

Table S1 Clinical characteristics of the patients

Patient number	Sex	Age, years	BIL ($\mu\text{mol/L}$)		CA199 (U/mL)	CA125 (U/mL)	CEA (ng/mL)	Pathological biopay		Lymph node status	Pathologic stage
			TBIL	DBIL				Preoperative	Postoperative		
1	Male	41	164.92	102.46	32.12	\	2.95	Dysplasia	Cancer	0/7	T3N0M0 (II)
2	Male	59	42.9	19.2	78.58	\	2.35	Dysplasia	Cancer	0/2	T2N0M0 (I)
3	Male	59	17.32	6.99	104.25	\	3.31	Dysplasia	Cancer	0/17	T3N0M0 (II)
4	Female	43	154.9	76.43	12.58	\	2.88	Dysplasia	Cancer	0/9	T2N0M0 (I)
5	Male	57	77.19	55.41	17.03	\	1.49	Dysplasia	Cancer	0/6	T1N0M0 (I)
6	Male	61	11.9	3.06	31.25	\	1.47	Dysplasia	Cancer	0/3	T3N0M0 (II)
7	Male	65	6.51	1.51	<1.20	\	1.29	Dysplasia	Cancer	0/5	T3N0M0 (II)
8	Female	52	9.46	2.54	>700.00	26	2.24	Dysplasia	Cancer	0/4	T3N0M0 (II)
9	Female	64	40.62	16.4	32.71	14.1	1.39	Dysplasia	Cancer	0/15	T1N0M0 (I)
10	Female	72	8.09	1.54	27.51	13.8	1.17	Dysplasia	Cancer	0/5	T3N0M0 (II)
11	Male	36	146.13	82.46	11.72	\	0.99	Dysplasia	Cancer	0/2	T3N0M0 (II)
12	Male	63	121.74	64.67	>700.00	77.1	5.36	Dysplasia	Cancer	2/5	T3N1M0 (III)
13	Female	46	21.47	16.62	35.04	\	1.34	Dysplasia	Cancer	2/8	T3N1M0 (III)
14	Male	52	222.76	173.89	168.22	\	2.41	Dysplasia	Cancer	0/4	T2N0M0 (I)
15	Male	65	147.41	111.88	15.76	\	1.48	Dysplasia	Cancer	\	T2N?M0
16	Male	75	107.34	81.93	353.06	\	2.88	Dysplasia	Cancer	0/1	T2N0M0 (I)
17	Male	49	19.18	10.7	20.27	\	1.73	Dysplasia	Cancer	0/1	T2N0M0 (I)
18	Male	42	43.08	28.93	19.1	\	1.04	Dysplasia	Cancer	0/6	T2N0M0 (I)
19	Female	39	175.29	135.04	41.79	\	27.57	Dysplasia	Cancer	1/9	T3N1M0 (III)
20	Female	44	28.83	20.48	57.9	13.4	1.25	Dysplasia	Cancer	0/11	T3N0M0 (II)
21	Female	66	55.13	31.1	16.4	\	1.61	Dysplasia	Cancer	0/2	T2N0M0 (I)
22	Female	48	204.67	123.7	\	\		Dysplasia	Cancer	0/2	T3N0M0 (II)
23	Male	69	11.57	5.66	6.32	\	1.21	Dysplasia	Cancer	0/3	T3N0M0 (II)
24	Male	54	12.1	6.24	11.55	\	2.3	Dysplasia	Cancer	0/7	T3N0M0 (II)
25	Female	50	196.84	128.31	39.17	\	1.86	Dysplasia	Cancer	1/1	T2N1M0 (III)
26	Male	55	11.1	2.85	<1.2	\	1.55	Dysplasia	Cancer	0/4	T3N0M0 (II)
27	Female	49	27.44	15.66	24.82	\	1.51	Inflammation	Cancer	2/14	T3N1M0 (III)
28	Female	48	75.43	45.2	21.96	\	2.64	Dysplasia	Cancer	2/6	T3N1M0 (III)
29	Male	58	14.07	6.23	5.95	\	<0.5	Dysplasia	Cancer	0/2	T3N0M0 (II)
30	Male	52	370.68	210.33	44.73	\	2.92	Inflammation	Cancer	0/4	T3N0M0 (II)
31	Male	58	157.12	95.47	60.21	\	0.88	Dysplasia	Cancer	0/3	T3N0M0 (II)
32	Female	72	54.87	27.78	131.54	\	1.07	Dysplasia	Cancer	0/9	T3N0M0 (II)
33	Female	35	30.34	13.24	19.27	\	2.79	Dysplasia	Cancer	0/4	T2N0M0 (I)
34	Female	63	18.52	9.55	17.51	\	0.57	Dysplasia	Cancer	\	T1N?M0
35	Male	67	90.47	46.47	16.76	\	1.43	Dysplasia	Cancer	0/4	T2N0M0 (I)
36	Female	61	10.89	5.02	572.6	4.6	0.71	Dysplasia	Cancer	1/4	T3N1M0 (III)
37	Male	63	181.59	107.08	272.66	\	10.53	Dysplasia	Cancer	0/9	T3N0M0 (II)
38	Female	64	31.75	17.75	25.76	8.8	2.19	Dysplasia	Cancer	0/4	T3N0M0 (II)
39	Male	66	153.84	76.17	82.19	6	2.42	Inflammation	Cancer	1/9	T3N1M0 (III)
40	Male	65	22.36	7.8	>700	16.3	1.37	Dysplasia	Dysplasia	0/13	\
