytokine distribution in the plasma compartment of cirrhotic patients with and without HCV/HBV infection.

	without HCV/HBV infection	with HCV/HBV infection	Total	<i>P value</i> *
Interleukins, TNF and IFN				
IL-1Ra	364.25 (159.52, 696.16)	497.31 (199.49, 1153.77)	403.47 (176.18, 938.86)	0.9334
IL-2	11.54 (6.83, 16.41)	11.54 (6.71, 18.68)	11.54 (6.71, 17.80)	0.9334
IL-4	8.69 (4.78, 22.83)	12.69 (6.792, 23.77)	11.32 (5.54, 23.30)	0.9334
IL-5	0 (0, 4.16)	0 (0, 6.94)	0 (0, 6.94)	0.9334
IL-6	41.51 (22.47, 71.31)	41.13 (31.63, 86.17)	41.51 (25.93, 75.48)	0.9334
IL-10	1.31 (0.89, 1.98)	1.33 (0.72, 4.78)	1.31 (0.72, 2.74)	0.9334
IL-12p70	2.08 (1.64, 3.16)	3.17 (1.96, 4.90)	2.455 (1.81, 3.88)	0.9334
IL-18	60.37 (47.53, 90.71)	80.075 (50.73, 90.32)	68.82 (48.18, 90.65)	0.9334
IL-27	12.195 (0, 41.16)	89.15 (0, 203.32)	21.02 (0, 137.31)	0.9334
IFN-γ	13.83 (8.92, 15.97)	19.5 (15.49, 32.37)	15.54 (11.20, 24.93)	0.9334
Chemokines				
MCP-1/CCL2	29.635 (20.65, 39.27)	31.37 (24.25, 39.91)	31.195 (21.20, 39.91)	0.9334
MIP-1β/CCL4	281.03 (241.52, 325.55)	275.815 (261.72, 298.03)	280.92 (245.0, 305.01)	0.9334
RANTES/CCL5	192.245 (109.27, 260.56)	195.275 (127.49, 284.06)	192.245 (113.68, 284.06)	0.9334
Eotaxin/CCL1	43.105 (33.66, 58.95)	59.735 (50.74, 71.14)	53.475 (37.13, 68.22)	0.9334
GRO-α/CXCL1	0 (0, 0)	0 (0, 0)	0 (0, 0)	0.9334
IP-10/CXCL10	142.92 (87.49, 245.25)	181.865 (111.24, 215.92)	163.805 (96.80, 238.93)	0.9334
Growth factors				
BDNF	14.875 (2.5, 37.20)	21.99 (9.91, 51.72)	16.42 (6.85, 44.0)	0.9334
LIF	7.45 (4.84, 11.37)	7.915 (5.65, 18.06)	7.73 (5.21, 14.78)	0.9334
PDGF-BB	233.85 (102.06, 614.94)	255.775 (167.83, 631.07)	255.775 (150.68, 628.51)	0.9334
VEGF-A	111.37 (59.76, 254.95)	95.395 (81.52, 201.48)	103.38 (63.46, 240.5963)	0.9334

*The Kruskal–Wallis test was performed with Benjamini–Hochberg multiple test correction. Median levels, expressed as pg/ml, and interquartile range are reported