

High-quality  
nucleic acid  
and assay  
setup.



revvity

chemagic™ Prime™ Junior



# Get high-quality DNA/RNA and customize your assay setup with ease

## chemagic Prime Junior

The chemagic Prime Junior enables a fully automated workflow from primary sample to ready to use high-quality DNA and RNA. Reliable and easy to operate, the instrument ensures excellent DNA/RNA recovery from diverse sample matrices. Proven liquid handling technology further reduces hands-on time and eliminates sample variations due to human error in the setup of customized downstream processes (eluate storage, PCR, NGS etc). With a maximum capacity of 48 samples of up to 1000  $\mu$ l body fluids, samples can also be loaded stepwise (2 x 24) for greater flexibility.

**2029-0020**      **chemagic Prime Junior**  
**2029-0010\***    **chemagic Prime Junior-D\***



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For research use only.  
Not for use in diagnostic procedures.



## Key features

- chemagen separation technology for high-quality DNA/RNA
- Customizable to your needs: Complete workflow from primary sample to assay setup
- Walk-away automation for up to 48 samples
- Suitable for diverse samples like blood, plasma, saliva, urine, swabs, feces, etc.
- Customizable to your needs: Pipetting, eluate transfer, normalization, assay, PCR, NGS setup
- JANUS® G3 technology for reliable pipetting and setup capabilities
- Suitable for even challenging applications e.g., long-read sequencing, MLPA, etc.
- CE-IVD certified version available for in vitro diagnostic applications\*
- No waste of reagents due to buffer dispensing according to the number of samples
- Intuitive WinPREP® software for easy operation
- Full traceability at any time during the process: Barcode tracking and LIMS compatible
- Optional add-ons: UV light and 2D barcode reader
- Size 1.9 m x 0.87 x 1.70 m (L/W/H)



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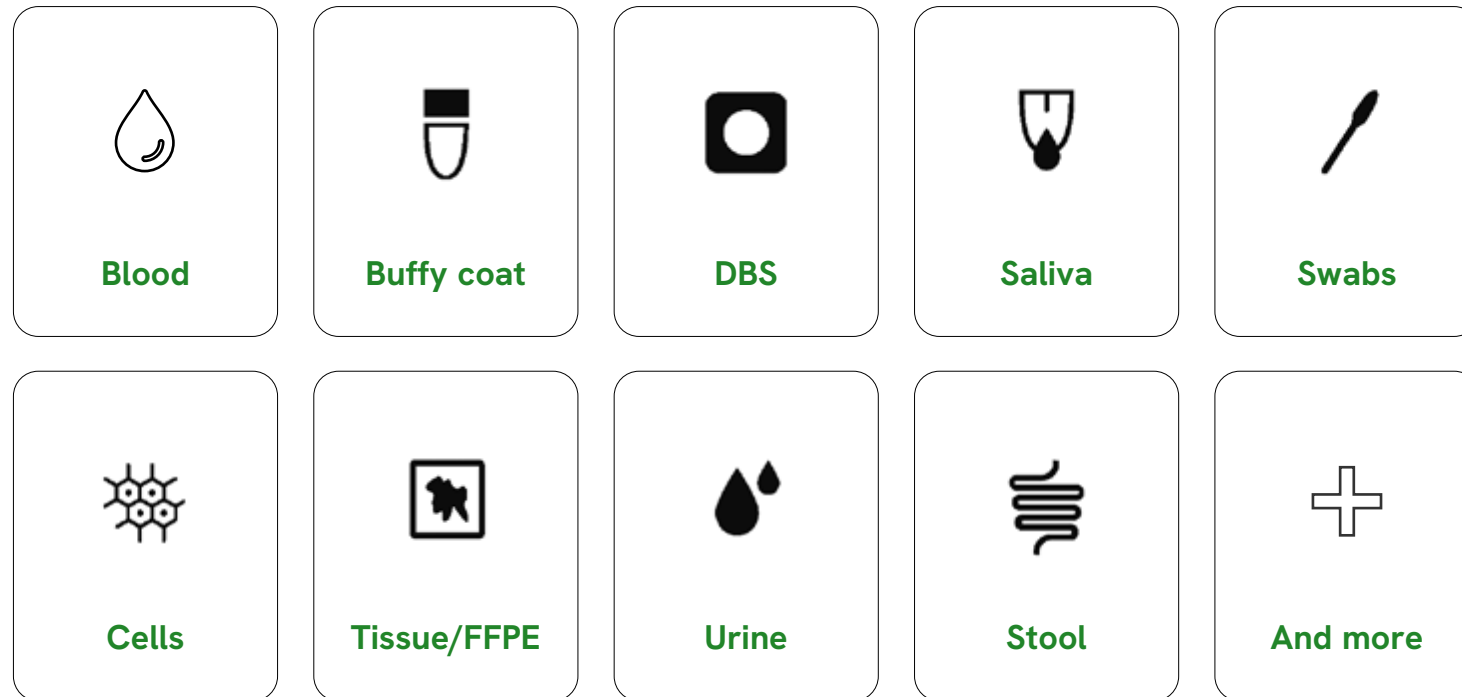
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# A reliable, automated solution for diverse workflows

