Supplementary File 2. Genetic landscape of genes altered in the analyzed clinical series.

The majority of genetic tests were performed using the Next Generation Sequencing Technique (NGS), specifically employing the FoundationOne CDx® panel (accessed via https://www.accessdata.fda.gov/cdrh_docs/pdf17/P170019S006C.pdf, last accessed on September 15, 2023). Only a minor subset (6 patients) underwent testing with alternative gene panels (TSO500®, Oncomine Solid Tumour DNA kit®), which were complemented by targeted methodologies to investigate additional disease-specific genetic alterations, such as IDH1/2 mutations and FGFR2 fusions. Some of these tests also served as screening for potential enrollment in clinical studies. The data from these patients are clearly anonymized, and we are not authorized to disclose the specific mutations found to avoid violating strict requirements on data security, sharing, and patient consent. Some of these restrictions are also related to intellectual property and commercial interests. In essence, specific findings, such as rare mutations or pathogenic mutations, have the potential to jeopardize intellectual or commercial interests when exposed to competitors or the public. This occurs in this retrospective study due to the lack of a predetermined plan for genetic testing and its unequivocal and focused utilization toward a specific objective. As a result, a judicious balance has been achieved between scientific information and data dissemination by exclusively presenting three categories of alterations (mutation, amplification, loss), as agreed upon with the companies involved. The information provided, although summarized, illustrative, and aggregated, remains clinically relevant and actionable.
In summary, while the sharing of genetic data from oncology patients is valuable for advancing research and personalized medicine, various factors, including privacy concerns, legal obligations, and commercial interests, particularly in retrospective and multicentric studies, can limit the extent to which such data is disseminated in specific, detailed, and non-aggregated forms. Balancing these considerations is essential to ensure that the potential benefits of data sharing are realized while safeguarding patient rights and data integrity.

In a green background, the genes that have been altered in more than three patients are highlighted.

Acronym	Full name	No. of patients
ACVR1B	Activin A Receptor Type 1B	
	Mutation	1
ALK	Anaplastic Lymphoma Kinase	
	Mutation	2
ARID1A	AT-rich interaction domain 1A	
	Mutation	9
AKT2	AKT Serine/Threonine Kinase 2	
	Amplification	1
ASXL1	Additional Sex Combs Like 1	
	Mutation	2
AXL	Anexelecto	
	Amplification	1
	Mutation	1
ATM	Ataxia Telangiectasia Mutated	
	Mutation	1
BAP1	BRCA1-associated protein 1	
	Mutation	5
BCL2L1	BCL2-Like 1	
	Amplification	1
BCOR	BCL6 Corepressor	
	Mutation	1
BCORL1	BCL6 Corepressor Like 1	
	Mutation	1

BRAF	v-raf murine sarcoma viral oncogene homolog B1	
	Mutation	2
BRCA1	BReast CAncer gene 1	
	Mutation	2
BRIP1	BRCA1-Interacting Protein 1	
	Mutation	1
CCNE1	Cyclin E1	
	Amplification	1
CCND1	Cyclin D1	
	Amplification	2
CDKN2A	Cyclin-dependent kinase inhibitor 2A	
	Loss	6
	Mutation	2
CDKN2B	Cyclin-dependent kinase inhibitor 2B	
	Loss	6
CDK12	Cyclin-dependent kinase 12	
	Amplification	1
CDK6	Cyclin-dependent kinase 6	
	Amplification	1
CEBPA	CCAAT/enhancer-binding protein alpha	
	Amplification	1
CSF3R	Colony-stimulating factor 3 receptor	
	Mutation	1
CTNNB1	Catenin Beta 1	
	Mutation	1
EMSY	BRCA2-interacting transcriptional repressor	
	Mutation	1
EP300	E1A-binding protein p300	
	Mutation	1
EPHA3	Ephrin type-A receptor 3	
	Amplification	1
EPHB4	Ephrin receptor B4	
	Mutation	1
	Amplification	1
ERBB3	Erb-B2 receptor tyrosine kinase 3	
	Mutation	1
EZH2	Enhancer of zeste homolog 2	
	Mutation	1
FGFR2	Fibroblast growth factor receptor 2	
	Mutation	1
	Fusion	4
	FGFR2-INA	2
	FGFR2- KIAA1598	1
	FGFR2-BICC1	1
FGF3	Fibroblast growth factor 3	
	Amplification	2
FGF4	Fibroblast growth factor 4	
	Amplification	2
FGF10	Fibroblast growth factor 10	
	Amplification	1
FGF19	Fibroblast growth factor 19	
	Amplification	2
FLCN	Folliculin	
	Mutation	1
GNAS	Guanine Nucleotide-Binding Protein G(s) Alpha Subunit	
	Mutation	1

