

Supplementary material

S1. Biomarkers in relation to clinical status

Patients without follow-up visit or with a follow-up period < 6 months were excluded.

Laboratory values	Cured	Stable without BMZ	Stable with BMZ	Progressive disease	Statistical analysis (Kruskal-Wallis-Test)
SAA, mg/L	n = 36 M = 15.05 SD = 55.73 MD = 3.15 IQR = 4.28 Min = 0.80 Max = 335.00	n = 37 M = 10.10 SD = 23.80 MD = 2.60 IQR = 10.60 Min = 0.80 Max = 146.00	n = 71 M = 6.68 SD = 14.02 MD = 3.20 IQR = 4.60 Min = 0.80 Max = 115.00	n = 6 M = 3.33 SD = 2.29 MD = 2.85 IQR = 3.83 Min = 0.80 Max = 7.10	$X^2(3) = 0.796$; $p = 0.850$
CRP, mg/L	n = 34 M = 10.29 SD = 35.76 MD = 1.85 IQR = 5.93 Min = 0.20 Max = 210.30	n = 36 M = 5.49 SD = 8.71 MD = 1.60 IQR = 5.95 Min = 0.30 Max = 44.00	n = 69 M = 4.97 SD = 6.43 MD = 2.50 IQR = 4.70 Min = 0.20 Max = 29.30	n = 6 M = 6.53 SD = 6.23 MD = 4.00 IQR = 12.25 Min = 0.60 Max = 15.40	$X^2(3) = 1.637$; $p = 0.651$
sIL-2R, U/ml	n = 36 M = 320.00 SD = 183.40 MD = 261.50 IQR = 213.75 Min = 121.00 Max = 904.00	n = 37 M = 291.43 SD = 168.18 MD = 243.00 IQR = 186.50 Min = 112.00 Max = 846.00	n = 71 M = 310.90 SD = 194.35 MD = 266.00 IQR = 180.00 Min = 51.90 Max = 1252.00	n = 6 M = 286.33 SD = 141.41 MD = 267.50 IQR = 169.25 Min = 147.00 Max = 554.00	$X^2(3) = 0.621$; $p = 0.892$
Ck18F(M30), U/L	n = 34 M = 140.05 SD = 60.50 MD = 126.58 IQR = 42.25 Min = 30.57 Max = 349.04	n = 36 M = 48.90 SD = 85.58 MD = 12.04 IQR = 90.14 Min = 68.91 Max = 523.85	n = 69 M = 176.00 SD = 202.47 MD = 128.70 IQR = 82.88 Min = 66.92 Max = 1711.40	n = 6 M = 151.53 SD = 39.46 MD = 159.07 IQR = 73.79 Min = 93.96 Max = 193.47	$X^2(3) = 1.588$; $p = 0.662$
Ck18F(M65), U/L	n = 34 M = 275.20 SD = 269.28 MD = 184.06 IQR = 204.08 Min = 40.13 Max = 1142.70	n = 36 M = 256.17 SD = 309.80 MD = 92.92 IQR = 200.27 Min = 37.49 Max = 1870.20	n = 69 M = 344.29 SD = 543.83 MD = 200.00 IQR = 191.16 Min = 27.95 Max = 4199.60	n = 6 M = 289.50 SD = 196.66 MD = 274.60 IQR = 334.50 Min = 70.99 Max = 605.12	$X^2(3) = 2.960$; $p = 0.398$
Ratio Ck 18F (M30:M65)	n = 34 M = 0.91 SD = 0.75 MD = 0.63 IQR = 0.76 Min = 0.13	n = 36 M = 0.99 SD = 1.08 MD = 0.72 IQR = 0.65 Min = 0.20	n = 69 M = 0.82 SD = 0.75 MD = 0.63 IQR = 0.58 Min = 0.12	n = 6 M = 0.74 SD = 0.43 MD = 0.64 IQR = 0.87 Min = 0.32	$X^2(3) = 1.512$; $p = 0.680$