The chemagic kit portfolio comprises a large amount of kits for the isolation of genomic DNA, cfDNA, total RNA, viral and bacterial nucleic acids from a variety of sample materials. Here, it is presented a small selection of available kits.

## Sample type agnostic - chemagic nucleic acid isolation solutions





## High quality DNA/RNA extraction

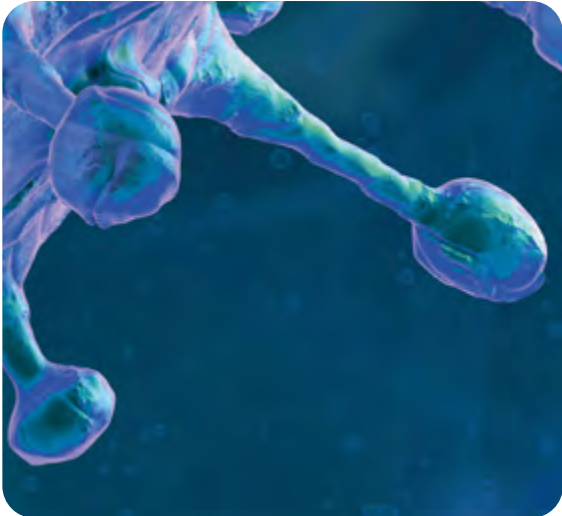
The chemagen separation technology and the proprietary use of M-PVA Magnetic Beads ensure a high purity and yield of DNA/RNA at fast turn-around times. Resulting fragment lengths up to ~200 kb increase success for downstream applications (e.g., long-read sequencing, MLPA, etc.).

## Wide range of sample types and applications

The two universal kits for the chemagic Prime Junior (CMG-1521 and CMG-1534) allows isolation of genomic DNA and viral DNA/RNA from a wide variety of sample types. Special applications such as cfDNA isolation are further supported by the diverse portfolio of existing chemagic Kits.



# Workflow for nucleic acid purification from pathogens



## Reduced risk of cross-contamination

chemagen separation technology relies on the movement of M-PVA Magnetic Beads instead of liquids which avoids sample cross-contamination. Gentle lysis and resuspension with rotating Rod Heads also reduce risk of overflow while minimizing nucleic acid shearing.

Plate 1

	1	2	3	4	5	6	7	8	9	10	11	12
A	19.472	undet	18.850	undet	18.922	undet	19.928	undet	18.656	undet	19.023	undet

Plate 2

	1	2	3	4	5	6	7	8	9	10	11	12
A	19.869	undet	19.432	undet	19.131	undet	19.541	undet	20.120	undet	19.977	undet

Plate 3

	1	2	3	4	5	6	7	8	9	10	11	12
A	20.170	undet	19.605	undet	19.241	undet	19.159	undet	19.731	undet	20.248	undet

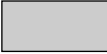
Plate 4

	1	2	3	4	5	6	7	8	9	10	11	12
A	19.733	undet	21.047	undet	20.278	undet	20.172	undet	19.662	undet	19.212	undet

No cross-contamination was visible when 5 µl ultrapure water and 5 µl HSV were tested on chemagic Prime Junior-D.



