

Anexa nr. 10 la Formularul Specificații tehnice

Analizator hematologic automat 3diff, tip deschis, 40 probe

Specificatia tehnica solicitata	Specificatia tehnica oferata Cell-Dyn Emerald OT18 (Abbott/USA)
<p>Descriere- Analizator hematologic automat (3 diff), tip deschis 40 probe destinat analizei compoñenþei sanguine cu sistem de tip deschis. Cod 150510 Parametrul Specificaþia Tip sistem deschis</p>	<p>Descriere- Analizator hematologic automat (3 diff) destinat analizei compoñenþei sanguine cu sistem deschis de reactivi. Parametrul Specificaþia</p>
<p>Metode de analiză- 3 diff</p>	<p>Tip sistem deschis. Sistem deschis care utilizeaza doar 3 reactivi:diluent, liza, cleaner (reactivul de liza este fara cianuri) Are posibilitate de inchidere programata si inchidere manuala;</p> <ul style="list-style-type: none"> • Cititor de cod de bare extern, in echipare standard • Intretinere zilnica si saptaminala= ZERO • mai putin de o interventie service/an <p>Metode de analiză- 3 diff. CD Emerald are la baza tehnologie impedanta electronica pentru diferentierea RBC si PLT si WBC numar total si spectrofotometrie.</p>
<p>Procedura de curaþire- automata</p>	<p>Procedura de curaþire- automata. Mentananta CD Emerald este automata. Întreþinerea zilnică este procedură automată și întreþinerea saptamanala automata. Avantaj: Procedurile de intretinere sunt memorate in soft-ul aparatului si pot fi printate pentru documentatia laboratorului.</p>
<p>Parametri determinaþi si calculaþi: WBC RBC HGB HCT MCV MCH MCHC PLT LYM MID GRA LYMP% MID% GRA% RDW-SD RDW-CV PDW-SD PDW-CV MPV PCT. Capacitate (probe/oră)- ≥40 Diluarea- automata Afþaj graphic Imprimantă- încorporată</p>	<p>Parametri determinaþi si calculaþi: WBC RBC HGB HCT MCV MCH MCHC PLT LYM# MID# GRAN# LYMP% MID% GRAN% RDW-SD RDW-CV PDW-SD PDW-CV MPV PCT Capacitate (probe/oră)- Procesare 40 probe/oră Diluarea- automata Afþaj graphic. Da, monitor color cu touch screen Imprimantă- încorporată.</p>
<p>Sistem ID pacient da</p>	<p>Sistem ID pacient da, posibilitate date demografice</p> <ul style="list-style-type: none"> • datalog numeric • identificare alfanumerica a pacientului PID • identificare alfanumerica a probei SID • data/ora • nume pacient • hemoleucograma 3-part diff • sistem de flag si alerta
<p>Introducerea datelor manual Interfaþa PC da</p> <p>Afiþarea histogramelor- da Stocarea datelor- da Calibrarea- automata Histograme: WBC- repartizarea leucocitelor după volum RBC - repartizarea eritrocitelor după volum PLT- repartizarea trombocitelor după volum Afiþarea pe ecran a tuturor datelor histograme, rezultate grafice, rezultate din arhivă, date de service</p>	<p>Introducerea datelor manual Interfaþa PC da. Posibilitate de conectare la internet: (TCP/IP) si RS232.</p> <p>Afiþarea histogramelor- da Stocarea datelor- da Calibrarea- automata Histograme: WBC- repartizarea leucocitelor după volum RBC - repartizarea eritrocitelor după volum PLT- repartizarea trombocitelor după volum Afiþarea pe ecran a tuturor datelor histograme rezultate grafice rezultate din arhivă date de service</p>
<p>Afiþarea rezultatelor pe imprimantă - Parametri determinaþi si calculaþi - histograme pe parametrii de bază- RBC, WBC, PLT, date despre pacient</p>	<p>Afiþarea rezultatelor pe imprimantă - Da -Aparatul are capacitatea de a accesa si printa datele in orice moment; Are posibilitate de printare automata si legare la o imprimanta externa</p> <ul style="list-style-type: none"> • Raportul tiparit (printat) cuprinde: Limitele de referinta cu atentionari (flag) pentru valorile care
<p>Indicatori de avertizare- da</p>	

