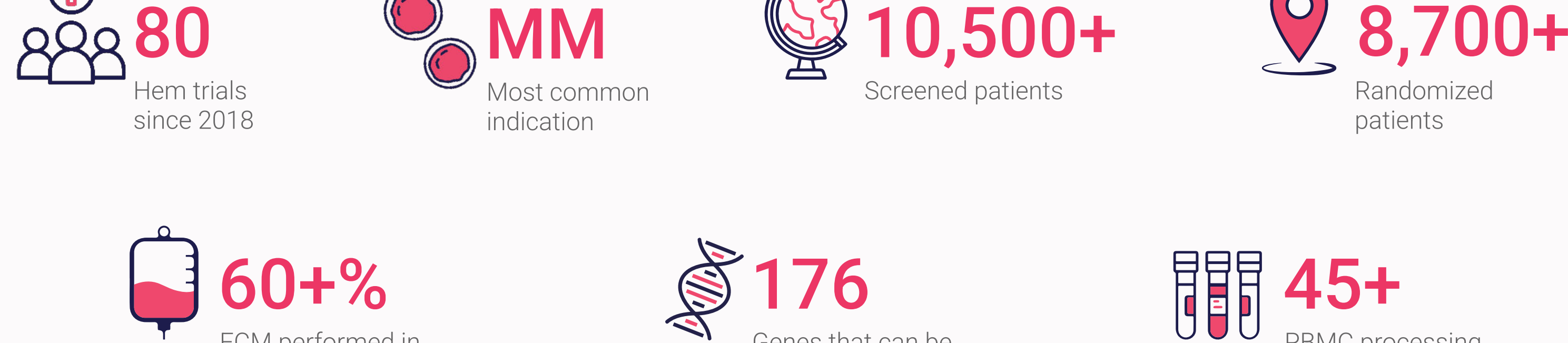


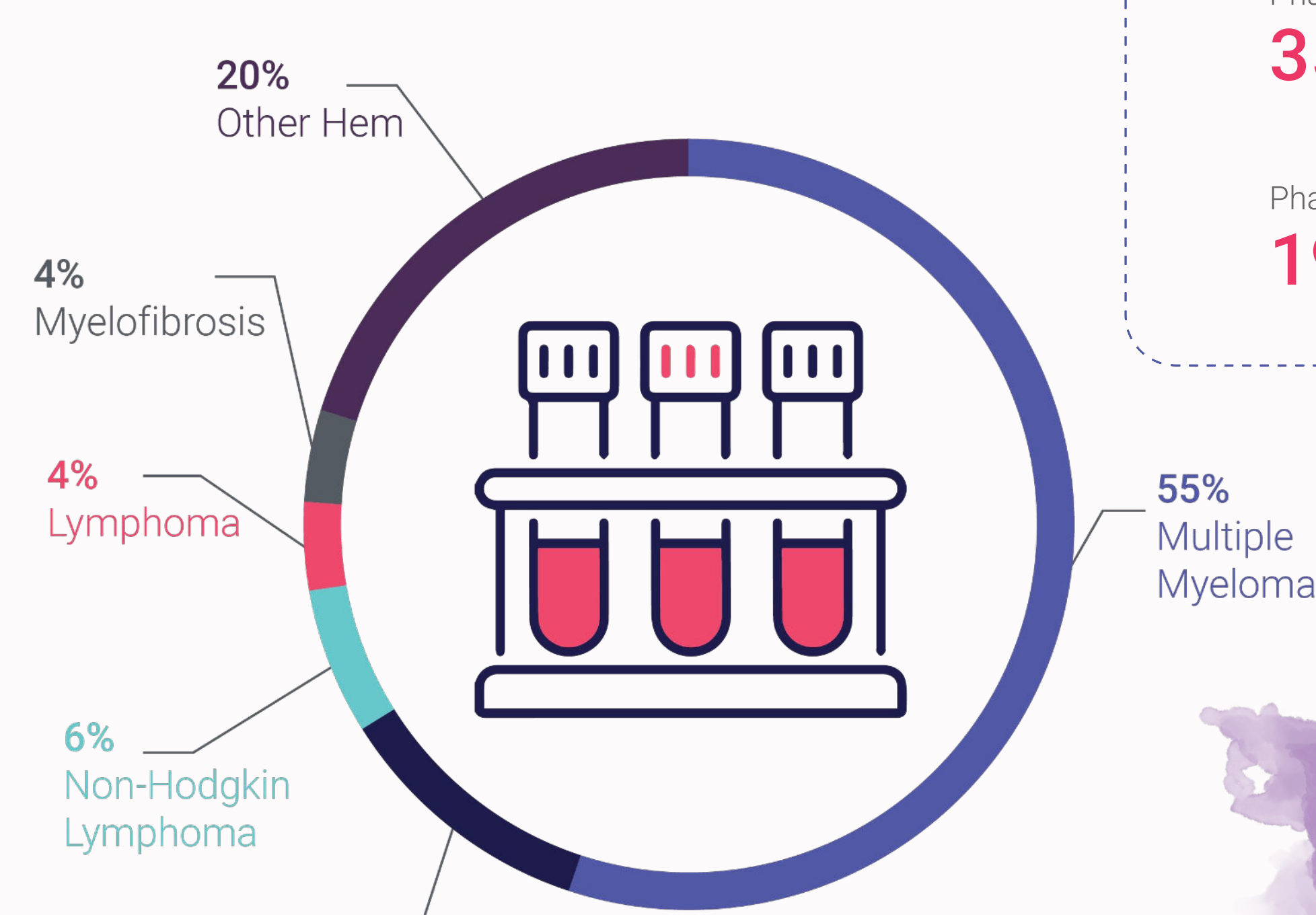
Discover Our Hematological Malignancies Trial Portfolio With Cutting-edge Laboratory Solutions