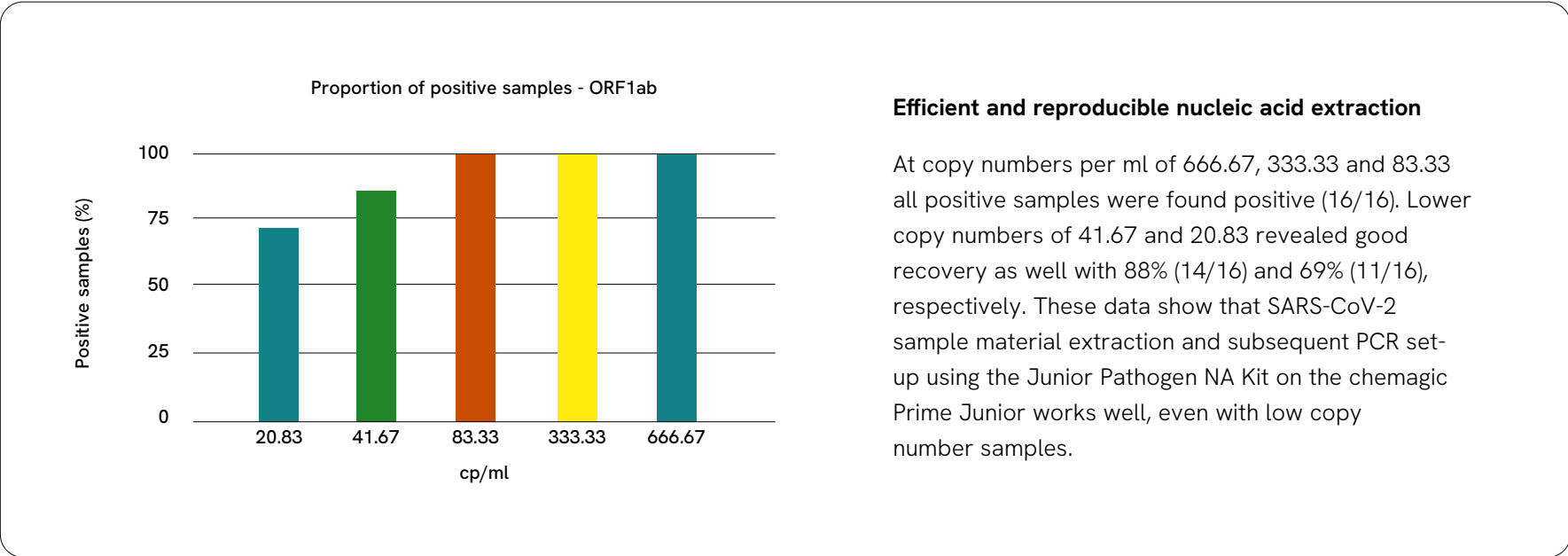
ultrapure water



5 µl HSV positive direct control



The extraction and PCR setup were performed by the chemagic Prime Junior with less than 25 min of hands-on time. The Probit predicted 95% detection rate for AccuPlex™ SARS-CoV-2 Reference Material Kit (SeraCare) spiked in blank eNAT medium and analyzed using the Revvity SARS-CoV-2 Real-time RT-PCR Assay for ORF1ab gene C<sub>T</sub> values was comparable between the Junior Pathogen NA Kit (LOD95 = 2.23 cp/ml)\* and chemagic Viral DNA/RNA 300 Kit H96 (LOD95 = 3.06 cp/ml)\* on the chemagic Prime Junior.