<p>Control al calității- în 3 nivele cu construirea graficelor Levey-Janings</p> <p>Limba de comunicare- rom/rus Memorie internă- > 1000 pacienți</p> <p>Accesorii- Vas pentru deșeuri tuburi pentru reagenți tuburi pentru spălare</p> <p>Alimentare 220 V, 50 Hz Certificat- Certificat de la producător ce atestă pregătirea specialiștilor pentru întreținerea tehnică a echipamentului</p> <p>Reagenți Reagenți: "Să fie inclus toți reagenții necesari pentru efectuarea analizelor și buna funcționare a ≥ 500 analize" Accesori, consumabile: Să fie incluse toate accesoriile, consumabile necesare pentru efectuarea analizelor și buna funcționare pentru ≥ 500 analize Perioada de valabilitate a reagentilor din momentul livrării ≥ 6 luni</p>	<p>depasesc limitele stabilite;</p> <ul style="list-style-type: none"> • Are trei sisteme de unitati de masura: USA (Standard) , Sistem de Unitati Internationale (SI), SI modificat- mod in mmol. • Operatorul poate defini 4 seturi de valori de referinta <p>- Parametri determinați și calculați - histograme pe parametrii de bază- RBC, WBC, PLT, date despre pacient</p> <p>Indicatori de avertizare- da</p> <p>Control al calității- 3 nivele de control- scazut, normal si crescut, cate 2 din fiecare nivel; Control intern de calitate</p> <ul style="list-style-type: none"> • 6 fisiere de control intern • 100 de teste/ fisier • grafice Levey-Jenings pentru interpretare control intern • posibilitate de incarcare/stergere fisiere control • Capacitatea de a incarca si descarca informatii despre QC Via port USB • Conexiune LIS graficelor Levey-Janings <p>Limba de comunicare- rom/rus</p> <p>Memorie internă- se pot memora pana la 1500 date de pacient cu histograme; Functie de capacitatea USB se poate mari numarul de date pacient stocate pana la 60000 fisiere.</p> <p>Accesori- Vas pentru deșeuri tuburi pentru reagenți tuburi pentru spălare. Aparatul poate utiliza orice vas pentru deseuri</p> <p>Avantaj- Aparatul adapteaza orice vas si se mentioneaza capacitatea acestuia in analizor- 1L, 5L, 10L apoi analizorul calculeaza waste-ul si avertizeaza ca vasul de deseuri este plin.</p> <p>Alimentare 220 V, 50 Hz . Avantaj: Nu are pompe- este silentios</p> <ul style="list-style-type: none"> • Nu necesita ventilator, filtru sau sigurante pentru curatare si Maintenanta. <p>Certificat-Certificat de la producător ce atestă pregătirea specialiștilor pentru întreținerea tehnică a echipamentului</p> <p>Reagenți Reagenți: Vor inclus toți reagenții necesari pentru efectuarea analizelor și buna funcționare a ≥ 500 analize" Accesori, consumabile: vor fi incluse toate accesoriile, consumabile necesare pentru efectuarea analizelor și buna funcționare pentru ≥ 500 analize Perioada de valabilitate a reagentilor din momentul livrării ≥ 6 luni</p>
--	---



Declaration of Conformity

Certificate Identification: SC-09H39
Legal Manufacturer's Name: Abbott Laboratories
Legal Manufacturer's Address: Diagnostics Division
Abbott Park, IL 60064 USA

List Numbers and Size Code of Devices	GMDN Code	Names and Description of Devices	Classification
09H39-01	35476	CELL-DYN Emerald Instrument	Self-declared