Cerba Research has conducted ~80 hematological malignancy trials within the last 5 years alone. The laboratory's expertise often focuses on the use of state-of-the-art specialty assays such as FCM, NGS, 250+ IHC protocols, and more. Our therapy class experience is often comprised of cell & gene therapies, where we partnered with sponsors for the market authorization of 3 chimeric antigen receptor (CAR) T cell therapies.

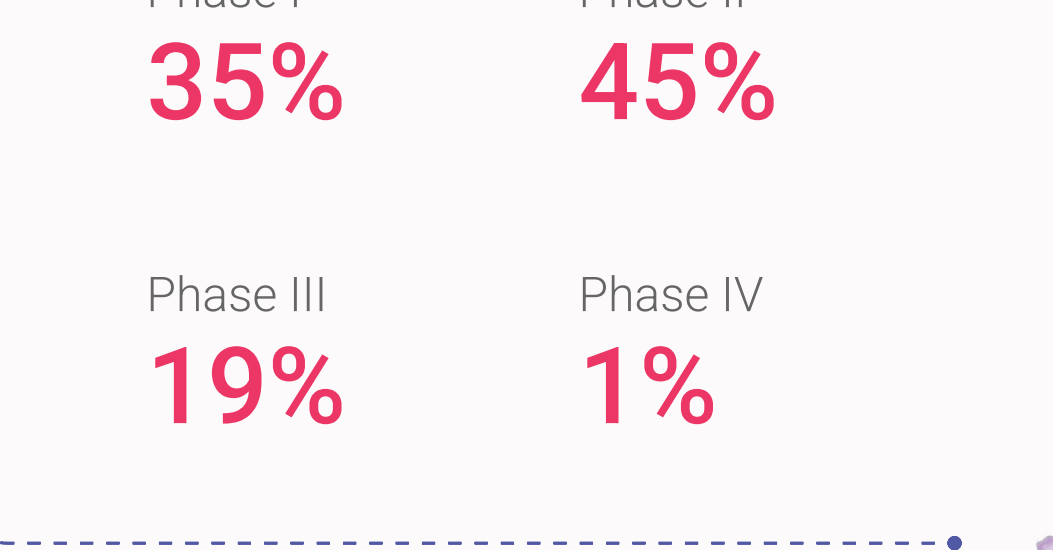