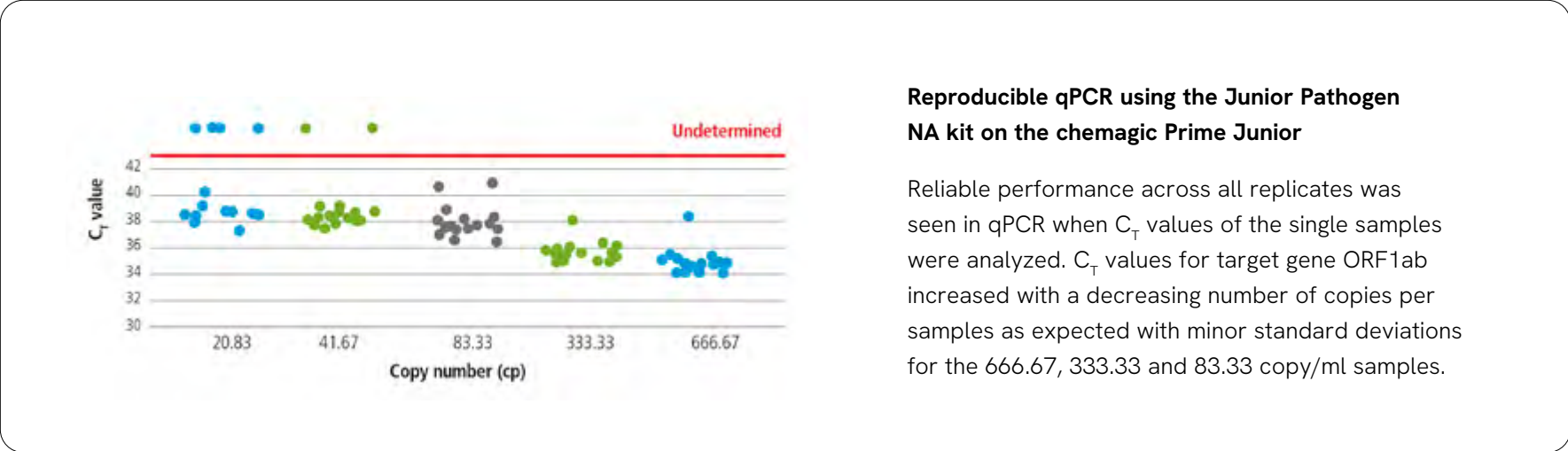


**Efficient and reproducible nucleic acid extraction**

At copy numbers per ml of 666.67, 333.33 and 83.33 all positive samples were found positive (16/16). Lower copy numbers of 41.67 and 20.83 revealed good recovery as well with 88% (14/16) and 69% (11/16), respectively. These data show that SARS-CoV-2 sample material extraction and subsequent PCR set-up using the Junior Pathogen NA Kit on the chemagic Prime Junior works well, even with low copy number samples.

\*This was calculated according to D.J. Finney (1952) Probit Analysis (2nd ED), Journal of the Institute of Actuaries, 78 (3):388-390.

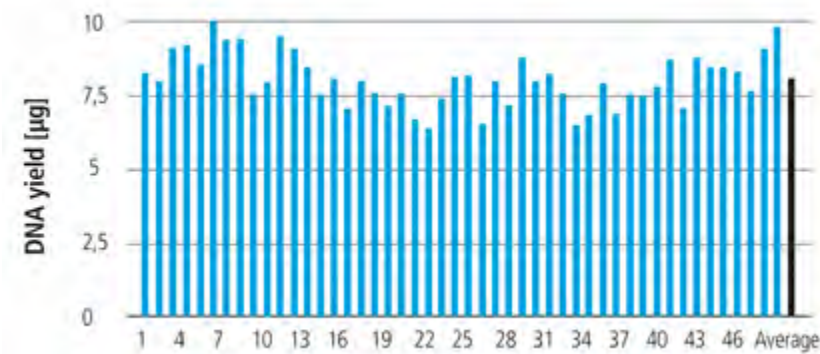
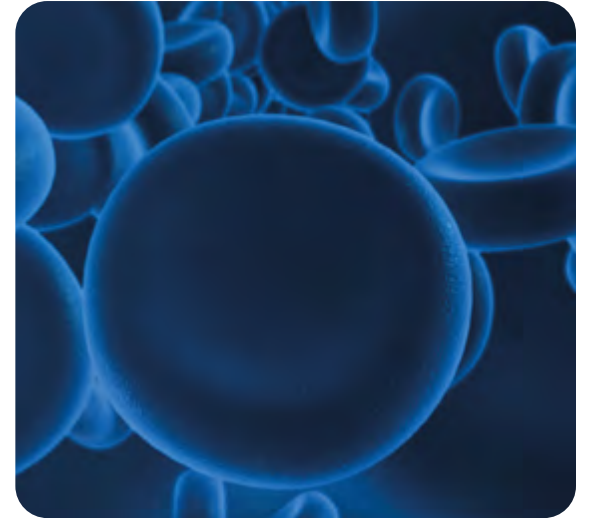




Catalog no.	Kit name	Format	Preps/Kit	Input	Sample material	Hands-on time	Applications
CMG-1033-S	chemagic Viral DNA/RNA 300 kit H96	Tubes	960	up to 300 $\mu$ l	Nasal or oropharyngeal swabs, saliva, sputum, BAL, serum or plasma	25 min	SARS-CoV-2 analysis
CMG-1521	Junior Pathogen NA kit	Tubes	480	200 $\mu$ l - 1000 $\mu$ l depending on the sample material	Blood, serum, plasma, saliva, sputum, swabs, CVS, urine, feces	25 min	Pathogen Screening (blood-borne, respiratory, sexual transmitted, gastrointestinal pathogens, etc.)



# Workflow for automated DNA and RNA purification from blood



## High-quality DNA from 200 µl blood

Genomic DNA was purified from 48 blood samples with the chemagic DNA CS200 kit on the chemagic Prime Junior. The DNA yield ranges from 6.1 - 9.3 µg. The average yield was 7.5 µg (black marked column).

