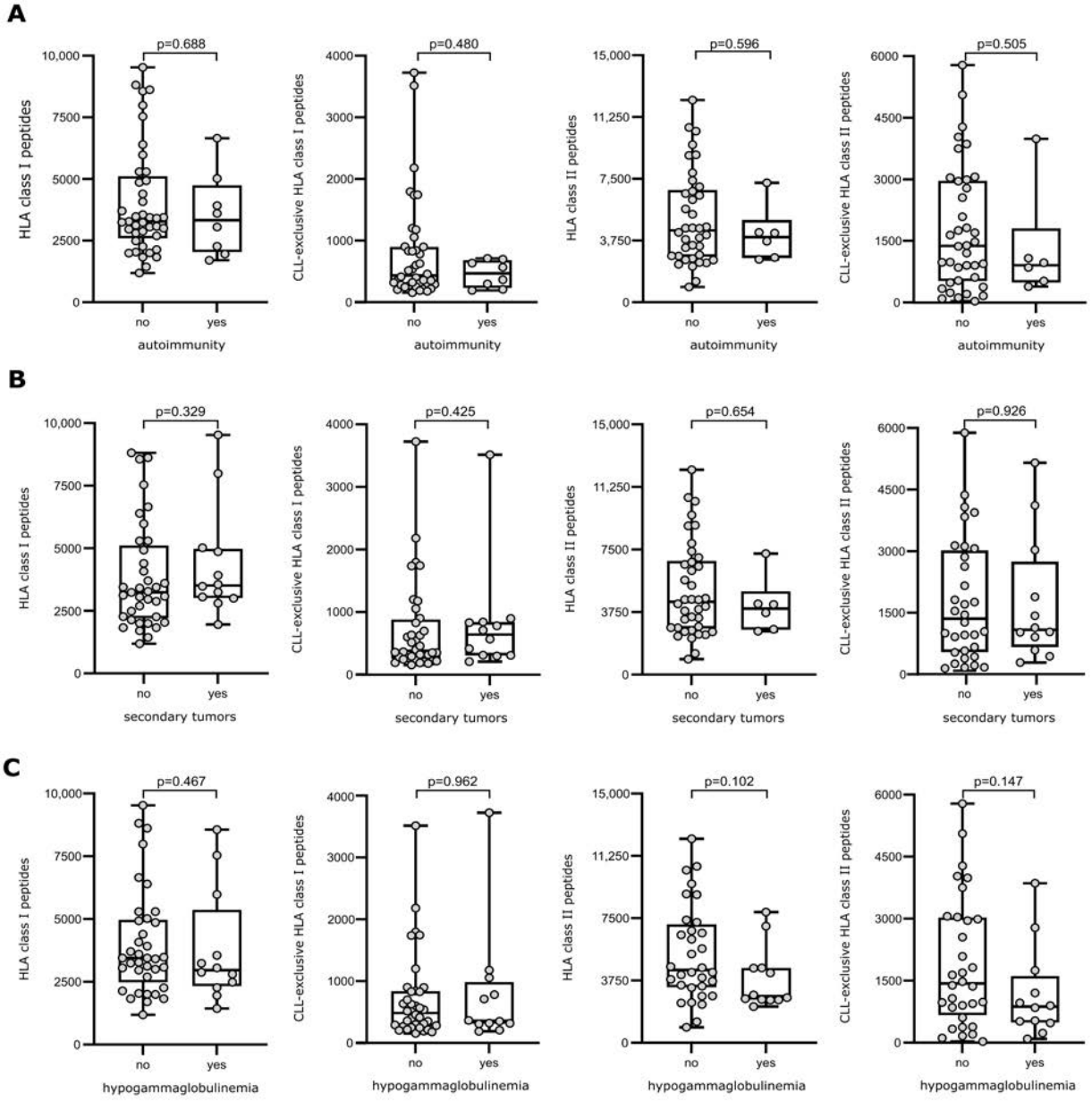


Figure S1. HLA presentation of antigenic peptides according to patients' clinical features. Number of total HLA class I- (left panel), CLL-exclusive HLA class I- (mid-left panel), total HLA class II- (mid-right panel), and CLL-exclusive HLA class II-restricted (right panel) peptides according to autoimmune phenomena (**A**), secondary tumors (**B**) and hypogammaglobulinemia (**C**). Dots represent data from individual patients. Boxes represent median and 25th to 75th percentiles, whiskers are minimum to maximum. Continuous lines indicate p-values (Mann-Whitney U test). Abbreviation: p, p-value.

