

Figure S1 Hematoxylin-eosin and immunohistochemical staining results for the patients. (A,B) Hematoxylin-eosin staining of the biopsy showed the presence of “starry sky” phenomenon (scale bar: 1,000 μm for A and 40 μm for B). (C-I) Immunohistochemical staining results (scale bar: 40 μm) for P53 (C), Bcl-2 (D), Bcl-6 (E), CD5 (F), CD20 (G), c-Myc (H), and Ki-67 (I). Bcl-2, B-cell lymphoma 2 protein; Bcl-6, B-cell lymphoma 6 protein; P53, tumor protein 53.

Table S1 Detailed description of the mutations

Sample type	TMB (Muts/Mb)	Gene	Mutation type	cHGVS	pHGVS	Exon	Variant allele frequency	Transcriptome
Bronchoalveolar lavage	0.36	<i>VEGFA</i>	Deletion	c.19_22delGACA	p.D7Pfs*45	EX1	0.91%	NM_001025366.2
		<i>PRSS1</i>	SNV	c.637G>A	p.V213I	EX5E	2.83%	NM_002769.4
		<i>ARID1A</i>	Deletion	c.492_494delICGC	p.A167del	EX1	0.63%	NM_006015.4
Tissue	6.45	<i>MYD88</i>	SNV	c.794T>C	p.L265P	EX5E	23.56%	NM_002468.4
		<i>PRDM1</i>	Duplication	c.251_260dupCAAGGAATCT	p.L88Kfs*12	EX2	27.91%	NM_001198.3
		<i>CDKN2A/CDKN2B-AS1</i>	Gene fusion	N/A	N/A	IVS1-IVS1	63.48%	NM_000077.4-NR_003529.3
		<i>B2M</i>	SNV	c.345G>A	p.W115*	EX2	24.85%	NM_004048.2
		<i>ETV6</i>	SNV	c.33G>C	p.K11N	EX1	24.65%	NM_001987.4
		<i>PIM1</i>	SNV	c.4C>T	p.L2F	EX1	22.35%	NM_002648.3
		<i>CD79B</i>	SNV	c.589T>C	p.Y197H	EX5	22.04%	NM_001039933.1
		<i>RYR2</i>	SNV	c.3999C>A	p.D1333E	EX31	21.82%	NM_001035.2
		<i>PIM1</i>	SNV	c.72G>C	p.K24N	EX1	21.58%	NM_002648.3
		<i>PIM1</i>	SNV	c.68C>G	p.T23S	EX1	21.36%	NM_002648.3
		<i>FAT1</i>	SNV	c.12425G>A	p.C4142Y	EX25	20.74%	NM_005245.3
		<i>TAF1L</i>	SNV	c.3808C>A	p.P1270T	EX1E	18.27%	NM_153809.2
		<i>ATRX</i>	SNV	c.1397G>T	p.R466I	EX9	18.02%	NM_000489.3
		<i>ETV6</i>	SNV	c.16G>A	p.A6T	EX1	17.84%	NM_001987.4
		<i>BCL2</i>	SNV	c.10G>A	p.A4T	EX2	17.54%	NM_000633.2
<i>RYR2</i>	SNV	c.11522G>A	p.R3841Q	EX85	16.12%	NM_001035.2		
<i>ZMYM3</i>	SNV	c.1025C>A	p.T342N	EX5	16.04%	NM_201599.2		

TMB, tumor mutation burden; Muts, mutations; cHGVS, nucleic acid Human Genome Variation Society; pHGVS, protein Human Genome Variation Society; *VEGFA*, vascular endothelial growth factor A; *PRSS1*, serine protease 1; SNV, single nucleotide variant; *ARID1A*, AT-rich interactive domain-containing protein 1A; *MYD88*, myeloid differentiation primary response 88; *PRDM1*, PR domain zinc finger protein 1; *CDKN2A-CDKN2B-AS1*, the gene fusion cyclin dependent kinase inhibitor 2A-cyclin dependent kinase inhibitor 2B antisense RNA 1; N/A, not applicable; *B2M*, beta-2-microglobulin; *ETV6*, ETS variant transcription factor 6; *PIM1*, proviral integration of Moloney virus 1; *CD79B*, cluster of differentiation 79B; *RYR2*, ryanodine receptor 2; *FAT1*, FAT atypical cadherin 1; *TAF1L*, TATA-box binding protein associated factor 1 like; *ATRX*, X-linked alpha thalassemia mental retardation; *BCL2*, B-cell lymphoma 2; *ZMYM3*, zinc finger MYM-type containing 3.

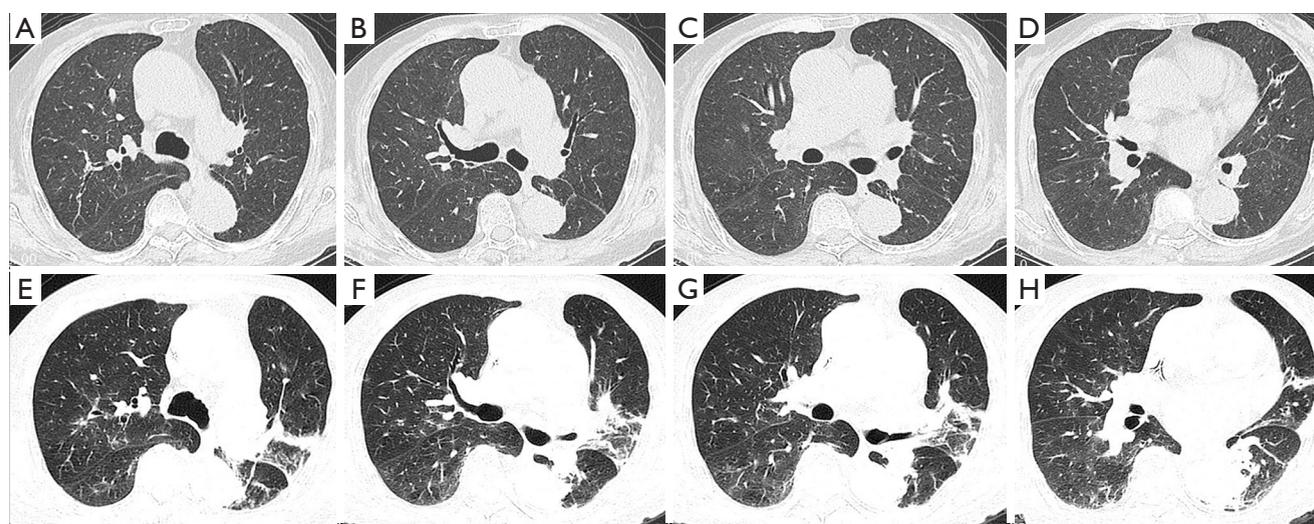


Figure S2 CT of the lung for the patient. (A-D) CT after toripalimab and rituximab treatment in March 2023. (E-H) CT of progressive disease in June 2023. CT, computed tomography.