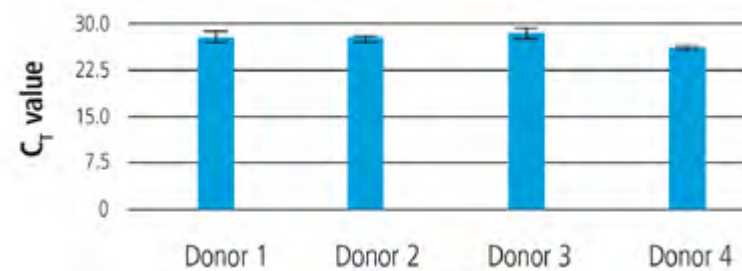
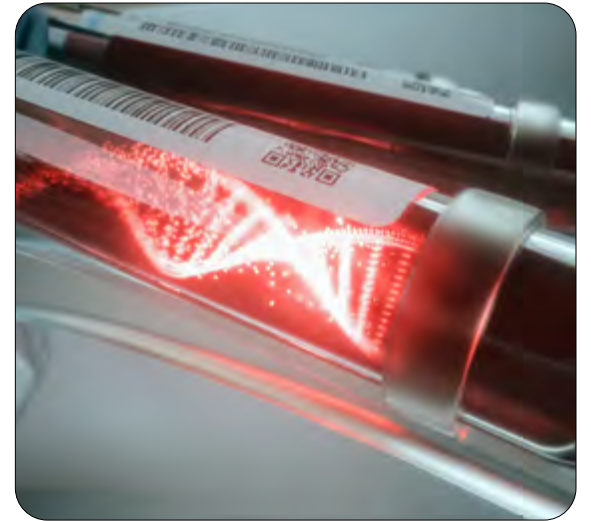


### Reliable yields with minimal hands-on time

The chemagic Prime Junior reliably generates high quantitative yields for all input samples. The walk-away automation, sample tracking, and intuitive software enables easy operation and reduces manual handling and human error.

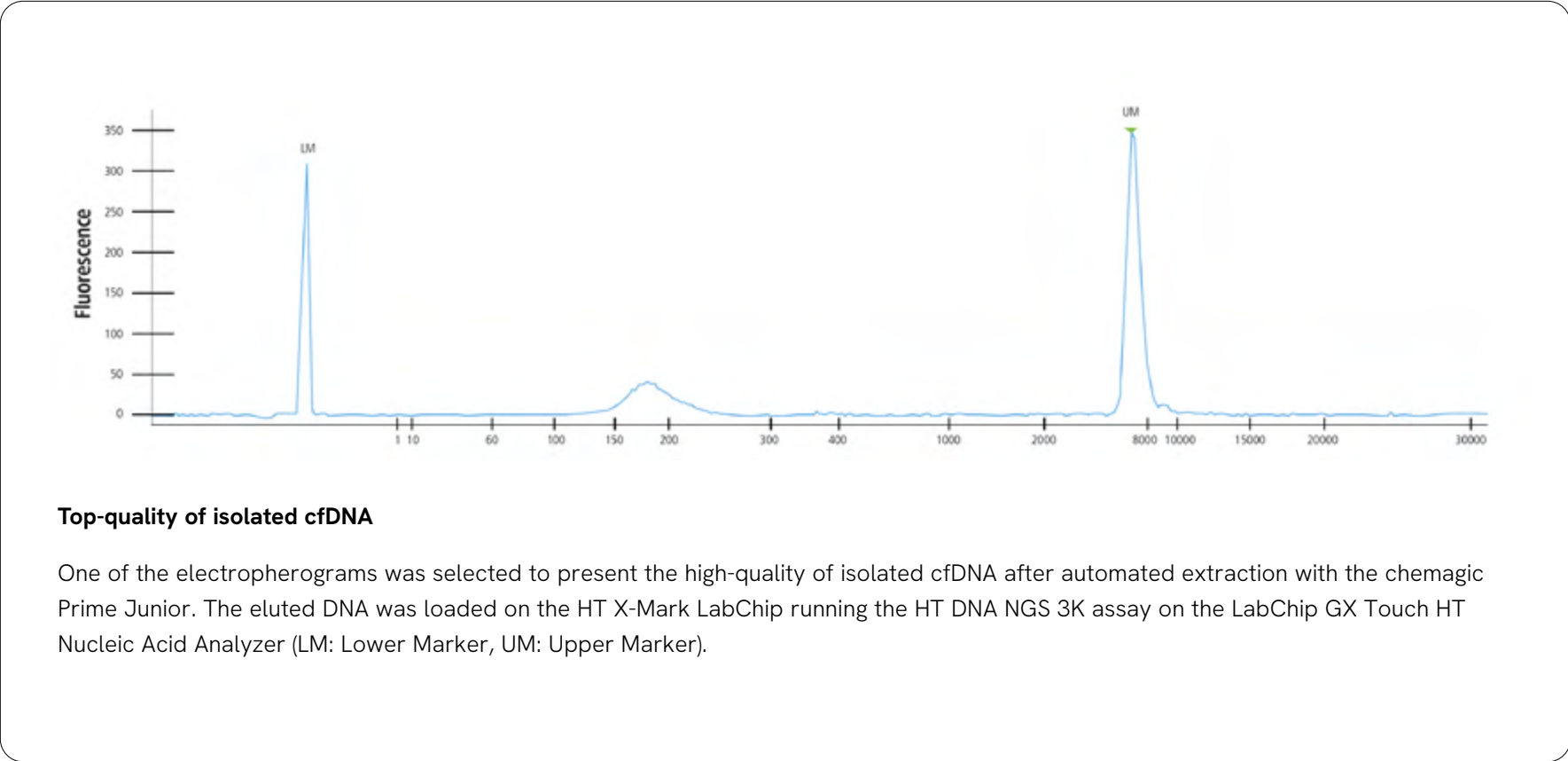
Catalog no.	Kit name	Format	Preps/Kit	Input	Sample material	Hands-on time	Applications
CMG-1534	Junior gDNA kit	Tubes	480	200 $\mu$ l - 500 $\mu$ l depending on the sample material	Blood, buffy coat, saliva, cells, buccal swabs, tissue, FFPE tissue, feces*, amniotic fluid	15 min	Biobanking, Genotyping, HLA typing
3207-0010	chemagic DNA CS200 kit	Tubes	960	200 $\mu$ l	Blood, buffy coat, saliva, cells, buccal swabs, tissue, FFPE tissue, feces*, amniotic fluid	15 min	Biobanking, Genotyping, HLA typing