Authorized European Representative (Name and Address)	ABBOTT Max-Planck-Ring-2 65205 Wiesbaden, Germany
Storage site of technical documentation (Name and Address)	Abbott Laboratories 4551 Great America Parkway Santa Clara, CA 95054
	C2 Diagnostics, Parc Euromedecine II, Rue de la Valsiere 34 099 – Montpellier, Cedex 5 France
Harmonized Standards	Listed in the Technical Documentation

We, the undersigned, hereby declare that the in vitro diagnostic medical devices described above and bearing the CE marking, conform with the applicable provisions of the EC Directive 98/79/EC of the European Parliament and of the Council of 27 October 1998 on In Vitro Diagnostic Medical Devices and Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011, as they are transposed into the laws of the member states.

This declaration is made in accordance with Annex III of the IVD Directive and is issued under the sole responsibility of the manufacturer.

Signature:

Signature:

Full Name:

Kevin Richardson

Full Name:

Rosemarie Lulu

Position:

Manager, Supplier Quality

Position:

Regulatory Affairs Project Manager

Date of Approval:

29 JUNE 2016

Date of Approval:

28 June 2016

Date Issued:

JUN 29 2016

Place Issued:

Abbott Santa Clara

Supersedes:

IRIS V6 (Feb 26, 2015)

Effective (Date or Lot Number):