	Max = 3.46	Max = 6.56	Max = 4.88	Max = 1.32	
ECP, µg/L	n = 34 M = 4.37 SD = 3.46 MD = 2.85 IQR = 3.47 Min = 2.00 Max = 17.60	n = 36 M = 3.85 SD = 3.05 MD = 2.95 IQR = 2.38 Min = 2.00 Max = 19.50	n = 69 M = 3.90 SD = 2.71 MD = 3.10 IQR = 2.60 Min = 2.00 Max = 19.80	n = 6 M = 4.25 SD = 2.52 MD = 2.95 IQR = 4.70 Min = 2.00 Max = 7.90	$X^2(3) = 0.281$; $p = 0.964$
EOS, G/L	n = 37 M = 0.12 SD = 0.10 MD = 0.10 IQR = 0.10 Min = 0.00 Max = 0.30	n = 38 M = 0.15 SD = 0.11 MD = 0.10 IQR = 0.10 Min = 0.00 Max = 0.50	n = 75 M = 0.16 SD = 0.11 MD = 0.10 IQR = 0.10 Min = 0.50 Max = 2.20	n = 7 M = 0.19 SD = 0.07 MD = 0.20 IQR = 0.10 Min = 0.10 Max = 0.30	
Specific IgE, kU/L	n = 37 M = 1.16 SD = 3.58 MD = 0.12 IQR = 0.42 Min = 0.00 Max = 19.40	n = 39 M = 1.50 SD = 5.47 MD = 0.14 IQR = 0.81 Min = 0.02 Max = 34.30	n = 75 M = 4.08 SD = 7.00 MD = 1.57 IQR = 3.85 Min = 0.02 Max = 49.10	n = 7 M = 5.38 SD = 7.94 MD = 0.69 IQR = 13.53 Min = 0.03 Max = 19.60	$X^2(3) = 38.564$; $p < 0.001$
Total IgE, IU/ml	n = 37 M = 100.65 SD = 198.85 MD = 21.50 IQR = 97.85 Min = 3.40 Max = 987.40	n = 39 M = 516.96 SD = 2313.18 MD = 45.60 IQR = 60.00 Min = 1.60 Max = 14089.00	n = 76 M = 580.53 SD = 870.64 MD = 234.65 IQR = 526.57 Min = 1.10 Max = 5251.00	n = 7 M = 1252.96 SD = 2106.86 MD = 103.00 IQR = 1897.90 Min = 3.80 Max = 5750.00	$X^2(3) = 40.856$; $p < 0.001$
IHA IgG, < 1:32 = '0'	n = 37 MD = 0 P25 = 0 P75 = 0 Min = 0 Max = 128	n = 38 MD = 0 P25 = 0 P75 = 32 Min = 0 Max = 1024	n = 74 MD = 32 P25 = 0 P75 = 128 Min = 0 Max = 4096	n = 7 MD = 128 P25 = 0 P75 = 1024 Min = 0 Max = 1024	$X^2(3) = 27.233$; $p < 0.001$
Em2 ⁺ negative	n = 33 (89.2%)	n = 23 (60.0%)	n = 20 (26.3%)	n = 1 (14.2 %)	Chi-Square-test: $X^2(3) = 44.805$; $p < 0.001$
Em2 ⁺ positive	n = 4 (10.8%)	n = 14 (35.9%)	n = 55 (72.4%)	n = 6 (85.7%)	
PET negative*	/	n = 19 (48.7%)	n = 8 (10.5%)	n = 0 (0%)	Chi-Square-test: $X^2(2) = 23.925$; $p < 0.001$
PET positive*	/	n = 20 (51.3%)	n = 68 (89.5%)	n = 7 (100%)	

*Operated patients excluded

BMZ=Benzimidazoles; SAA=serum amyloid A; CRP=C-reactive protein; sIL-2R=soluble interleukin 2 receptor; Ck18F(M30) and Ck18F(M65)=cytokeratin fragments; EOS=total eosinophilic cell count; ECP=eosinophil cationic protein; specific IgE=parasite-specific IgE; total IgE=total immunoglobulin E; IHA=indirect hemagglutination IgG titers against a crude

parasite extract; Em2+=antibody levels against Em2 antigen 2+, if the index ≥ 1.0 will be considered to be positive, otherwise negative; PET positive=CT scans visually having FDG uptake around the AE lesions above the background liver uptake/non-affected liver tissue; PET negative=AE lesion with no detectable FDG uptake.