# Workflow for automated cfDNA isolation from plasma



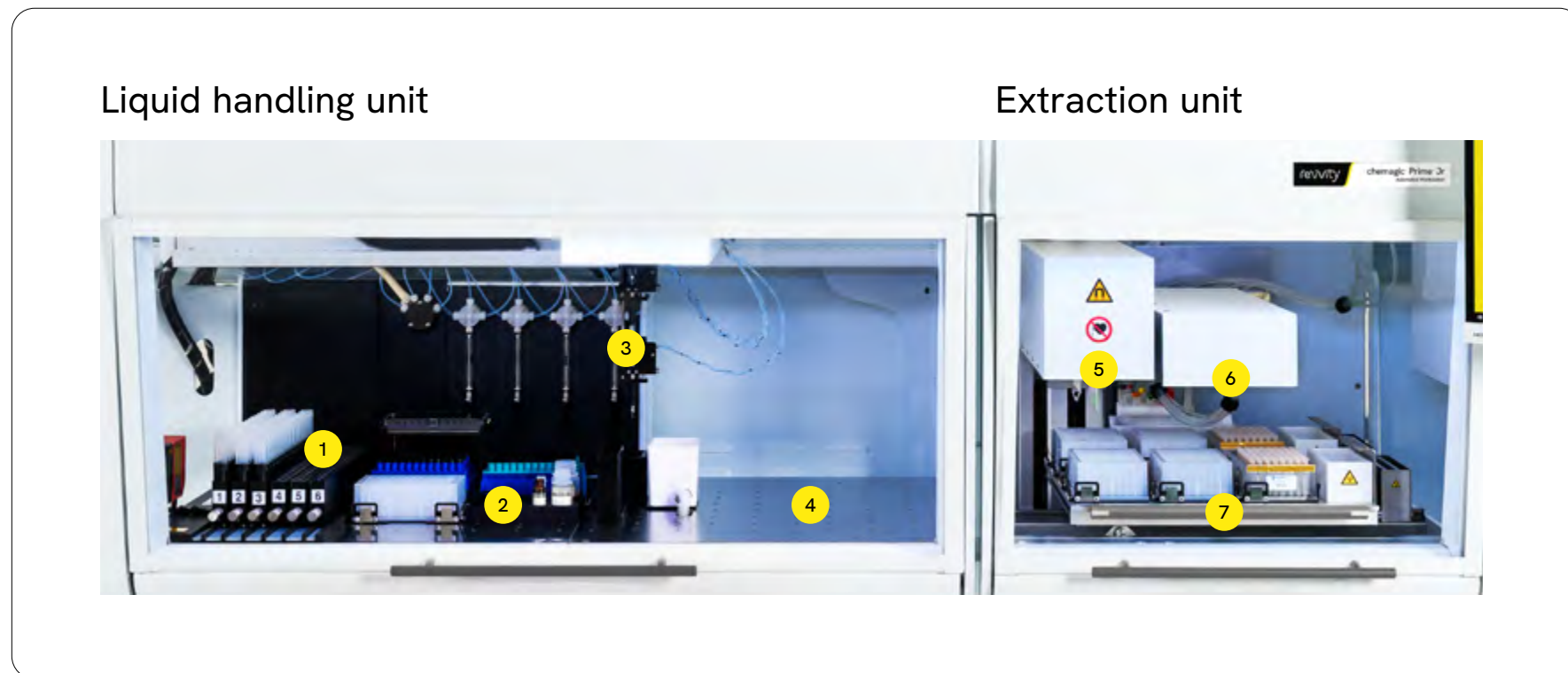
## Top-quality qPCR performance of isolated cfDNA