JUL 01 2016

CERTIFICATE OF TRAINING

THIS CERTIFIES THAT

Stefan Dumitras

HAS SUCCESSFULLY COMPLETED THE TRAINING COURSE

CELL-DYN EMERALD 18/22+22AL, Service & Application

November 5th-9th, 2018

Gustavo Rodriguez/ Srinivasan Gopalan



TRAINER NAME

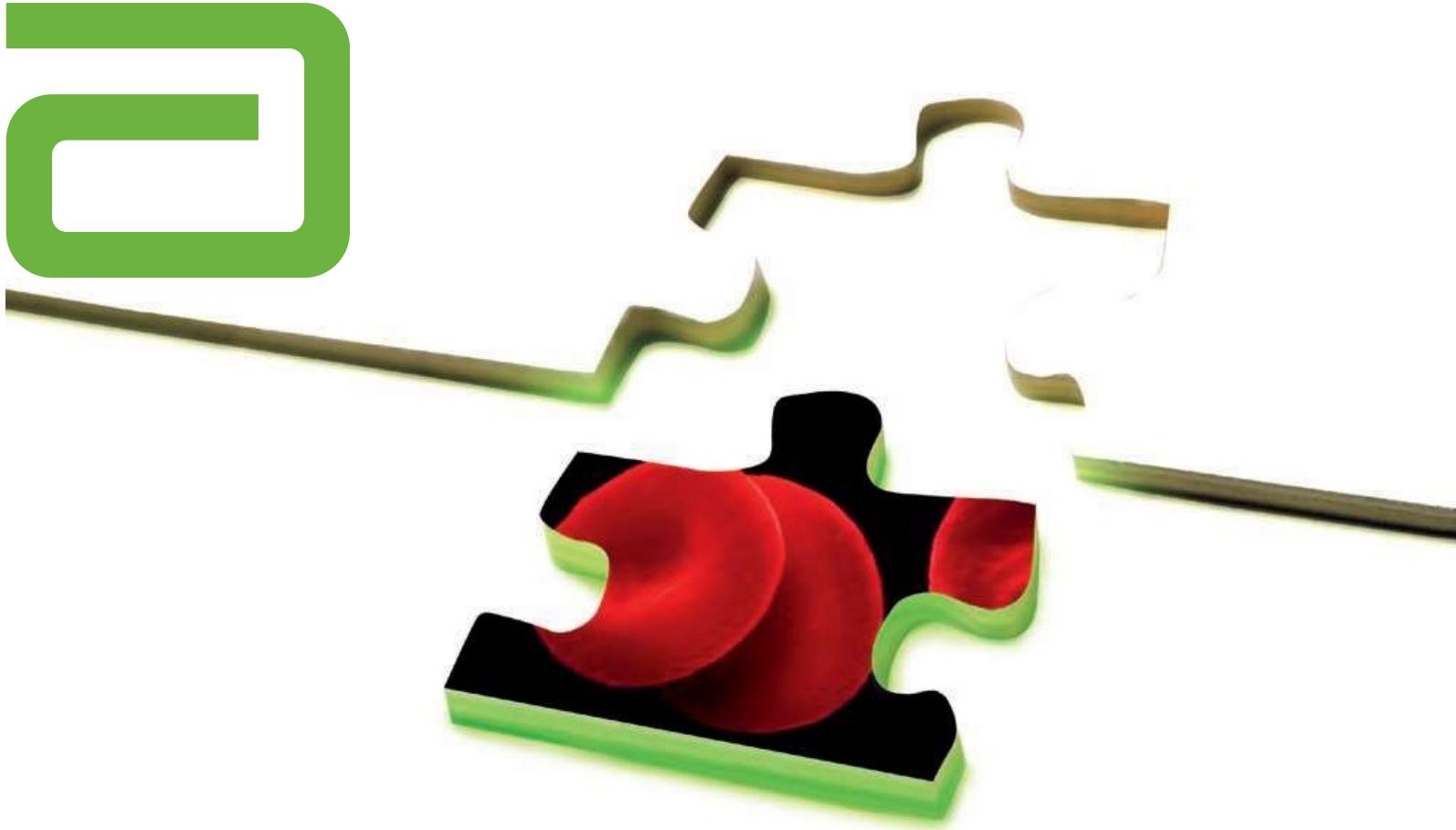
ABBOTT DIAGNOSTICS

09.11.2018

DATE DD.MM.YYYY

Germany - Delkenheim

Abbott



Компактный. Мощный. Безупречно точный.

Высокая производительность
при очень компактных размерах

- Надежные и точные результаты
- Внешний считыватель штрих-кода
- Русскоязычное меню
- Включение одной кнопкой
- Автоматическое выключение
- Бесшумный и легкий

Быстрый и простой
в использовании

- Результат СВС менее, чем за 60 секунд
- Небольшой объем образца (9,8 мкл)
- Экономичный расход реагентов
- Нет ежедневного и еженедельного обслуживания



Put science on your side.

 **Abbott**
A Promise for Life

CELL-DYN Emerald

Технические характеристики

Технологии и методы

- Электрический импедансный подсчет
- Адсорбционная спектрофотометрия
- Электронные клапаны
- Бессианидные реагенты
- Цветной жидкокристаллический сенсорный экран
- RS-232 и TCP/IP LIS интерфейсы
- USB порты

Производительность

- До 60 образцов в час

Объем образца

- 9,8 мкл

Система управления данными

- Поиск по дате и порядковому номеру
- Расстановка флагов для границ нормальных значений
- Расстановка флагов для критических значений
- Хранение в памяти до 1500 результатов с гистограммами
- Сохранение до 60000 результатов на внешнем USB-носителе (флэшке)
- Программируемые границы нормальных значений
- Программируемые единицы измерения (для вывода на печать)
- Внешний считыватель штрих-кода (читывает code 128, code 39, interleaved 2 of 5)

Система контроля качества

- 6 контрольных файлов
- 100 измерений в файле
- Графики Леви-Дженнингса
- Возможность загрузки контрольной информации с внешнего носителя
- Программа внешнего контроля качества в режиме on-line.