Our Track Record



Cerba Research Hematological Malignancy Indications

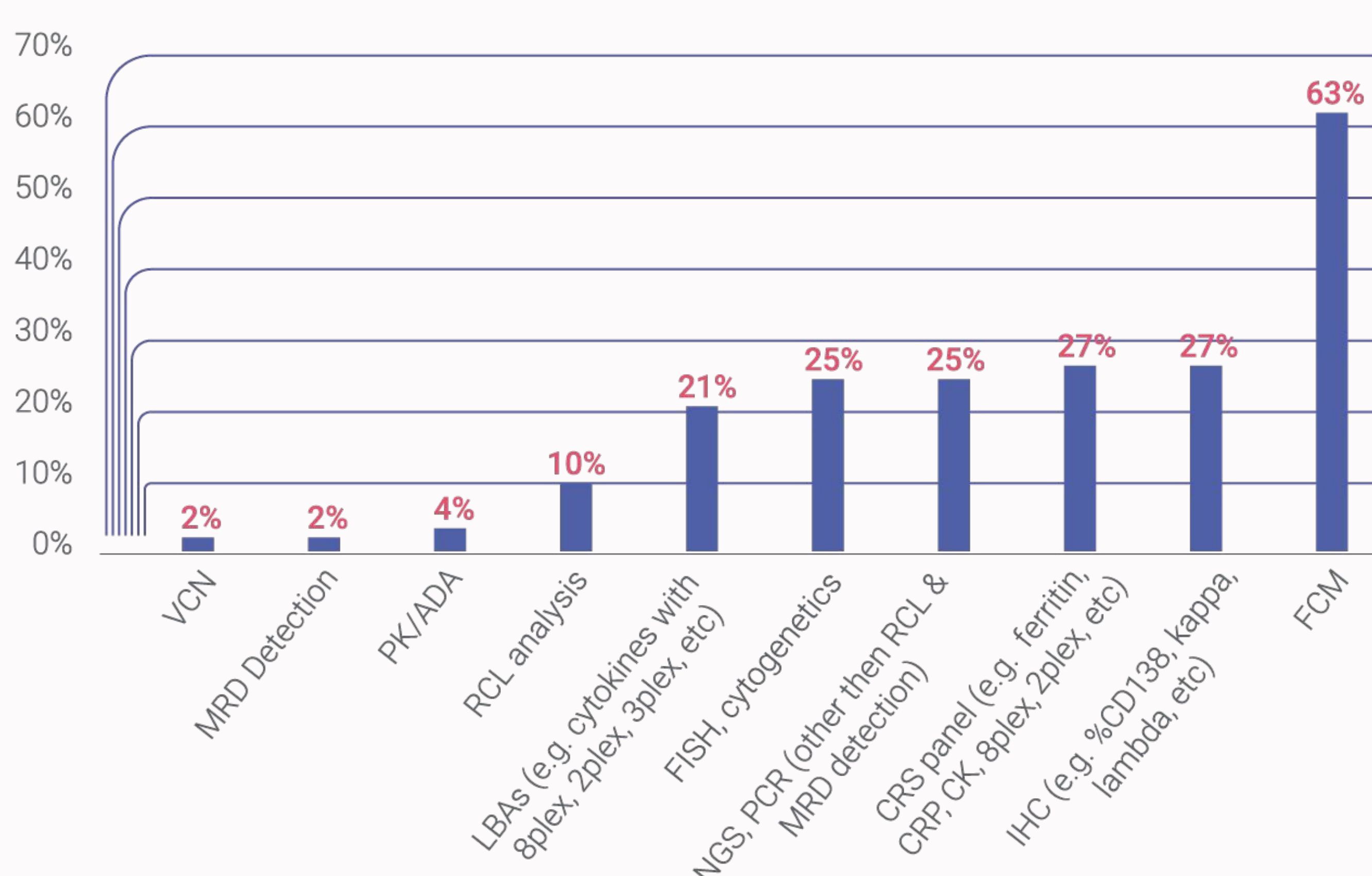


Clinical Trial Phases Overview

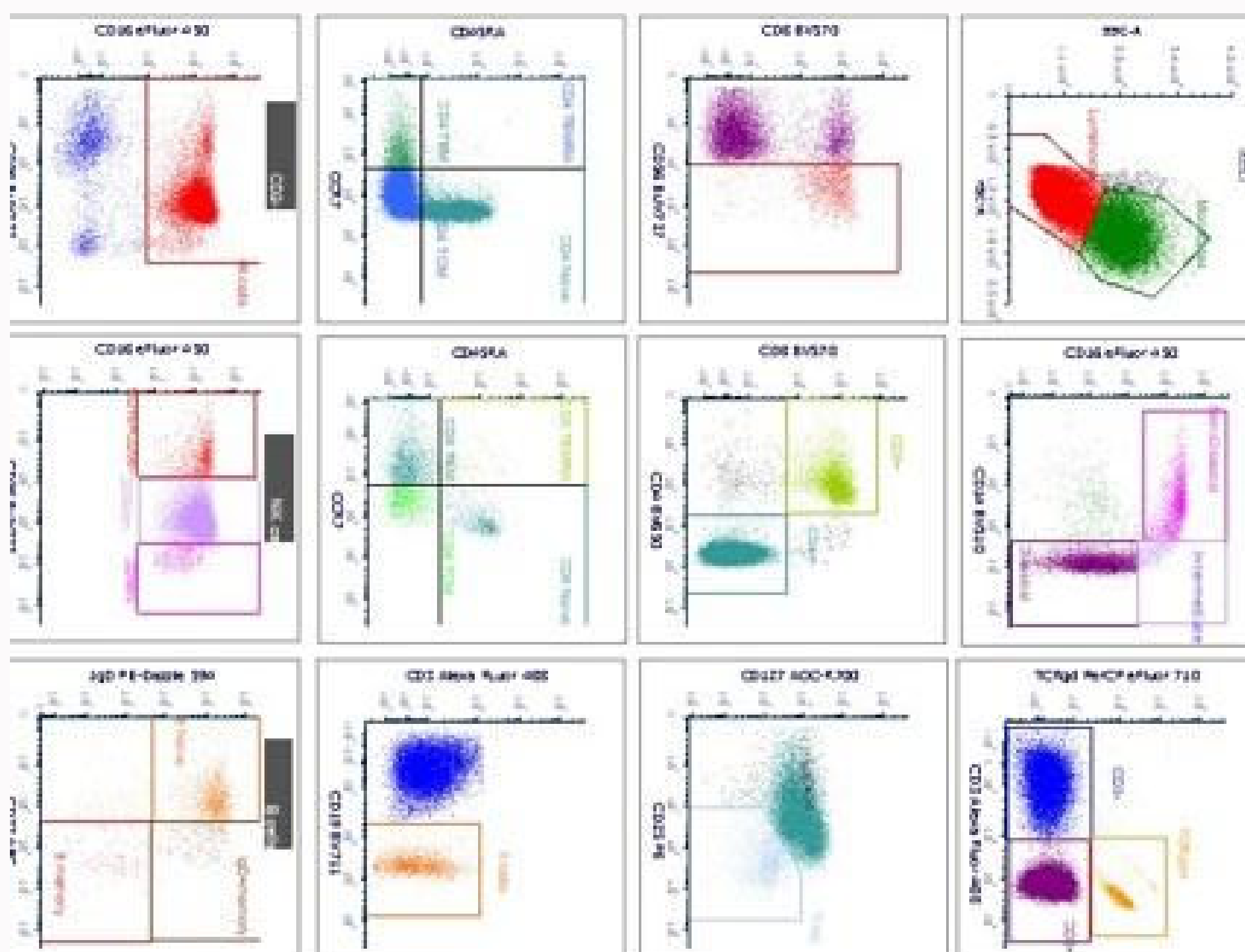


In-House Downstream Applications

Specialty Testings Mapped Against Cerba Research Hematological Malignancy Trials Since 2018



Flow Cytometry Expertise & Custom Solutions



Custom Solutions

- Customized assay design
- Fit-for-purpose validation (CLSI H62)
- Customized data analysis strategy

Assays

- Expertise in assay development to:
 - Monitor immunophenotyping and cell activation
 - Evaluate receptor occupancy of a drug
 - Monitor and characterize CAR T cells
 - Detect intracellular cytokine (ICS) production
- Matrix: PBMC (fresh and cryopreserved), blood and BMA

Expertise

- Scientists with extensive expertise in:
 - Panel design
 - Assay development
 - Assay validation
 - Data analysis
 - High-dimensional FCM

