CYPRUS ORGANIZATION FOR THE PROMOTION OF QUALITY
CYPRUS ACCREDITATION BODY

ACCREDITATION CERTIFICATE no. L088-2

The Board of Governors
of the Cyprus Organization for the Promotion of Quality,
the National Accreditation Body,
in accordance with the Article 7 of the Law 156(I)/2002

GRANTS ACCREDITATION to

LABORATORIES of
THE KARAISKAKIO FOUNDATION

in Nicosia

The Departments/Laboratories shown in annexes were assessed according to the Accreditation Criteria for Medical Laboratories, as defined in the Standard

CYS EN ISO 15189:2012

and were found technically competent to carry out the **Tests** included in the Scope of Accreditation which is described in the **Annexes** to this Certificate and is an **integrated part of it. The Scope of Accreditation** can change only after approval from the Cyprus Accreditation Body.

The current Accreditation Certificate, no. **L088-2**, **is issued on the 26th February 2024 and is valid until the 19th September 2024.**

Accreditation was awarded for the first time on the 20th September 2016.

Antonis Ioannou
Director

Date: **26th February 2024**

This laboratory is accredited in accordance with the recognised International Standard ISO 15189:2012. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management System (ISO-ILAC-IAF Communiqué, January 2015).

Annex

to the Accreditation Certificate no. L088-2 (CG)

THE KARAISKAKIO FOUNDATION LABORATORIES CYTOGENOMICS (CG)

*** Valid as from the 19th May 2023 until the 19th September 2024.

Materials/ Products	Types of Tests	Methods applied/ Technical fields
Peripheral Blood, Bone Marrow	Interphase Fluorescence in situ hybridization ("FISH")	Interphase FISH using enumeration, break apart and fusion probes (CE-IVD). Hybridization Detection and Analysis using ThermoBrite Hybridization Machine and GenASIs Scan and Analysis System.
Peripheral Blood, Bone Marrow or Tissue	Analysis for copy number changes	CGH array protocol by Agilent. DNA labeling, hybridization, scanning, interpretation. MS 200 NimbleGen Scanner Agilent Cytogenomics Software
Peripheral Blood, Bone Marrow	***Optical genome mapping and structural variation detection - Molecular Karyotyping	Saphyr BioNano Genomics

Authorised persons to sign the test reports are Dr Paul Costeas or Dr Jason Chi.

Annex

to the Accreditation Certificate no. L088-2 (MH)

SCOPE OF ACCREDITATION

for

THE KARAISKAKIO FOUNDATION LABORATORIES MOLECULAR HAEMATOLOGY-ONCOLOGY (MH)

*Valid as from the 1st April 2021 until the 19th September 2024.
** Valid as from the 31st March 2022 until the 19th September 2024.
*** Valid as from the 19th May 2023 until the 19th September 2024.
**** Valid as from the 26th February 2024 until the 19th September 2024.

Materials /Products	Types of examinations	Methods applied / Technical fields
Peripheral Blood, Bone Marrow or Tissue	"Sample Processing" for nucleic acid extraction and storage, storage of stabilized cells.	In House Protocol: FBC (***Sysmex), Erythrocyte lysis, DNA and RNA extraction (QIAGEN QIAcube, MagCore), RNAlater (QIAGEN)
Peripheral Blood, Bone Marrow	Detection of fusion transcripts associated with different types of haematological malignancies. del1(p32) (STIL-TAL1), t(1;11) (p32;q23) (MLL-EPS15), (1;11) (q21;q23) (MLL-MLLT11), t(1;19) (q23;p13) (TCF3-PBX1), t(3;5) (q25;q34) (NPM1-MLF1), t(3;21) (q26;q22) (RUNX1-MECOM), t(4;11) (q21;q23) (MLL-AFF1), t(5;12) (q33;p13) (ETV6-PDGFRB), t(5;17) (q35;q21) (NPM1-RARA), t(6;9) (p23;q34) (DEK-NUP214), t(6;11) (q27;q23) (MLL-MLLT4), t(8;21) (q22;q22) (RUNX1-RUNX1T1), t(9;9) (q34;q34) (SET-NUP214), t(9;11) (p22;q23) (MLL-MLLT3), t(9;12) (q34;p13) (ETV6-ABL1), t(9,22) (q34;q11) (BCR-ABL1), t(10;11) (p12;q23) (MLL-MLLT10), t(11;17) (q23;q21) (MLL-MLLT6), t(11;17) (q23;q21) (ZBTB16-RARA), t(11;19) (q23;p13.1) (MLL-ELL), t(11;19) (q23;p13.3) (MLL-MLLT1), t(12;21) (p13;q22) (ETV6-RUNX1), t(12;22) (p13;q11) (ETV6-MN1), t(15;17) (q24;q21) (PML-RARA), inv(16) (p13;q22) (CBFB-MYH11), t(16;21) (p11;q22) (FUS-ERG), t(17;19) (q22;p13) (TCF3-HLF), t(X;11) (q13;q23) (MLL-FOXO4)	Hemavision Screen (CE-IVD): Tandem nested multiplex RT-PCR and electrophoresis
Peripheral Blood, Bone Marrow	Detection of Minimum Residual Disease by fusion gene transcripts: ratio to control gene transcript. (t(1;19)(q23;p13) E2A-PBX1, t(4;11)(q21;q23) MLL-AF4, t(12;21)(p13;q22) TEL-AML1, t(9;22)(q34;q11) BCR-ABL m-bcr, t(9;22)(q34;q11) BCR-ABL M-bcr, del(1)(p32p32) SIL-TAL1, t(15;17)(q22;q21) PML-RARA, inv(16)(p13q22) CBFB-MYH11, t(8;21)(q22;q22) AML1-ETO)	In House Protocol, according to EAC Protocol: RT-qPCR, BioRad CFX96 Real Time System