Данные пациента

- Порядковый номер
- Буквенно-цифровая идентификация образца
- Буквенно-цифровая идентификация пациента
- Время и дата проведения анализа
- Имя пациента
- CBC с подсчетом 3-х популяций лейкоцитов
- Расстановка флагов и предупреждений

Предупреждение о разбросе данных

- Определяемые оператором границы верхнего и критического значений для пациента
- Определяемые системой границы аналитических измерений и регистрируемых значений
- Флаги о сомнительных результатах вследствие интерференции или патологии образца
- Флаги о сомнительных результатах, когда подсчет лейкоцитов свидетельствует о возможном наличии патологической популяции



Соответствие стандартам и требованиям безопасности

- UL61010A-1
- CE Mark (Европейское соответствие)
- CAN/CSA C22.2 No.1010.1-92
- ETL Mark (США)
- IEC 61000-3-2, 3-3, 4-2, 4-3, 4-4, 4-5, 4-6, 4-8, 4-11
- Harmonic emissions
- EN 55011 и EN 61000

Периферийные устройства

- Матричный или струйный принтер
- USB носитель (флэшка)
- Внешний считыватель штрих-кода

Габариты

- Высота 35 см
- Ширина 25 см
- Глубина 35 см
- Вес 9 кг (без учета реагентов)

Определяемые параметры

Лейкоциты	Эритроциты	Тромбоциты
WBC	RBC	PLT
LYM #	HGB	MPV
LYM %	HCT	PDW*
MID #	MCV	PCT*
MID %	MCH	
GRAN #	MCHC	
GRAN %	RDW	

* Клиническая значимость для этих величин не установлена и они не используются в лабораториях США.

Реагенты для CELL-DYN Emerald

Описание	Объем	Каталожный номер
Лизирующий реагент, бессианидный (CN-Free Diff Lyse)	960 мл	09H47-02
Дилюент (Diluent)	10 л	09H48-02
Очищающий реагент (Cleaner)	960 мл	09H46-02

Контроли и калибраторы для CELL-DYN Emerald

Описание	Объем	Каталожный номер
Калибратор CELL-DYN 18 Plus Calibrator	2 x 2,5 мл	99110-01
Контроль CELL-DYN 18 Plus Control	12 x 2,5 мл	99109-01
Контроль CELL-DYN 18 Plus Control	6 x 2,5 мл	99105-01



CELL-DYN EMERALD

HEMATOLOGY ANALYZER

Fast, Accurate, with Easy Results Everytime

High performance in an affordable, compact design

- Reliable and accurate patient results
- Barcode reader
- Multiple languages available
- Open-mode one touch operation
- Auto startup and shutdown
- Lightweight - only 19.8 lbs. (9 kg)

Fast and easy to use

- Results in approximately 60 seconds
- Small sample size
- Low reagent consumption
- Zero daily and weekly maintenance

CHOOSE TRANSFORMATION™

Achieve measurably better healthcare performance.