S2. Biomarkers and PET/CT results in relation to WHO stage of disease

Laboratory values	Stage I-II (P1/2N0M0)	Stage IIIa (P3N0M0)	Stage IIIb (P1-3N1M0 P4N0M0)	Stage IV (P4N1M0 P1-4N0/1M1)	Statistical analysis (Kruskal-Wallis-Test)
SAA, mg/L	n = 35	n = 45	n = 39	n = 49	$X^2(3) = 1.148$; $p = 0.765$
	M = 9.17 SD = 20.10 MD = 2.50 IQR = 5.40 Min = 0.80 Max = 115.00	M = 13.41 SD = 49.44 MD = 2.80 IQR = 6.80 Min = 0.80 Max = 335.00	M = 8.45 SD = 23.32 MD = 3.10 IQR = 2.50 Min = 0.80 Max = 146.00	M = 4.81 SD = 4.25 MD = 3.20 IQR = 4.90 Min = 0.80 Max = 18.70	
CRP, mg/L	n = 32	n = 43	n = 38	n = 49	$X^2(3) = 0.952$; $p = 0.813$
	M = 4.60 SD = 6.23 MD = 1.65 IQR = 6.88 Min = 0.20 Max = 25.90	M = 10.10 SD = 32.48 MD = 2.10 IQR = 4.70 Min = 0.20 Max = 210.30	M = 4.67 SD = 5.27 MD = 2.75 IQR = 6.00 Min = 0.20 Max = 22.40	M = 4.58 SD = 5.58 MD = 2.70 IQR = 4.35 Min = 0.30 Max = 29.30	
sIL-2R, U/ml	n = 35	n = 45	n = 39	n = 49	$X^2(3) = 2.897$; $p = 0.408$
	M = 320.78 SD = 230.03 MD = 231.00 IQR = 173.00 Min = 132.00 Max = 1252.00	M = 293.66 SD = 155.11 MD = 278.00 IQR = 192.00 Min = 84.40 Max = 846.00	M = 266.63 SD = 150.11 MD = 229.00 IQR = 135.00 Min = 85.50 Max = 787.00	M = 378.70 SD = 343.91 MD = 286.0 IQR = 238.00 Min = 91.00 Max = 2181.00	
Ck18F(M30), U/L	n = 32	n = 43	n = 38	n = 49	$X^2(3) = 7.320$; $p = 0.062$
	M = 133.28 SD = 63.73 MD = 111.65 IQR = 63.20 Min = 76.14 Max = 349.04	M = 138.17 SD = 61.80 MD = 128.69 IQR = 49.28 Min = 30.57 Max = 416.73	M = 152.45 SD = 80.97 MD = 132.86 IQR = 64.94 Min = 67.80 Max = 488.52	M = 197.20 SD = 235.00 MD = 132.90 IQR = 97.90 Min = 73.86 Max = 1711.40	
Ck18F(M65), U/L	n = 32	n = 43	n = 38	n = 49	$X^2(3) = 4.496$; $p = 0.213$
	M = 265.46 SD = 234.96 MD = 230.88 IQR = 227.95 Min = 51.10 Max = 1142.70	M = 214.03 SD = 155.95 MD = 176.04 IQR = 101.09 Min = 40.13 Max = 725.42	M = 267.87 SD = 326.08 MD = 169.24 IQR = 192.59 Min = 37.49 Max = 1988.40	M = 403.70 SD = 636.63 MD = 248.27 IQR = 226.87 Min = 37.49 Max = 4199.60	
Ratio Ck 18F (M30:M65)	n = 32	n = 43	n = 38	n = 49	$X^2(3) = 2.262$; $p = 0.520$
	M = 0.78 SD = 0.57 MD = 0.54 IQR = 0.62 Min = 0.24 Max = 2.13	M = 0.95 SD = 0.76 MD = 0.73 IQR = 0.73 Min = 0.19 Max = 3.46	M = 0.95 SD = 0.73 MD = 0.83 IQR = 0.70 Min = 0.12 Max = 3.63	M = 0.87 SD = 0.98 MD = 0.53 IQR = 0.64 Min = 0.13 Max = 6.56	
ECP	n = 32	n = 43	n = 38	n = 49	$X^2(3) = 2.630$;
	M = 3.66	M = 3.25	M = 4.34	M = 4.50	