Peripheral Blood, Bone Marrow or Tissue	Mutation detection (JAK2 p.V617F, c-KIT p.D816V, BRAF p.V600E, MYD88 p.L265P)	In House Protocol: Single tube semi-nested PCR, Allele Specific Oligonucleotide (ASO) priming, gel electrophoresis
Peripheral Blood, Bone Marrow	Mutation Screening (JAK2 exon 12, BCR-ABL kinase domain, TP53, Hemoglobin Alpha, Beta and Delta gene)	In House Protocol: PCR amplification, Sanger DNA Sequencing 3500XL Sequencer
Peripheral Blood, Bone Marrow	Indel Detection for FLT3 (ITD), CALR exon9	In House Protocol: PCR amplification, Agarose gel electrophoresis, (Confirmatory test: Fragment Separation and Analysis 3500XL Sequencer)
Peripheral Blood	Mutation Detection 1) CVD: FV G1691A (Leiden), FV H1299R (R2), Prothrombin G20210A, Factor XIII V34L, β-Fibrinogen -455 G-A, PAI-1 4G/5G, GPIIIa L33P (HPA-1), MTHFR C677T, MTHFR A1298C, ACE I/D, Apo B R3500Q, Apo E2/E3/E4 2) TPMT alleles #1, #2, #3A, #3B, #3C 3) Alpha-globin gene mutations: 3.7 single gene deletion, 4.2 single gene deletion, MED double gene deletion, SEA double gene deletion, THAI double gene deletion, FIL double gene deletion, 20.5 kb double gene deletion, anti-3.7 gene triplication, a1 cd 14 [TGG>TAG], a1 cd 59 [GGC>GAC] (Hb Adana), a2 init cd [ATG>ACG], a2 cd 19 [-G], a2 IVS1 [-5nt], a2 cd 59 [GGC>GAC], a2 cd 125 [CTG>CCG] (Hb Quong Sze), a2 cd 142 [TAA>CAA] (Hb Constant Spring), a2 cd 142 [TAA>AAA] (Hb Icaria), a2 cd 142 [TAA>TAT] (Hb Pakse), a2 cd 142 [TAA>TCA] (Hb Koya Dora), a2 poly A-1 [AATAAA-AATAAG], a2 poly A-2 [AATAAA-AATGAA]. 4) Beta-globin gene mutations: - 101 [C>T], - 87 [C>G], - 30 [T>A], codon 5 [-CT], codon 6 [G>A] HbC, codon 6 [A>T] HbS, codon 6 [-A], codon 8 [-AA], codon 8/9 [+G], codon 15 [TGG>TGA], codon 27 [G>T] Knossos, IVS 1.1 [G>A], IVS 1.5 [G>C], IVS 1.6 [T>C], IVS 1.110 [G>A], IVS 1.116 [T>G], IVS 1.130 [G>C], codon 39 [C>T], codon 44 [-C], IVS 2.1 [G>A], IVS 2.745 [C>G], IVS 2.848 [C>A] 5) CYP2C9 #2, #3	ViennaLab StripAssay SSO (CE-IVD) PCR array hybridization Auto-Lipa 1 & 2 (hybridization)
Peripheral Blood	****Cardiovascular disease panel CVD FV G1691A (Leiden), FV H1299R (R2), Prothrombin G20210A, Factor XIII V34L, β-Fibrinogen -455 G-A, PAI-1 4G/5G, GPIIIa L33P (HPA-1), MTHFR C677T, MTHFR A1298C, ACE I/D, Apo B R3500Q, Apo E2/E3/E4	NGS PerkinElmer NEXTflex Cardiovascular Disease Amplicon Panel