Global Footprint

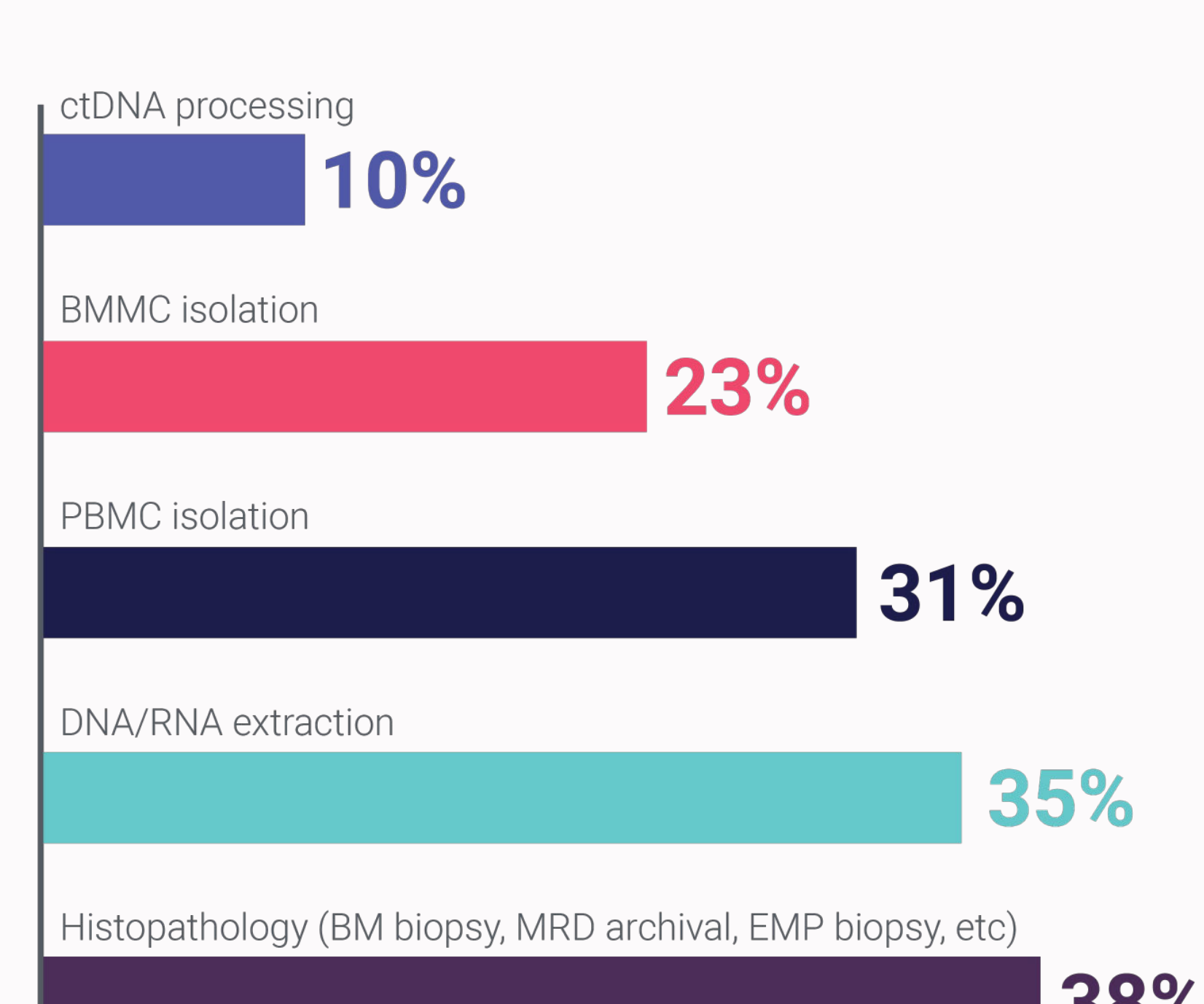
- Global FCM capability
- Standardized assays through:
 - SOPs
 - Validation process
 - Assay transfer
 - Instrument platform
- Centralized data analysis and data review

Cerba NGS Extended Panel For Hematological Malignancies (176 Genes)