41	Male	61	33.04	16.29	17.05	\	1.48	Dysplasia	Cancer	0/18	T2N0M0 (I)
42	Female	61	14.82	3.14	24.69	10.8	3.2	Dysplasia	Cancer	0/19	T2N0M0 (I)
43	Male	61	\	\	24.4	9	0.96	Dysplasia	Cancer	0/8	T1N0M0 (I)
44	Female	63	337.09	182.98	>700	7	1.31	Dysplasia	Cancer	0/8	T1N0M0 (I)
45	Female	50	84.08	37.36	207.18	16	3.98	Dysplasia	Cancer	5/13	T2N2M0 (III)
46	Male	55	\	\	3.53	7.3	6.06	Dysplasia	Cancer	0/12	T1N0M0 (I)
47	Female	77	19.82	7.18	74.45	14.2	1.05	Dysplasia	Cancer	0/16	T2N0M0 (I)
48	Female	57	64.84	30.43	175.89	7.5	1.41	Dysplasia	Cancer	0/7	T2N0M0 (I)
49	Female	71	28.37	10.95	<1.2	11.5	1.38	Dysplasia	Cancer	0/14	T1N0M0 (I)
50	Female	53	36.53	7.91	70.44	\	1.49	Dysplasia	Cancer	0/19	T3N0M0 (II)
51	Male	53	30.35	11.81	>700	\	0.97	Dysplasia	Cancer	0/2	T2N0M0 (I)
52	Male	65	81.55	44.61	17.53	9.8	0.65	Dysplasia	Cancer	0/8	T3N0M0 (II)
53	Male	59	145.22	89.04	30.78	24.3	0.81	Dysplasia	Cancer	0/9	T2N0M0 (I)
54	Female	53	79.03	40.08	29.04	13.6	<0.5	Dysplasia	Cancer	0/4	T2N0M0 (I)
55	Female	64	14.61	4.13	39.41	\	<0.5	Dysplasia	Cancer	0/7	T3N0M0 (I)
56	Male	60	196.03	106.08	>700	13.7	4.55	Dysplasia	Cancer	0/11	T2N0M0 (I)
57	Female	43	41.6	15.81	12.42	14.2	<0.5	Dysplasia	Cancer	0/25	T2N0M0 (I)
58	Female	55	139.77	75.74	>700	13.2	2.91	Dysplasia	Cancer	0/5	T2N0M0 (I)
59	Female	64	166.09	77.44	41.01	\	1.2	Dysplasia	Cancer	0/1	T2N0M0 (I)
60	Female	78	\	\	39.16	8.8	1.04	Dysplasia	Cancer	0/20	T2N0M0 (I)
61	Female	54	4.8	1.8	11.6	11	1	Dysplasia	Dysplasia	0/19	\
62	Male	63	30.63	12.3	39.42	\	0.91	Dysplasia	Cancer	2/8	T3N1M0 (III)
63	Male	65	18.14	7.7	29.67	19.5	0.57	Dysplasia	Cancer	0/4	T1N0M0 (I)
64	Male	60	11.97	2.27	10.79	4.7	0.52	Dysplasia	Cancer	0/4	T1N0M0 (I)
65	Male	55	\	\	20.2	10.3	3.22	Dysplasia	Cancer	0/13	T3N0M0 (II)
66	Female	44	33.47	13.12	18.76	11.7	<0.5	Dysplasia	Cancer	1/13	T3N1M0 (III)
67	Male	61	33.42	15.73	20.61	18.1	<0.5	Dysplasia	Cancer	0/4	T3N0M0 (II)
68	Male	42	19.5	9.9	274.41	\	<0.5	Dysplasia	Cancer	0/6	T3N0M0 (II)
69	Male	72	126.42	81.67	215.49	\	1.63	Dysplasia	Cancer	1/9	T3N1M0 (III)
70	Male	69	15.57	4.9	13.64	\	3.61	Dysplasia	Cancer	0/7	T2N0M0 (I)
71	Female	50	7.86	1.7	24.15	9.82	1.08	Inflammation	Cancer	2/9	T3N1M0 (III)
72	Male	47	29.9	16.7	22.94	12.2	<0.5	Dysplasia	Cancer	0/11	T3N0M0 (II)
73	Male	70	364.92	196.51	>700	\	<0.5	Dysplasia	Cancer	0/2	T2N0M0 (I)
74	Female	71	188.71	109.22	578.49	13.1	<0.5	Dysplasia	Cancer	0/6	T2N0M0 (I)
75	Male	58	26.66	13.64	>700	\	0.8	Inflammation	Cancer	2/8	T3N1M0 (III)
76	Male	62	172.07	88.52	17.21	4.7	3.23	Dysplasia	Cancer	1/21	T2N1M0 (III)
77	Male	73	26.37	6.28	22.34	67.3	<0.5	Dysplasia	Cancer	0/3	T1N0M0 (I)
78	Female	63	20.42	7.29	18.99	\	2.35	Dysplasia	Cancer	0/26	T1N0M0 (I)
79	Male	67	498.57	368.4	53.43	\	2.53	Inflammation	Cancer	0/6	T2N0M0 (I)
80	Male	55	69.23	39.74	83.54	\	5.58	Dysplasia	Cancer	1/5	T3N1M0 (III)
81	Male	67	62.04	33.34	24.93	287.4	1.09	Dysplasia	Cancer	0/1	T2N0M0 (I)
82	Female	69	\	\	26.37	94.7	3.04	Inflammation	Cancer	0/6	T2N0M0 (I)
83	Female	61	359.83	200.99	695.49	15.1	1.65	Dysplasia	Cancer	0/8	T3N0M0 (II)