



क्रय अनुभाग
भारतीय वानिकी अनुसंधान एवं
शिक्षा परिषद- वन अनुसंधान संस्थान
देहरादून-२४८००६
GSTIN 05AAAAI1708G2Z6
PAN NO. AAAAI1708G

Purchase Section
Indian Council of Forestry Research and Education-
Forest Research Institute, DEHRADUN-248006
Phone: 0135-2224205
<http://fri.icfre.gov.in/tender/>
Email: po_fri@icfre.org



Objection Invitation against Proprietary Article Certificate

Dated 05.03.2024

Sub: - Purchase of 24 DNA 1K/12K/Hi Sens Labchip (750 sample) and HT DNA 1K/5K Reagent Kit - reg.

Request has been received from Dr. R.K. Meena, Scientist-E, Genetics and tree Improvement Division, FRI for Purchase of "24 DNA 1K/12K/Hi Sens Labchip (750 sample) and HT DNA 1K/5K Reagent Kit" on proprietary basis. The PAC certifications submitted by above mentioned firm is attached herewith.

The above document are being uploaded on FRI website for open information to prospective manufacturers/ Authorized dealers to submit their objections/comments (if any) regarding proprietary nature of equipment/item till 07.03.2024, 2:30 P.M. by giving above mentioned reference number. The comments should be received in the office of Purchase Officer, FRI, Dehradun-248006, through E-mail (po_fri@icfre.org) on or before 07.03.2024 at 2.30 P.M. failing which, it will be presumed that any other vendor is having no comment to offer and case will be decided on merits.

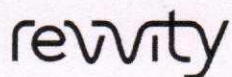
Sd/-
Purchase Officer
Forest Research Institute

Encl:-

1- PAC Certificate,

Clarifications	1.	Dr. R.K. Meena, Scientist-E Genetics and tree Improvement Division,	through email: rajnrcpb@gmail.com	Phone No. 0135-222 4378
	2.	Purchase Section, FRI	through email : po_fri@icfre.org	Ph: 0135-222-4205,

Copy to: I.T. & GIS Discipline, FRI, with request to upload it on FRI website.



940 Winter Street
Waltham MA, 02451

revvity.com

9th January 2024

To Whom It May Concern,

This letter is to inform you that the full function and capabilities of the LabChip® GX Touch™ and GXII Touch™ electrophoresis systems are available only from Revvity, Inc. There is no equivalent product on the market available from another manufacturer. The LabChip® GX Touch™ and GXII Touch™ instruments and the individual components are covered by numerous patents owned or exclusively licensed by Revvity.

The LabChip® GX Touch™ and GXII Touch™ Systems are multi-purpose chip-based, automated electrophoresis systems for protein, glycan, AAV, DNA, and RNA fragment analysis with the following product features and specifications:

LabChip® Technology

- Size. The LabChip® GX Touch™ is a compact benchtop instrument that is completely enclosed. The instrument occupies only 18.6" width x 25.6" depth of bench space.
- Throughput. The LabChip® GX Touch™ comes in two formats, 'HT' providing high throughput and high sample capacity for high sample demand labs, and a '24' model which brings the LabChip® GX Touch™ for labs running smaller batch sizes.
- Assay internal standards. The LabChip® devices automatically add internal markers to each sample on the chip for accurate quantitation and sizing.
- Chip Design. Dedicated reusable single Sipper Chips are available for DNA, RNA, or Protein.
- High-Resolution Electrophoresis. Proteins, glycans, AAVs DNA, and RNA fragments are separated in microchannels filled with a sieving polymer solution and a fluorescent dye. The microfluidic channels separate the stained proteins, glycans, AAVs, DNA, or RNA fragments into sharp bands, resulting in exceptional peak resolution.
- On-Chip Detection. Each protein, glycan, AAV, DNA, or RNA fragment is detected as it passes through a tightly focused laser beam. Low concentrations are easily measured. Protein concentrations are quantitatively detected down to 10 pg/μL. DNA concentrations are also quantitatively detected to as low as 10 pg/μL, with RNA linear sensitivity of 1 pg/ul
- Minimum Sample time. The LabChip® technology is a walk-away solution with minimum reagent preparation time needed.
- Buffer compatibility. The LabChip® GXII Touch™ is tolerant of protein samples with detergents (for example, Triton X-100 up to 1%) or salt (up to 1 M NaCl). DNA samples can be run after PCR reactions without further clean-up.

LabChip® GX Touch™ System Hardware

- Touch Screen user interface
- Automated Sampling from Microtiter Plates. The LabChip® GX Touch™ and GXII Touch™ Systems feature walk-away automation for unattended sampling of 96-well and 384-well plates. A calibration standard is run every 12 samples to provide exceptional sizing, accuracy, and quantitation.

- Integral self-priming function that allows the user to load the chip, select the assay, and walk away.
- Integral barcode scanning is available for recording plate ID data to match to sample analysis data.
- Precise Control of Chip Voltages, Currents, and Pressure. By controlling these parameters independently, multiple laboratory operations can be integrated into a single chip.
- Laser-Induced Fluorescence for High Sensitivity Detection. The optical system features auto-alignment and auto-focus of a solid-state laser for optimal sensitivity and reproducible chip-to-chip operation.
- Samples to be analyzed can mapped from any well locations on the plate, from 1 to 384 samples.
- Chips are easily and quickly loaded. The LabChip® GX Touch™ chips have a 10-minute preparation cycle before first use. The LabChip® GX Touch™ and GXII Touch™ perform the priming step right on the instrument. There is no need to transfer the chip from a priming station as a separate step. Competing technologies require a 1.5-hour chip prep time.
- Up to 400 samples can be run on one chip preparation. The analysis time for a 96-well plate for RNA is 150 minutes, DNA is 45 minutes, and protein is 75 minutes. After preparation, all chips can be used within 8 hours. Smaller sets of samples can be run continuously throughout the workday. The technology can use 96 or 384 plates for RNA, DNA, or Protein samples.
- Dual Protocol DNA assays to efficiently and economically accommodate smaller sample batch sizes yet retain high throughput capabilities.