www.corelaboratory.abbott/cell-dyn-emerald

 Abbott

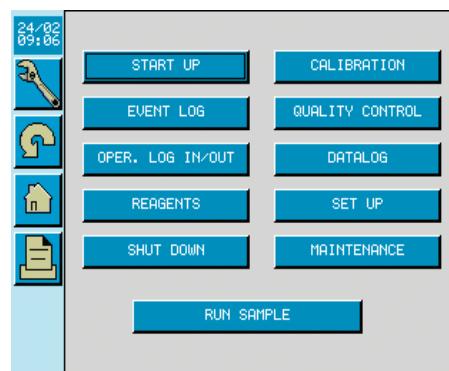
ITEM	SPECIFICATIONS
Technology & Methods	<ul style="list-style-type: none"> • Electronic impedance • Absorption spectrophotometry • Electronic valves • Cyanide-free lyse reagent • LCD color touch screen • RS232 and TCP/IP LIS interface • USB ports
Throughput	• Up to 57 samples per hour
Sample Size	• ~9.8 µL
Specimen Data Management	<ul style="list-style-type: none"> • Search by date or sequence number • Flagging for patient limit sets • Flagging for panic values • 1,500 records with histograms on internal memory • Up to 300,000 records on external USB thumb drive • Programmable patient limits • Programmable report units • Barcode reader (reads code 128, code 39, interleaved 2 of 5, and others listed in the Operator's Manual)
Quality Control	<ul style="list-style-type: none"> • 6 control files • 100 runs per file • Levey-Jennings graphs • Upload/download control information • eQC Online peer review program
Demographics	<ul style="list-style-type: none"> • Sequence number • Alphanumeric specimen ID • Alphanumeric patient ID • Date & time analyzed • Patient name • CBC with 3-part differential • Flagging and Alerts
Dispersional Data Alert	<ul style="list-style-type: none"> • Operator-defined patient limits for high and panic values • System-defined limits for reportable range and analytical measurement range • Suspect parameter flags caused by interfering substances or sample abnormalities • Suspect parameter flags generated when WBC data indicates possible presence of an abnormal population
Standards & Safety Compliance	<ul style="list-style-type: none"> • IEC 61010-1 • EN 61326-1 • CE Mark
Peripheral Devices	<ul style="list-style-type: none"> • Inkjet or laser printer • USB thumb drive • Handheld barcode scanner
Physical Dimensions	<ul style="list-style-type: none"> • Height 13.8 in. (35 cm) • Width 9.8 in. (25 cm) • Depth 13.8 in. (35 cm) • Weight 19.8 lbs. (9 kg) (without on-board reagents)

PARAMETERS		
White Cells	Red Cells	Platelets
WBC	RBC	PLT
LYM #	HGB	MPV
LYM %	HCT	
MID #	MCV	
MID %	MCH	
GRAN	MCHC	
GRAN %	RDW	

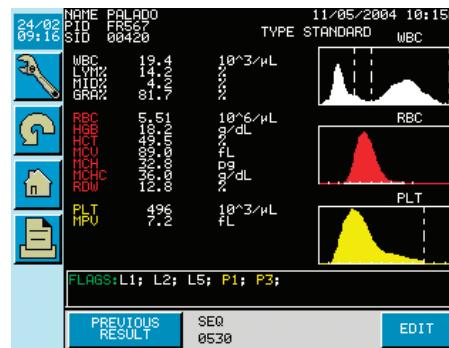
REAGENTS	
Reagent Description	Size and List Number
CN-Free Diff Lyse	960 mL (List No. 09H47-02)
Diluent	10 L (List No. 09H48-02)
Cleaner	960 mL (List No. 09H46-02)

CONTROLS & CALIBRATORS	
CELL-DYN 18 Plus Calibrator	09H70-01
CELL-DYN 18 Plus Control	09H69-01 09H69-02

MAIN MENU



DATALOG FILE



CHOOSE TRANSFORMATION™

Achieve measurably better healthcare performance.

www.corelaboratory.abbott/cell-dyn-emerald

For In Vitro Diagnostic Use Only. Refers to the Operator's Manual for operational precautions, limitations, and hazards.

CELL-DYN Emerald and CHOOSE TRANSFORMATION are trademarks of Abbott Laboratories in various jurisdictions.

© 2017 Abbott Laboratories. ADD-00060076 September 2017



REGISTRUL DE STAT AL DISPOZITIVELOR MEDICALE

Ведите текст для поиска...

Nr	Denumire	Den.comerc.	Model	Nr. catalog	Tara	Producatorul	Reprezentant	Ordin	Data
				09H39					
DM000337091	ANALIZATOR HEMATOLOGIC		CELL-DYN EMERALD INSTRUMENT	09H39-01	SUA	ABBOTT LABORATORIES	GBG-MLD S.R.L.	Rg04-000041	15-02-2022
DM000303850	ANALIZATOR HEMATOLOGIC AUTOMAT		CELL-DYN Emerald Instrument	09H39-01	SUA	ABBOTT LABORATORIES	GBG-MLD S.R.L.	Rg04-000052	01-03-2021

Certificate of Registration

QUALITY MANAGEMENT SYSTEM - ISO 9001:2015

This is to certify that:

Abbott Laboratories Diagnostics Division
100 Abbott Park Road
Abbott Park
Illinois
60064
USA

Holds Certificate Number: **FM 743464**

and operates a Quality Management System which complies with the requirements of ISO 9001:2015 for the following scope:

Design, Manufacture, Development, Installation, Service and Support of In Vitro Diagnostic Products including Test Kits, Reagents, Accessories and Instruments.