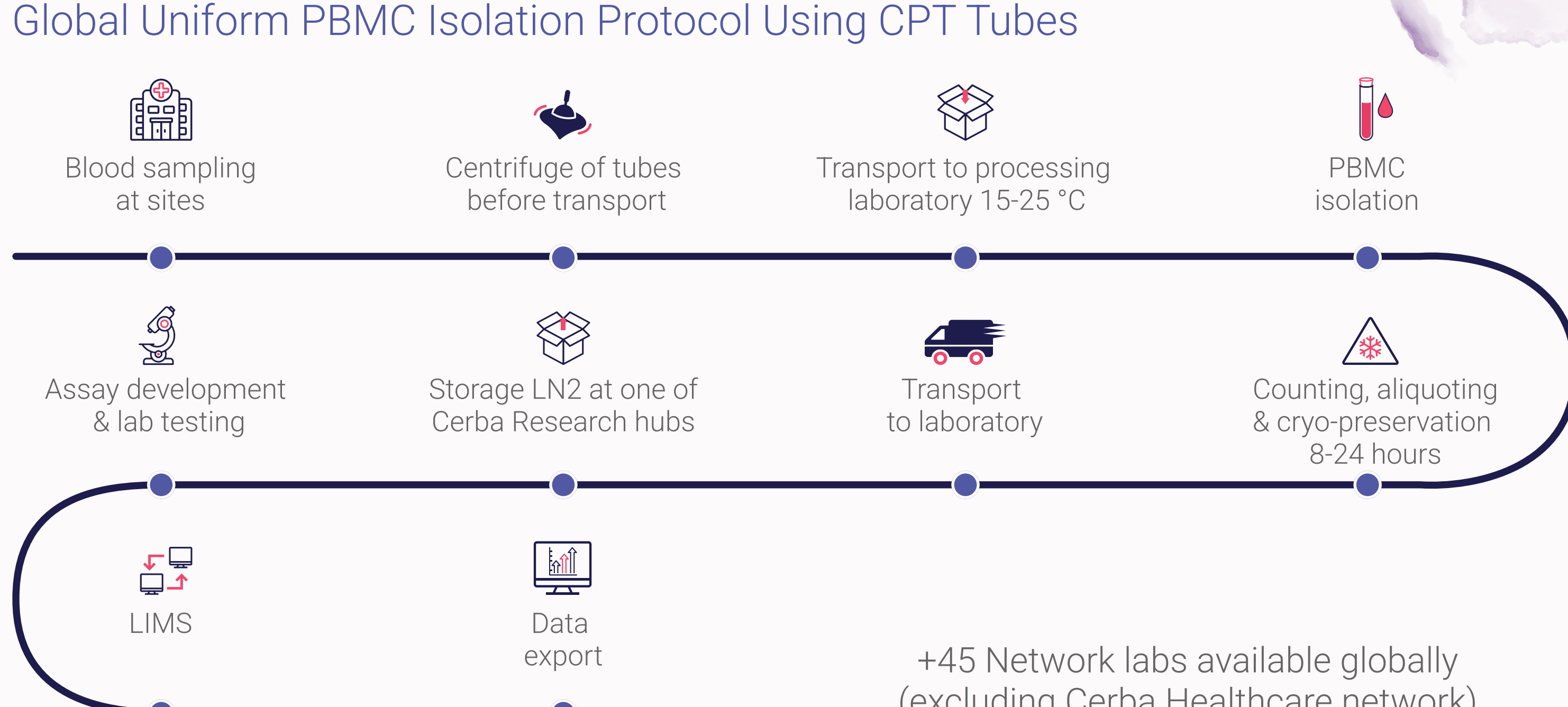
ABL1	CARD11	CSF3R	FOXO1	IL6R	NFE2	PLCG2	SAMD9L	TERT
AKT1	CBL	CSNK1A1	FUBP1	IL7R	NFKB2	POT1	SAMHD1	TET2
AKT2	CCND1	CUL4A	GATA1	IL7R	NFKB2	PPM1D	SETBP1	TGFBR2
AKT3	CCND2	CUL4B	GATA2	IRF4	NFKBIA	PRDM1	SF3B1	TLR4
ANKRD26	CD28	CUX1	GATA3	JAK1	NOTCH1	PRPF8	SH2B3	TNFAIP3
ARID1A	CD37	CUX2	GNA13	JAK2	NOTCH2	PSMA1	SMARCA4	TP53
ASXL1	CD38	CXCR4	GNAS	JAK3	NPM1	PSMB5	SMC1A	TRAF2
ASXL2	CD58	CYLD	GNB1	KDM6A	NR3C1	PSMD1	SOC3	TRAF3
ATM	CD79A	DDX41	GRB2	KIT	NRAS	PSMG2	SOC1	UBA1
ATR	CD79B	DHX34	HRAS	KLF2	NSD2	PTEN	SPI1	U2AF1
ATR	CDK4	DIS3	ID3	KMT2A	PAX5	PTPN11	SRP72	UBA1
ATR	CDK7	DNMT3A	IDH1	KMT2D	PHF6	PTPRD	SRSF2	WT1
B2M	CDKN1B	EGFR	IDH2	KRAS	PIK3CA	RAD21	STAG2	XBP1
BCL2	CDKN2A	EGR2	IDH3A	MAP2K1	PIK3CG	RB1	STAT3	XPO1
BCOR	CDKN2B	EP300	IFNGR2	MAX	PIK3R1	RHOA	STAT5B	ZBTB7A
BCORL1	CEBPA	ETNK1	IGF1R	MBD4	PIK3R2	RIT1	STAT6	ZRSR2
BIRC2	CHD2	ETV6	IGLL5	MED2	PIM1	RPL10	SUZ12	
BIRC3	CHEK2	EZH2	IKZF1	MPL	PIM2	RTEL1	TCF3	
BRAF	CRBN	FBXW7	IKZF3	MYC	PIM3	RUNX1	TENT5C	
BTK	CREBBP	FGFR3	IL2RG	MYD88	PLCG1	SAMD9	TERC	
CALR	CRLF2	FLT3	IL6	NF1				