GPC3	Glypican 3	
	Mutation	1
HER2	Human epidermal growth factor receptor 2	
	Amplification	2
	Mutation	1
HGF	Hepatocyte Growth Factor	
	Amplification	1
IDH1/2	Isocitrate dehydrogenase 1/2	
	Mutation	3
IFNGR1	Interferon Gamma Receptor 1	
	Mutation	1
IRF4	Interferon Regulatory Factor 4	
	Mutation	1
JAK1	Janus Kinase 1	
	Mutation	1
JAK2	Janus Kinase 2	
	Mutation	1
KDM6A	Lysine Demethylase 6A	
	Loss	1
KDR	Kinase Insert Domain Receptor	
	Mutation	1
KRAS	Kirsten rat sarcoma viral oncogene homolog	
	Mutation	6
LRP1B	Low-Density Lipoprotein Receptor-Related Protein 1B	
	Mutation	1
LYN	Lck/Yes-Related Novel Protein Tyrosine Kinase	
	Amplification	1
MAP2K4	Mitogen-Activated Protein Kinase Kinase 4	
	Loss	1
MDM2	Mouse Double Minute 2 Homolog	
	Amplification	2
MERTK	MER Proto-Oncogene, Tyrosine Kinase	
	Mutation	1
MITF	Microphthalmia-Associated Transcription Factor	
	Mutation	1
MLH1	MutL Homolog 1	
	Loss	1
MLL	Mixed Lineage Leukemia	
	Mutation	2
MLL2	Mixed Lineage Leukemia 2	
	Mutation	1
MST1R	Macrophage Stimulating 1 Receptor	
	Mutation	1
MTAP	Methylthioadenosine Phosphorylase	
	Loss	3
MTOR	Mechanistic Target of Rapamycin (serine/threonine kinase)	
	Mutation	1
MUTYH	MutY DNA Glycosylase	
	Mutation	1
MYC	Myelocytomatosis oncogene	
	Amplification	1
NF1	Neurofibromin 1	
	Mutation	3
NF2	Neurofibromin 2	
	Loss	1
NOTCH1	Neurogenic Locus Notch Homolog Protein 1	

	Mutation	1
NOTCH3	Neurogenic Locus Notch Homolog Protein 3	
	Mutation	1
NRAS	Neuroblastoma RAS Viral Oncogene Homolog	
	Mutation	1
	Amplification	1
PARP1	Poly(ADP-ribose) Polymerase 1	
	Mutation	1
PBRM1	Polybromo 1	
	Mutation	2
PIK3CA	Phosphatidylinotitol 3-kinase catalytic subunit alpha	
	Mutation	1
PDCD1LG2	Programmed Cell Death 1 Ligand 2	
	Mutation	1
PDGFRA	Platelet-Derived Growth Factor Receptor alpha	
	Mutation	1
PDGFRB	Platelet-Derived Growth Factor Receptor Beta	
	Mutation	1
PDK1	3-Phosphoinositide-Dependent Protein Kinase 1	
	Mutation	1
PMS2	PMS1 Homolog 2	
	Mutation	1
PTEN	Phosphatase and Tensin Homolog	
	Mutation	1
PPP2R1A	Protein phosphatase 2regulatorysubunitA	
	Mutation	1
RAD21	RAD21 Cohesin Complex Component	
	Mutation	1
	Amplification	1
RB1	Retinoblastoma Protein 1	
	Mutation	3
RBM10	RNA Binding Motif Protein 10	
	Mutation	1
RET	Rearranged During Transfection	
	Fusion	
	RET-GPHN fusion	1
RICTOR	Rapamycin-Insensitive Companion of mTOR	
	Mutation	1
	Amplification	1
RNF43	Ring Finger Protein 43	
	Mutation	2
SF3B1	Splicing Factor 3B Subunit 1	
	Mutation	1
SMAD4	Mothers against decapentaplegic homolog 4	
	Mutation	2
	Loss	1
SMARCA4	SWI/SNF-Related Matrix-Associated Actin-Dependent Regulator of Chromatin Subfamily A Member 4	
	Mutation	1
SPEN	Spen Family Transcriptional Repressor	
	Mutation	1
TERT	Telomerase Reverse Transcriptase	
	Mutation	1
TET2	Tet Methylcytosine Dioxygenase 2	
	Mutation	1
TGFBR2	Transforming Growth Factor Beta Receptor 2	

	Mutation	1
TP53	Tumor protein 53	
	Mutation	8
	Loss	1
ZNF703	Zinc Finger Protein 703	
	Amplification	1
WHSC1L1	Wolf-Hirschhorn Syndrome Candidate 1-Like 1	
	Amplification	1