For and on behalf of BSI:

Matt Page, Managing Director Assurance - UK & Ireland

Original Registration Date: 2018-10-12

Effective Date: 2021-10-13

Latest Revision Date: 2022-04-12

Expiry Date: 2024-10-12

Page: 1 of 2



...making excellence a habit.TM

This certificate was issued electronically and remains the property of BSI and is bound by the conditions of contract.
An electronic certificate can be authenticated [online](#).
Printed copies can be validated at www.bsigroup.com/ClientDirectory

Information and Contact: BSI, Kitemark Court, Davy Avenue, Knowlhill, Milton Keynes MK5 8PP. Tel: + 44 345 080 9000
BSI Assurance UK Limited, registered in England under number 7805321 at 389 Chiswick High Road, London W4 4AL, UK.
A Member of the BSI Group of Companies.

Certificate No: FM 743464

Location	Registered Activities
Abbott Laboratories Diagnostics Division 100 Abbott Park Road Abbott Park Illinois 60064 USA	Design, Manufacture, Development, Installation, Service and Support of In Vitro Diagnostic Products including Test Kits, Reagents, Accessories and Instruments.
Abbott Laboratories Diagnostics Division - Conway Park 675 North Field Drive Lake Forest Illinois 60045 USA	Oversight of the Quality Management System for the Abbott Diagnostics Division Sites
Abbott Laboratories Diagnostics Division - K Complex - Distribution Center Route 41 & Martin Luther King Drive North Chicago Illinois 60064 USA	QC Inspection of incoming materials and distribution of IVD products including test kits, reagents, accessories and instruments.

Original Registration Date: 2018-10-12

Effective Date: 2021-10-13

Latest Revision Date: 2022-04-12

Expiry Date: 2024-10-12

Page: 2 of 2

This certificate was issued electronically and remains the property of BSI and is bound by the conditions of contract.

An electronic certificate can be authenticated [online](#).

Printed copies can be validated at www.bsigroup.com/ClientDirectory

Information and Contact: BSI, Kitemark Court, Davy Avenue, Knowlhill, Milton Keynes MK5 8PP. Tel: + 44 345 080 9000
BSI Assurance UK Limited, registered in England under number 7805321 at 389 Chiswick High Road, London W4 4AL, UK.
A Member of the BSI Group of Companies.



CERTIFICATE OF REGISTRATION

Abbott Laboratories

Lake County Site
100 Abbott Park Road
Abbott Park, IL 60064 UNITED STATES

D-U-N-S ID No. 001307602

UL Medical Regulatory Services of UL LLC®(UL) issues this certificate to the Firm named above, after auditing the Firm's quality management system and finding it in conformance per the defined scope with respect to:

ISO 13485:2016

with additional regulatory requirements listed on final page of this certificate.

Design, development and manufacture of diagnostic test kits and reagents.

The design and manufacture of in-vitro diagnostic medical devices, used in the screening of blood donor units for transmissible diseases. The design and manufacture of in-vitro diagnostic medical devices used in the diagnosis, management and detection of cancer, autoimmune status, cardiac markers, endocrine disorders, and for therapeutic drug monitoring.