Peripheral Blood, Bone Marrow or Tissue	T Cell Receptor and Immunoglobulin Gene Rearrangement Assays to identifying clonal B-cell and T-cell populations	Invivoscribe Technologies' IdentiClone™ assays (CE-IVD), PCR Amplification, Fragment Separation and Analysis 3500XL Sequencer
Peripheral Blood, Bone Marrow	T Cell Receptor and Immunoglobulin rearrangements by NGS to identifying clonal B-cell and T-cell populations and IGHV somatic mutations	Invivoscribe LymphoTrack Dx (CE-IVD) Illumina Platform (NGS Sequencing, MiSeq 1 & 2) LymphoTrack Analysis Software
Peripheral Blood, Bone Marrow	MRD Detection in Lymphoid Malignancies using Patient Specific Immunoglobulin or T-Cell Receptor Allele Specific Oligonucleotide (ASO)-based Real-Time PCR	In house Protocol: ASO Primer Design, Real Time PCR BioRad CFX96 Real Time System
Peripheral Blood, Bone Marrow	**Chimerism detection of donor DNA component percentage in post-transplant sample	Devyser Chimerism Kit (CE-IVD) Illumina Platform (NGS Sequencing NextSeq 1000 & NextSeq 2000), ADVYSER for Chimerism software
Peripheral Blood, Bone Marrow or Tissue (Fresh or FFPE)	Detection of gene fusions, splicing or exon skipping in genes associated with Solid Tumors, Sarcomas, Thyroid and Lung Cancer, Myeloid Malignancies, Acute Lymphocytic Leukemia, Lymphomas and other Hematological Malignancies	Archer FusionPlex assay (Library Preparation) Illumina Platform (RNA NGS Targeted Sequencing) NextSeq 1000 & NextSeq 2000, Archer Bioinformatics Analysis Software
Peripheral Blood, Bone Marrow Tissue (Fresh or FFPE) or cfDNA	Detection of single nucleotide variants (SNVs), copy number, variations (CNVs), insertions and deletions in genes associated with Solid Tumors, Thyroid and Lung Cancer, Myeloid and other Hematological Malignancies	Archer VariantPlex assay, ctDNA assay Illumina Platform (DNA NGS Targeted Sequencing) NextSeq 1000 & NextSeq 2000, Archer Bioinformatics Analysis Software
Peripheral Blood, Bone Marrow or Tissue (Fresh or FFPE)	Germline Mutation and Copy Number Aberrations Detection in genes associated with cancer predisposition and other inherited conditions.	Agilent SureSelect Enrichment, Agilent Magnis (Library Preparation) Illumina Platform (DNA NGS Exome or Targeted Sequencing) NextSeq 1000 & NextSeq 2000, Saphetor Clinical Varsome NGS (Data Analysis) and ****Franklin (Data Analysis). Reflex or Confirmatory Testing: MRC Holland MLPA, ABI 3500XL (Fragment separation), Sanger Sequencing, *** MRC

		Holland Digital MLPA, Coffalyser Software analysis
Peripheral Blood, Bone Marrow or Tissue (Fresh or FFPE)	Somatic Mutation, Copy Number Aberrations and Promoter Methylation Detection in genes associated with various malignancies	**Agilent SureSelect Enrichment and Agilent OneSeq CNV Backbone, Agilent Magnis (Library Preparation) Illumina Platform (DNA NGS Exome or Targeted Sequencing) NextSeq 1000 & NextSeq 2000, Saphetor Clinical Varsome (Data Analysis), Agilent SureCall NGS (Data Analysis) and ****Franklin (Data Analysis). Reflex or Confirmatory Testing: MRC Holland MLPA, ABI 3500XL (Fragment separation), Coffalyser Software analysis
Tissue (FFPE)	**Detection of gene fusions for ALK, ROS1, RET, MET Exon 14 skipping and expression imbalance for ALK, ROS1, RET and NTRK1/2/3	Biocartis Idylla GeneFusion Assay
Tissue or Liquid Biopsy	EGFR, KRAS, NRAS, BRAF Mutation detection	Idylla Biocardis BRAF (CE-IVD), KRAS (CE-IVD), NRAS-BRAF (CE-IVD), EGFR (CE-IVD), ctKRAS (CE-IVD), ctNRAS-BRAF (CE-IVD), NRAS-BRAF-EGFR S492R, ctBRAF, ctKRAS, ctNRAS-BRAF-EGFR S492R, ctEGFR
Tissue (FFPE)	*Detection of and Microsatellite Instability (MSI) in colorectal cancer or in solid tumors	Idylla Biocardis (CE-IVD)