For cfDNA analysis, a short fragment (115 bp) from a consensus sequence with abundant genomic ALU repeats was amplified. Primers were synthesized by biomers.net (Ulm, Germany) and the FastStart Universal SYBR Green Master (Rox) (Roche, Mannheim, Germany) was used. The qPCR was performed in duplicates for each eluate, thus, in total, six C<sub>t</sub> values were detected for each plasma donor.



Catalog no.	Kit name	Format	Preps/Kit	Input	Sample material	Hands-on time	Applications
CMG-1396	chemagic	Tubes	960	1.5 ml	Plasma	15 min	Cancer research, Non-invasive prenatal studies

# Deck overview



1. 6 x 16 bar coded sample cassettes
2. Rack for reagents
3. Pipetting unit
4. Free deck space for assay setup
5. Magnetic rod head
6. Dispenser unit
7. Plates and Tips for Extraction

## Installation

### chemagic Prime Junior IQ/OQ

The chemagic Prime Junior IQ/OQ is a checklist which simplifies the onsite installation and qualifies the instrument operation. This is included together with the chemagic Prime Junior.

**CMG-13005667**



## Sample Tracking

### chemagic Prime Junior ID QA

The chemagic Prime Junior ID QA simplifies sample tracking based on primary sample IDs. The initial 1-D sample IDs and positions are tracked and paired to the corresponding elution IDs and positions. A worklist or a comparison if sample ID matches to the elution ID is not needed anymore, as the sample, the eluate and the data transfer is position controlled. The information will be provided in the run log file. This helpful tool can be ordered in addition to the chemagic Prime Junior.

**CMG-13005668**

### chemagic Prime Junior ID QA

The additional feature chemagic Prime Junior ID Sync QA enables sample tracking based on a provided worklist with sample IDs, elution IDs and their corresponding allocation. The software compares the tracked sample IDs and elution IDs with the worklist. If there is a mismatch between the worklist and the present barcode, the protocol will be aborted by a notification. Position mis-matches are allowed. If the sample coded with the correct barcode is placed in a different order, the instrument will sort the eluates in the correct order, but this may have an impact on the runtime (random pipetting).

**CMG-13005669**



## Hardware

### 2 D Flatbed Tube Reader Upgrade Kit (Ziath DataPaq™ ZTS-EXP)

The 2 D Flatbed Tube Reader Upgrade Kit contains a Ziath DataPaq Reader which is a 2D data matrix tube camera reader. It is compatible with all 2D barcoded tube racks in SBS format.

**CMG-13009695**

### chemagic Prime UV-light

The optional chemagic Prime UV-light provides UVC light with a wavelength of 2,537 Angstroms (254 nm) over the deck of the chemagic Prime Junior. A minimum UVC dose of 5 uW per square centimeter per second is provided.

**CLS145057**

### Barcode Cassette Flip CAP Tube

The Barcode Cassette Flip CAP Tube is used for 1.5 or 2 ml tubes with flip caps. It has a metal comb to clamp the flip caps during the process.