In-house Downstream Applications

Pre-analytical Capabilities Mapped Against Cerba Research Hematological Malignancy Trials Since 2018



Global Uniform PBMC Isolation Protocol Using CPT Tubes



A Cerba Research Capabilities Snapshot For Your Hematological Malignancy Trial

DNA/RNA

- NGS, broad panels, custom panels
- Single-gene
- ctDNA-based panels
- ddPCR, qPCR
- Whole exome/whole genome
- SNP-array
- DNA/RNA extraction
- Qiamp kits
- MRD by NGS needs validation
- ...

Cell

- FCM
- Cytte Aurora
- Immunophenotyping (including intra-cell markers)
- Receptor occupancy
- MRD detection (EuroFlow)
- PBMC isolation
- BMMC isolation
- Optical genome mapping, our next-generation cytogenetics
- PK/ADA/Nab
- ...

Routine

- Coagulation
- Hematology
- Biochemistry
- Urinalysis
- Pregnancy test
- COVID test
- Serology
- Thyroid function
- HbA1c
- sPEP, uPEP
- sFLC
- ...

Protein

- Multiplex cytokine profiling (37-plex)
- 50+ ligand binding assays
- ELISA
- ELLA
- MSD
- ELISpot
- PK/ADA/Nab
- ...

Tissue

- Multiplex/simplex IHC
- 250+ biomarkers/protocols
- Full histopath service
- Halo®, Visiopharm®
- Board certified pathologists
- Large biobank
- Strong I/O simplex & multiplex panels
- Spatial analysis of the tumor microenvironment
- NanoString® GeoMX, FISH, ISH
- ...

Acronyms

ADA: Antibody-drug antibody, **BCR:** B cell receptor, **BM:** Bone marrow, **BMA:** Bone marrow aspiration, **BMMC:** Bone marrow mononuclear cells, **CAR T:** Chimeric antigen receptor T cell, **CK:** Cytokine, **CLSI:** Clinical and laboratory standards institute, **CRP:** C-reactive protein, **CRS:** Cytokine release syndrome, **ctDNA:** Circulating tumor DNA, **ddPCR:** Droplet digital polymerase chain reaction, **DNA:** Deoxyribonucleic acid, **ELISA:** Enzyme-linked immunosorbent assay, **FCM:** Flow cytometry, **FISH:** Fluorescence *in situ* hybridization, **HbA1C:** Hemoglobin A1c, **Hem:** Hematological malignancies, **HLA:** Human leukocyte antigens, **I/O:** Immuno-oncology, **IHC:** Immunohistochemistry, **ISH:** *In situ* hybridization, **LIMS:** Laboratory information management systems, **LBAs:** Ligand-binding assays, **MM:** Multiple myeloma, **MRD:** Minimal residual disease, **MSD:** Mesoscale discovery, **Nab:** Neutralizing antibody, **NGS:** Next-generation sequencing, **PBMC:** Peripheral blood mononuclear cells, **PK:** Pharmacokinetics, **QC:** Quality control, **qPCR:** Quantitative polymerase chain reaction, **RCL:** Replication-competent lentivirus, **RNA:** Ribonucleic acid, **sFLC:** Serum free light chain, **SNP:** Single nucleotide polymorphism, **SOP:** Standard operating procedure, **sPEP:** Serum protein electrophoresis, **TCR:** T cell receptor, **uPEP:** Urine protein electrophoresis.