With additional locations listed on Addendum: 1

Authorized by



Check Certificate
Status: [here](#)



Michael J. Windler, P.E.
Manager of Global Regulatory Service
Distinguished Member of the Technical Staff
UL Life and Health Sciences
UL LLC

File Number	A18075	Cycle Start Date	December 1, 2017
Certificate Number	1068.180319	Effective Date	March 19, 2018
Initial Issue Date	December 1, 2017	Expiry Date	November 30, 2020

This quality system registration is included in UL's Directory of Registered Firms and applies to the provision of goods and/or services as specified in the scope of registration from the address(es) shown above. By issuance of this certificate the firm represents that it will maintain its registration in accordance with the applicable requirements. This certificate is not transferable and remains the property of UL Medical and Regulatory Services of UL LLC.
Certificates may be verified by visiting the Online Certifications Directory on UL.com.



**UL Medical and Regulatory
Services UL, LLC is an
MDSAP Recognized
Auditing Organization**

UL LLC
333 Pfingsten Road
Northbrook, IL 60062-2096 USA



CERTIFICATE OF REGISTRATION

Abbott Laboratories

Lake County Site
100 Abbott Park Road
Abbott Park, IL 60064 UNITED STATES

D-U-N-S ID No. 001307602

Addendum 1

2 - OS

Located at:

Route 41 & Martin Luther King Drive
North Chicago , IL 60064 UNITED STATES
D-U-N-S ID No. 078524918

Performing: QC inspection of incoming materials and products. The storage and distribution of in vitro diagnostic reagents, test kits and accessories.

3 - S

Located at:

6131 RFD Oakwood Road
Long Grove , IL 60064 UNITED STATES
D-U-N-S ID No. 113839302

Performing: Antibody production.

File Number	A18075	Cycle Start Date	December 1, 2017
Certificate Number	1068.180319	Effective Date	March 19, 2018
Initial Issue Date	December 1, 2017	Expiry Date	November 30, 2020

This quality system registration is included in UL's Directory of Registered Firms and applies to the provision of goods and/or services as specified in the scope of registration from the address(es) shown above. By issuance of this certificate the firm represents that it will maintain its registration in accordance with the applicable requirements. This certificate is not transferable and remains the property of UL Medical and Regulatory Services of UL LLC.
Certificates may be verified by visiting the Online Certifications Directory on UL.com.



**UL Medical and Regulatory
Services UL, LLC is an
MDSAP Recognized
Auditing Organization**

UL LLC
333 Pfingsten Road
Northbrook, IL 60062-2096 USA



CERTIFICATE OF REGISTRATION

Abbott Laboratories

Lake County Site
100 Abbott Park Road
Abbott Park, IL 60064 UNITED STATES

D-U-N-S ID No. 001307602

Additional Regulatory Requirements

Australia:

- Therapeutic Goods (Medical Devices) Regulations, 2002, Schedule 3 Part 1 (excluding Part 1.6) – Full Quality Assurance Procedure [if design controls are part of the certification];

Brazil:

- RDC ANVISA n. 16/2013
- RDC ANVISA n. 23/2012
- RDC ANVISA n. 67/2009

Canada:

- Medical Devices Regulations – Part 1- SOR 98/282

Japan:

- MHLW Ministerial Ordinance 169, Article 4 to Article 68
- PMD Act (as applicable)

United States:

- 21 CFR 820
- 21 CFR 803
- 21 CFR 806
- 21 CFR 807 – Subparts A to D
- 21 CFR 821 (where applicable)

File Number	A18075	Cycle Start Date	December 1, 2017
Certificate Number	1068.180319	Effective Date	March 19, 2018
Initial Issue Date	December 1, 2017	Expiry Date	November 30, 2020

This quality system registration is included in UL's Directory of Registered Firms and applies to the provision of goods and/or services as specified in the scope of registration from the address(es) shown above. By issuance of this certificate the firm represents that it will maintain its registration in accordance with the applicable requirements. This certificate is not transferable and remains the property of UL Medical and Regulatory Services of UL LLC.
Certificates may be verified by visiting the Online Certifications Directory on UL.com.



**UL Medical and Regulatory
Services UL, LLC is an
MDSAP Recognized
Auditing Organization**

UL LLC
333 Pfingsten Road
Northbrook, IL 60062-2096 USA