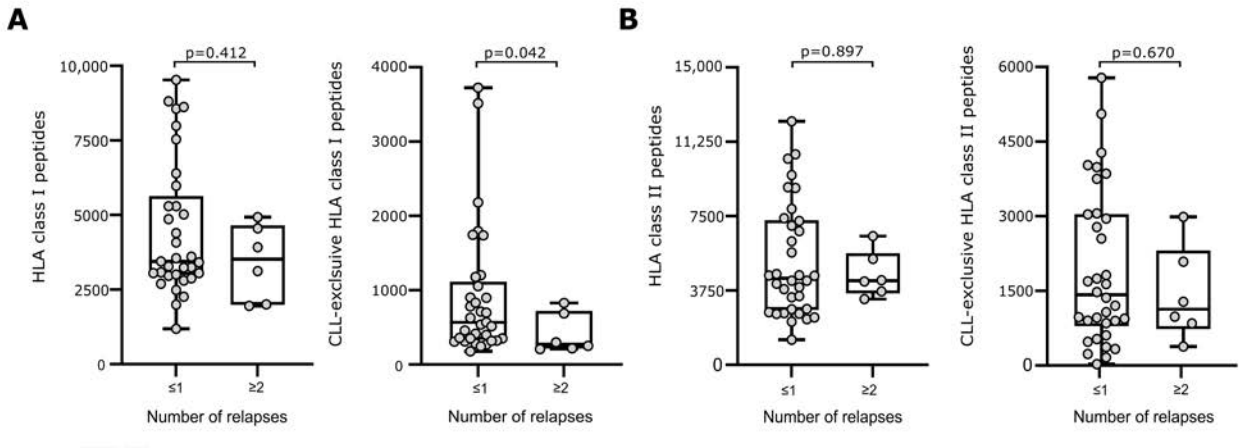


Figure S2. HLA presentation of antigenic peptides according to disease's course in terms of observed relapses analyzed in therapy-naïve patients. Numbers of total (left panel) and CLL-exclusive (right panel) HLA class I- (**A**) and HLA class II-restricted (**B**) peptides according to the number of observed relapses. Dots represent data from individual patients. Boxes represent median and 25th to 75th percentiles. Brackets indicate p-values (Mann-Whitney U-test). Abbreviation: p, p-value.

Table S1: Calculated cut-off for the definition of "high" or "low" groups for survival analysis

		Cut off values between low and high peptides' number	
		Low	**High**
PFS	HLA class I peptides	≤ 2265	> 2265
	CLL-exclusive HLA class I peptides	≤ 366	> 366
	HLA class II peptides	≤ 4504	> 4504
	CLL exclusive HLA class II peptides	≤ 1282	> 1282
OS	HLA class I peptides	≤ 5291	> 5291
	CLL exclusive HLA class I peptides	≤ 898	> 898
	HLA class II peptides	≤ 4245	> 4245
	CLL exclusive HLA class II peptides	≤ 1476	> 1476

Abbreviations: PFS, progression-free survival; OS, overall survival.