	SD = 1.84 MD = 2.85 IQR = 3.15 Min = 2.0 Max = 7.70	SD = 1.39 MD = 2.00 IQR = 1.90 Min = 2.00 Max = 7.70	SD = 3.29 MD = 3.10 IQR = 3.45 Min = 2.00 Max = 17.60	SD = 3.76 MD = 3.60 IQR = 3.00 Min = 2.00 Max = 19.80	$p = 0.452$
EOS, $\mu\text{g/L}$	n= 36	n = 47	n = 43	n= 50	$X^2(3) = 2.630$; $p = 0.452$
	M = 0.14 SD = 0.11 MD = 0.10 IQR = 0.10 Min = 0.00 Max = 0.50	M = 0.16 SD = 0.14 MD = 0.10 IQR = 0.10 Min = 0.00 Max = 0.90	M = 0.18 SD = 0.33 MD = 0.10 IQR = 0.10 Min = 0.00 Max = 2.20	M = 0.17 SD = 0.12 MD = 0.20 IQR = 0.13 Min = 0.00 Max = 0.50	
Specific IgE, kU/L	n = 37	n = 48	n = 42	n = 50	$X^2(3) = 10.442$; $p = 0.015$
	M = 3.52 SD = 7.77 MD = 0.35 IQR = 1.43 Min = 0.00 Max = 34.40	M = 2.01 SD = 4.29 MD = 0.43 IQR = 1.78 Min = 0.02 Max = 21.10	M = 1.68 SD = 3.02 MD = 0.43 IQR = 1.72 Min = 0.01 Max = 12.50	M = 4.24 SD = 8.07 MD = 1.03 IQR = 3.93 Min = 0.03 Max = 49.10	
Total IgE, IU/ml	n = 37	n = 48	n = 42	Nn= 50	$X^2(3) = 14.137$; $p = 0.003$
	M = 608.03 SD = 2311.86 MD = 57.00 IQR = 279.50 Min = 1.10 Max = 14089.00	M = 199.75 SD = 398.43 MD = 71.75 IQR = 97.48 Min = 2.20 Max = 1941.00	M = 272.00 SD = 518.11 MD = 61.25 IQR = 260.67 Min = 1.14 Max = 2570.00	M = 755.64 SD = 1289.44 MD = 235.20 IQR = 572.82 Min = 2.20 Max = 5750.00	
IHA IgG, < 1:32 = '0'	n = 35	n = 46	n = 41	n = 50	$X^2(3) = 13.705$; $p = 0.003$
	MD = 0 P25 = 0 P75 = 32 Min = 0 Max = 1024	MD = 0 P25 = 0 P75 = 40 Min = 0 Max = 2048	MD = 0 P25 = 0 P75 = 32 Min = 0 Max = 8192	MD = 32 P25 = 0 P75 = 256 Min = 0 Max = 4096	
Em2 ⁺ negative	23 (62.2%)	26 (54.2%)	20 (47.6%)	12 (24.0%)	Chi-Square: $X^2(3) = 16.472$; $p < 0.001$
Em2 ⁺ positive	13 (35.1%)	20 (41.7%)	21 (50.0%)	38 (76.0%)	
PET negative*	7 (35.0%)	14 (35.9%)	7 (19.4%)	4 (9.1%)	Chi-Square: $X^2(3) = 10.346$; $p < 0.016$
PET positive*	13 (65.0%)	25 (64.1%)	29 (80.6%)	40 (90.9%)	

*Operated patients excluded

BMZ=Benzimidazoles; SAA=serum amyloid A; CRP=C-reactive protein; sIL-2R=soluble interleukin 2 receptor; Ck18F(M30) and Ck18F(M65)=cytokeratin fragments; EOS=total eosinophilic cell count; ECP=eosinophil cationic protein; specific IgE=parasite-specific IgE; total IgE=total immunoglobulin E; IHA=indirect hemagglutination IgG titers against a crude parasite extract; Em2⁺=antibody levels against Em2 antigen 2⁺, if the index ≥ 1.0 will be considered to be positive, otherwise negative; PET positive=CT scans visually having FDG

uptake around the AE lesions above the background liver uptake/non-affected liver tissue;
PET negative=AE lesion with no detectable FDG uptake.

S3. Biomarkers in relation to PET/CT results

Patients who had undergone surgery (n = 38) were excluded from this analysis.