**CMG-13009693**

### Barcode Cassette 16 mm

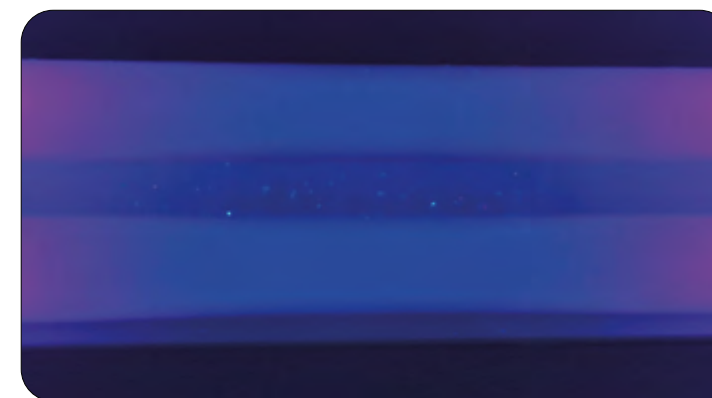
The Barcode Cassette 16 mm is used for sample collection tubes of 16 mm, e.g. blood collection tubes.

**CMG-13009694**

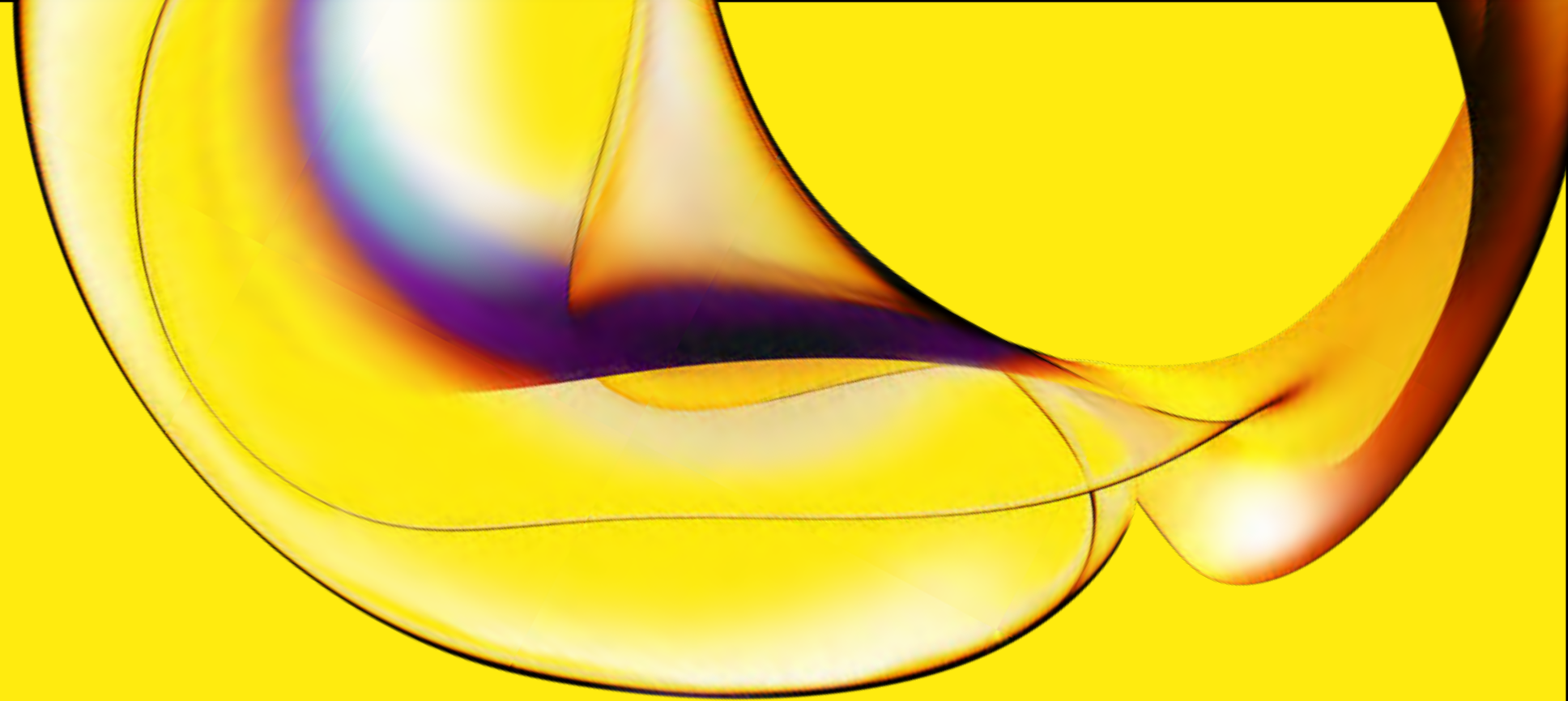
### Barcode Cassette Nunc™ Tube

The Barcode Cassette Nunc Tube is for 1.8 ml Nunc Tubes, often used for storage purposes.

**CMG-13009696**







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