

Materials List for

Detection of Cell-Free DNA in Blood Plasma Samples of Cancer Patients

Vikrant Palande¹, Dorith Raviv Shay¹, MILANA Frenkel-Morgenstern^{1,2,3}

¹Cancer Genomics and BioComputing of Complex Diseases laboratory, The Azrieli Faculty of Medicine, Bar-Ilan University ²The Data Science Institute, Bar-Ilan University ³The Dangoor Centre For Personalized Medicine, Bar-Ilan University

Corresponding Author

MILANA Frenkel-Morgenstern
milana.morgenstern@biu.ac.il

Citation

Palande, V., Raviv Shay, D., Frenkel-Morgenstern, M. Detection of Cell-Free DNA in Blood Plasma Samples of Cancer Patients. *J. Vis. Exp.* (), e61449, doi:10.3791/61449 (2020).

Date Published

September 9, 2020

DOI

10.3791/61449

URL

jove.com/video/61449

Materials

Name	Company	Catalog Number	Comments
2100 Bioanalyzer Instrument	Agilent Technologies, Inc.	G2939BA	The 2100 Bioanalyzer system is an established automated electrophoresis tool for the sample quality control of biomolecules.
Adjustable Clip for Priming Station	Agilent Technologies, Inc.	5042-1398	Used in combination with syringe to apply defined pressure for chip priming.
Agilent High Sensitivity DNA Kit	Agilent Technologies, Inc.	5067-4626	The High Sensitivity DNA assays are often used for sample quality control for next-generation sequencing libraries
cf-DNA/cf-RNA Preservative Tubes	Norgen Biotek Corp.	63950	Norgen's cf-DNA/cf-RNA Preservative Tubes are closed, evacuated plastic tubes for the collection and the preservation of cf-DNA, circulating tumor DNA, cf-RNA and circulating tumor cells in human whole blood samples during storage and shipping
Chip Priming Station	Agilent Technologies, Inc.	5065-4401	Used to load gel matrix into a chip with a syringe provided with each assay kit— used for RNA, DNA, and protein assays. Includes priming station, stop watch, and 1 syringe clip
Electrode Cleaner Kit	Agilent Technologies, Inc.	5065-9951	Prevents cross-contamination. Removes bacterial or protein contaminants from electrodes.
Filters for Gel Matrix	Agilent Technologies, Inc.	185-5990	Used for proper mixing of DNA dye concentrate and DNA gel matrix
IKA Basic Chip Vortex	IKA-Werke GmbH & Co. KG	MS-3-S36	Used for proper mixing of DNA ladder and DNA sample on Bioanalyzer assay chips
NucleoSpin Tissue kit	MACHEREY-NAGEL	740952.5	With the NucleoSpin Tissue kit, genomic DNA can be prepared from tissue, cells (e.g., bacteria), and many other sources.

QIAamp circulating nucleic acid kit	Qiagen	55114	The QIAamp Circulating Nucleic Acid Kit enables efficient purification of these circulating nucleic acids from human plasma or serum and other cell-free body fluids.
QIAvac 24 Plus vacuum manifold	Qiagen	19413	The QIAvac 24 Plus vacuum manifold is designed for vacuum processing of QIAGEN columns in parallel.
QIAvac Connecting System	Qiagen	19419	In combination with the QIAvac Connecting System, the QIAvac 24 Plus vacuum manifold can be used as a flow-through system. The sample flow-through, containing possibly infectious material, is collected in a separate waste bottle.
Qubit 2.0 fluorometer	Invitrogen	Q32866	The Qubit 2.0 Fluorometer is an easy-to-use, analytical instrument designed to work with the Qubit assays for DNA, RNA, and protein quantitation.
Qubit assay tubes	Thermo Fisher Scientific	Q32856	Qubit assay tubes are 500 μ L thin-walled polypropylene tubes for use with the Qubit Fluorometer.
Qubit dsDNA HS Assay Kit	Thermo Fisher Scientific	Q32851	The Qubit dsDNA HS (High Sensitivity) Assay Kit is designed specifically for use with the Qubit Fluorometer. The assay is highly selective for double-stranded DNA (dsDNA) over RNA and is designed to be accurate for initial sample concentrations from 10 pg/ μ L to 100 ng/ μ L.
Vacuum Pump	Qiagen	84010	used for vacuum processing of QIAGEN columns
Miscellaneous			
50 ml centrifuge tubes			
Crushed ice			
Ethanol (96–100%)			
Heating block or similar at 56 °C (capable of holding 2 ml collection tubes)			
Isopropanol (100%)			
Microcentrifuge			
Phosphate-buffered saline (PBS)			
Pipettes (adjustable)			
Sterile pipette tips (pipette tips with aerosol barriers are recommended to help prevent cross-contamination)			
Water bath or heating block capable of holding 50 mL centrifuge tubes at 60 °C			