Laboratory values	PET/CT scan		Mann-Whitney-U-test
	positive	negative	
SAA, mg/L	n = 102	n = 31	U = 1357.50; $p = 0.234$
	M = 7.40 SD = 18.42 MD = 2.80 IQR = 4.72 Min = 0.80 Max = 146.20	M = 6.31 SD = 5.88 MD = 4.20 IQR = 6.90 Min = 0.80 Max = 25.50	
CRP, mg/L	n = 99	n = 30	U = 1361.00; $p = 0.489$
	M = 5.30 SD = 7.51 MD = 2.50 IQR = 4.90 Min = 0.20 Max = 44.00	M = 3.67 SD = 3.86 MD = 1.85 IQR = 5.18 Min = 0.20 Max = 14.30	
sIL-2R, U/ml	n = 102	n = 31	U = 1415; $p = 0.489$
	M = 328.83 SD = 277.60 MD = 264.00 IQR = 177.50 Min = 51.90 Max = 2181.00	M = 277.52 SD = 153.00 MD = 228.00 IQR = 178.00 Min = 112.00 Max = 774.00	
CK18F(M30), U/L	n = 99	n = 30	U = 1400.00; $p = 0.636$
	M = 168.31 SD = 174.67 MD = 129.60 IQR = 78.70 Min = 66.92 Max = 1711.40	M = 147.35 SD = 72.83 MD = 126.12 IQR = 77.74 Min = 73.86 Max = 41673.00	
CK18F(M65), U/L	n = 99	n = 30	U = 1255.50; $p = 0.201$
	M = 325.77 SD = 494.44 MD = 198.41 IQR = 211.31 Min = 27.95 Max = 4199.60	M = 196.50 SD = 111.44 MD = 180.94 IQR = 133.79 Min = 37.49 Max = 540.90	
Ratio Ck 18F (M30:M65)	n = 99	n = 30	U = 1270.00; $p = 0.231$
	M = 0.89 SD = 0.78 MD = 0.63 IQR = 0.73 Min = 0.12 Max = 4.88	M = 1.05 SD = 1.14 MD = 0.77 IQR = 0.59 Min = 0.23 Max = 6.56	
ECP, µg/L	n = 99	n = 30	U = 1426.00; $p = 0.741$
	M = 3.89 SD = 2.85	M = 3.68 SD = 1.99	

	MD = 2.90 IQR = 2.70 Min = 2.00 Max = 19.80	MD = 3.00 IQR = 2.45 Min = 2.00 Max = 8.20	
EOS, G/l	n = 107	n = 32	U = 1469.00; <i>p</i> = 0.200
	M = 0.19 SD = 0.24 MD = 0.10 IQR = 0.10 Min = 0.00 Max = 2.20	M = 0.13 SD = 0.09 MD = 0.10 IQR = 0.10 Min = 0.00 Max = 0.30	
specific IgE, kU/L	N = 107	N = 33	U = 995.00; <i>p</i> < 0.001
	M = 4.11 SD = 7.44 MD = 1.18 IQR = 3.37 Min = 0.01 Max = 49.10	M = 0.85 SD = 1.53 MD = 0.17 IQR = 0.82 Min = 0.02 Max = 7.63	
IgE total, IU/L	n = 107	n = 33	U = 785.50; <i>p</i> < 0.001
	M = 706.05 SD = 1637.33 MD = 185.30 IQR = 548.90 Min = 1.14 Max 14089.0	M = 79.24 SD = 119.85 MD = 46.3 IQR = 72.85 Min = 1.10 Max 576.30	
IHA IgG, < 1:32 = '0'	n = 105	n = 31	U = 1058.50; <i>p</i> = 0.001
	MD = 32 P25 = 0 P75 = 256 Min = 0 Max = 8292	MD = 0 P25 = 0 P75 = 32 Min = 0 Max = 256	
Em2 ⁺ negative	n = 27 (25.2%)	n = 21 (63.6%)	Chi-Square-test
Em2 ⁺ positive	n = 78 (72.9%)	n = 10 (30.3%)	X ² (1) = 18.511; <i>p</i> < 0.001

BMZ=Benzimidazoles; SAA=serum amyloid A; CRP=C-reactive protein; sIL-2R=soluble interleukin 2 receptor; Ck18F(M30) and Ck18F(M65)=cytokeratin fragments; EOS=total eosinophilic cell count; ECP=eosinophil cationic protein; specific IgE=parasite-specific IgE; total IgE=total immunoglobulin E; IHA=indirect hemagglutination IgG titers against a crude parasite extract; Em2⁺=antibody levels against Em2 antigen 2⁺, if the index ≥1.0 will be considered to be positive, otherwise negative;