Authorised person to sign the test reports is Dr Paul Costeas.
In his absence, Dr Jason Chi or Dr Petroula Gerasimou** are authorized to sign reports.**

Annex

to the Accreditation Certificate no. L088-2 (IG)

SCOPE OF ACCREDITATION

for

THE KARAISKAKIO FOUNDATION LABORATORIES IMMUNOGENETICS (IG)

**** Valid as from the 26th February 2024 until the 19th September 2024.

Materials /Products	Types of examinations	Methods applied / Technical fields
Peripheral Blood, Bone Marrow	Class I and Class II HLA Genotyping	1) PCR / SSP gel electrophoresis (OlerupSSP) (CE-IVD) 2) PCR/Reserve Array Hybridization (CE-IVD) (Histospot, BAG Healthcare) 3) Next generation sequencing using NGS MiSeq 1& 2 (Holotype, Omixon) or ****Next generation sequencing MinION Nanopore (Omixon) HLA Typing Protocol 4) ****RT-PCR BioRad CFX96 Real Time PCR System (BAG Diagnostics) (CE-IVD)
Peripheral Blood	****HLA Antibody screening and identification	Luminex LABScan 3D LABScreen Mixed Class I & II (CE-IVD), LABScreen Single Antigen HLA Class I and ExPlex combination (CE-IVD), LABScreen Single Antigen HLA Class II and ExPlex combination (CE-IVD)

Authorised person to sign the test reports is Dr Paul Costeas.
In his absence, Dr. Chryso Pieridou** is authorized to sign reports.**

Annex

to the Accreditation Certificate no. L088-2 (FC)

SCOPE OF ACCREDITATION

for

THE KARAISKAKIO FOUNDATION LABORATORIES
FLOW CYTOMETRY (FC)

* Valid as from the 19th May 2023 until the 19th June 2026.

Materials /Products	Types of examinations	Methods applied / Technical fields
Peripheral Blood, Bone Marrow, CSF	(1) General Bone Marrow Investigation (2) Basic acute leukemia immunophenotyping (3) Basic LPD immunophenotype (4) B-Acute lymphoblastic leukemia, Minimal Residual Disease (5) Plasma Cell Multiple Myeloma Minimal Residual Disease	Cytoplasmic and surface cellular marker staining, Flow Cytometry Analysis FACS Verse Flow Cytometer
Peripheral Blood	T Lymphocyte Enumeration	BD Trucount Absolut Counting tubes (CE-IVD), CD3/ CD8/ CD45/ CD4 BD Multitest (CE-IVD) surface cellular marker staining, FACS Verse Flow Cytometry Analysis
Peripheral Blood, Bone Marrow	Lymphocyte subpopulation analysis	FACS Verse Flow Cytometry Analysis CD3/ CD4/ CD8/ CD19/ CD16+56
Peripheral Blood	Paroxysmal Nocturnal Hemoglobinuria (PNH)	In-house method Detection of glycophosphatidylinositol (GPI)-linked antigens on hematopoietic cells using monoclonal antibodies FACS Verse
Peripheral Blood, Bone Marrow, Cord Blood and Apheresis Products	CD34+ stem cell enumeration	BD Stem Cell Enumeration assay (CE-IVD), BD FACS Verse
Peripheral Blood, Bone Marrow	***Full Blood Count of Blood Samples by an automated Haematology Analyser (WBC, RBC, HGB, HCT, MCV, MCH, MCHC, PLT, RDW-SD, RDW-CV, PDW, MPV, P-LCR, PCT, NEUT, LYMPH, MONO, EO, BASO)	Sysmex XN550 (CE-IVD)

Authorised person to sign the test reports are Dr Paul Costeas or Dr Laura Koumas.
In their absence, Dr Chryso Pieridou is authorized to sign reports.

***** Valid as from the 19th June 2023 until the 19th June 2026.**

***Primary Sample Collection		
Materials/ Products	**Types of Tests**	**Methods applied/ Technical fields**
Peripheral Blood	1. Primary Sample collection and handling 2. Sample reception 3. Patient registration/Request Form 4. Sample transportation 5. Result transmission	Guidelines SOP 5.4.1.0 Test Requisition and Sample Receiving

General Remarks

These Annexes refer **only to tests** carried out **in the premises of the Laboratory**, Address: 15, Nicandrou Papamina Avenue, 2032, Nicosia

Antonis Ioannou
Director

Date: **26th February 2024**