Table S2. Detailed patient characteristics

Patient ID	Age	Sex	Binet	IgHV	Tp53/del17	Number of HLA class I peptides	Number of CLL-exclusive HLA class I peptides	Number of HLA class II peptides	Number of CLL-exclusive HLA class II peptides
PID01	51	Male	B	Mutated	Negative	849	268	2801	332
PID02	60	Female	C	Unmutated	Positive	1308	350	Unknown	Unknown
PID03	53	Male	A	Unmutated	Positive	1349	782	2184	530
PID04	63	Male	B	Unknown	Unknown	1230	841	Unknown	Unknown
PID05	64	Female	A	Unknown	Unknown	1157	399	Unknown	Unknown
PID06	50	Female	A	Unknown	Unknown	Unknown	Unknown	2312	160
PID07	76	Male	C	Unknown	Negative	Unknown	Unknown	3410	941
PID08	49	Male	A	Unknown	Positive	728	209	4205	847
PID09	43	Male	A	Unknown	Positive	1121	538	Unknown	Unknown
PID10	57	Male	A	Unknown	Unknown	852	366	2723	518
PID11	59	Male	A	Unmutated	Positive	632	193	Unknown	Unknown
PID12	70	Female	A	Unknown	Unknown	1860	312	12,282	2954
PID13	75	Male	A	Unknown	Negative	679	214	Unknown	Unknown
PID14	71	Male	C	Unknown	Positive	Unknown	Unknown	935	201
PID15	72	Female	B	Unknown	Unknown	1407	600	Unknown	Unknown
PID16	46	Male	A	Unknown	Unknown	1243	458	2398	608
PID17	38	Male	A	Unknown	Unknown	2457	900	2814	28
PID18	64	Male	A	Unknown	Negative	1492	299	3703	382
PID19	57	Male	A	Unknown	Positive	759	155	6612	1386
PID20	67	Male	B	Unknown	Negative	1921	569	4242	1073
PID21	51	Female	A	Unknown	Negative	Unknown	Unknown	3814	972
PID22	68	Female	B	Unmutated	Positive	1182	250	Unknown	Unknown
PID23	90	Male	A	Unknown	Negative	1231	831	Unknown	Unknown
PID24	64	Male	A	Unknown	Unknown	1060	309	2661	234
PID25	66	Male	A	Unknown	Negative	678	291	2415	114
PID26	65	Male	B	Unknown	Negative	800	206	Unknown	Unknown
PID27	57	Female	B	Mutated	Negative	1228	322	Unknown	Unknown
PID28	77	Female	A	Unmutated	Negative	527	188	2884	90
PID29	60	Male	A	Unknown	Unknown	1554	628	3921	900
PID30	52	Male	B	Mutated	Unknown	3073	898	10,616	4028
PID31	59	Male	A	Mutated	Negative	Unknown	Unknown	4505	1201
PID32	53	Male	A	Unknown	Unknown	2555	636	Unknown	Unknown
PID33	52	Female	B	Unmutated	Negative	8561	3726	7865	3858
PID34	66	Male	A	Unmutated	Negative	3082	515	4096	1639
PID35	62	Male	C	Unknown	Negative	5976	1054	2586	477
PID36	60	Male	B	Unknown	Negative	8622	2181	7397	3037
PID37	81	Male	C	Mutated	Negative	4928	829	6488	2989
PID38	57	Male	B	Mutated	Negative	5298	1795	6748	3057
PID39	83	Male	C	Mutated	Negative	9530	3514	9570	5058
PID40	52	Male	A	Unmutated	Negative	3055	713	2603	962
PID41	66	Male	A	Unmutated	Negative	2003	219	3316	981
PID42	69	Male	A	Mutated	Negative	3412	282	3470	851
PID43	53	Male	B	Unmutated	Negative	1992	245	8922	3750
PID44	63	Female	A	Unmutated	Negative	4393	1200	8954	4,276
PID45	60	Male	A	Unmutated	Negative	8816	1738	10,392	5780
PID46	70	Female	A	Mutated	Negative	7539	1178	7016	2782
PID47	71	Male	B	Unmutated	Negative	4558	688	4272	1282
PID48	39	Male	A	Unmutated	Negative	2696	357	4524	1693
PID49	60	Female	A	Mutated	Negative	3608	699	7258	3986
PID50	58	Male	B	Mutated	Negative	Unknown	Unknown	4584	1476
PID51	77	Female	C	Unmutated	Positive	Unknown	Unknown	5343	2086
PID52	65	Female	A	Unmutated	Positive	Unknown	Unknown	6233	1816
PID53	Unknown	Female	B	Unmutated	Negative	1186	178	1264	372
PID54	Unknown	Male	B	Unknown	Negative	2490	319	2569	899
PID55	Unknown	Male	C	Mutated	Negative	3002	415	4246	1364
PID56	Unknown	Female	B	Mutated	Negative	2877	350	4490	1749
PID57	Unknown	Male	A	Unmutated	Negative	5292	1746	5673	2553

Abbreviation: PID, patient ID