LabChip® GX Touch™ Software

- Touch™ Operator Software and LabChip® Data Reviewer Software with ability to share data review on an unlimited basis.
- Eliminates Photographic Gel Documentation. Digital data provides higher-quality results than standard gel electrophoresis. There is a cost savings because an additional imager and software are not required. There is also a time savings as the operator does not need to transfer the gel to another instrument for analysis.
- Automatic Sizing and Quantitation. The size and concentration of each fragment are calculated and reported automatically in tabular format.
- Automatic Data Export. All run data can be automatically exported for further analysis or archival storage.
- Point-and-Click Data Overlay. The data overlay feature allows detailed sample comparisons, making sample-to-sample comparisons easy.
- Intuitive Data Image. Gel-like data image is similar to slab gel results.
- Facilitates data comparisons across multiple plates. Both 96 and 384-well plates can be pulled into the workspace to allow sample selections to be included in a 'collection' for analysis.
- Data displays in virtual gel, electropherogram, and summary table formats. Data exports in any of the display formats.
- Provides powerful filter functions to enable data queries. Variable selections can be combined to elevate the sensitivity of the filters. Filters can be saved as templates for subsequent use to analyze plates.
- Smear region analysis facilitates multiplexed experimentation of shotgun libraries for NGS.
- RNA Quality Score (RQS) for evaluating RNA sample integrity.
- Exclusive Genomic Quality Score (GQS) for evaluating genomic DNA integrity.
- Security Kit supports validation in regulated environments, consistent with 21 CFR Part 11 guidelines. Elements of the Security Kit include an Electronic Signature, Audit Trail, Central Data

Repository, Multiple User Accounts with Passwords, Controlled Access Assignments by Administrator, IQ/OQ Tools.

DNA Assay Specifications

Assay Name	Size (bp)	Custom Range	Sensitivity	Resolution	Analysis time (Per sample)
DNA 1K	25-1000	0.1 ng/μL - 50 ng/μL per fragment	0.25 ng/μL	±5% from 150-600 bp ±10% from 100-150 bp, 600- 1000 bp ±15% from 25-100 bp	68 s
DNA 5K	50-5000	0.25 - 50 ng/μL per fragment	0.25 ng/μL	±10% from 150-500 bp ±15% from 100-150 bp, 500- 1500 bp ±20% from 1500-5000 bp	25 s
DNA High Sense	50-5000	10 pg/μL - 500 pg/μL per fragment 100 pg/μL - 5 ng/μL per smears	5 pg/μL per fragment 100 pg/μL for smears	±5% from 100-500 bp ±10% from 50-100 bp, 500- 1000 bp ±15% from 1000-3000 bp ±22% from 3000-5000 bp	68 s
NGS 3K	50-3000	5 - 500 pg/μL for smears 0.5 - 50 pg/μL per fragment from 50 to 2000bp 2 - 50 pg/μL per fragment from 2000 to 3000 bp	2.5 pg/μL for smears 0.2 pg/μL per fragment	±10% from 200-1000 bp ±15% from 50-200 bp, 1000- 2000 bp ±20% from 2000-3000 bp	60 s
CfDNA	50-7000	50 - 1000 pg/μL for smears	50 pg/μL for smears	-	40s
DNA 12K	100 - 12 000	0.25 ng/μL - 50 ng/μL per fragment	0.25 ng/μL	±10% from 150-1000 bp ±15% from 1000-2000 bp, ±20% from 2000-8000 bp ±25% from 100-150 bp, 8000-12000 bp	68 s
gDNA	50 - 40 000+	2- 50 ng/μL sample diluted in 10X water 0.2- 5 ng/μL undiluted sample	0.1 ng/μL	N/A	150 s

RNA Assay Specifications

Assay Name	Size (nt)	Custom Range	Sensitivity	Analysis time (Per sample)
RNA	100 - 6000	25 ng/μL - 250 ng/μL (Std Sens) 5 ng/μL - 50 ng/μL (High Sens)	-	80 s
Pico Sensitivity RNA	100 - 6000	500 - 5000 pg/μL Total RNA 625 - 5000 pg/μL mRNA	250 pg/μL Total RNA 500 pg/μL mRNA	80 s
Small RNA	20 - 150	100 - 10000 pg/μL total RNA	50 pg/μL	60 s

Protein Assay Specifications

	ProteinEXact™	Protein Clear™ HR	Protein Express	Pico Protein	Low Molecular Weight	Glycan Screening	Change Variant
Sizing Range	6.5 kDa – 250 kDa	14 kDa – 250 kDa	14 kDa – 200 kDa	14 kDa – 200 kDa	5 kDa – 80 kDa		
Sizing Precision RSD (CV)	<2%	Sizing Precision RSD (CV) <2% Relative Migration Time Precision RSD (CV) <2% Percent Purity Reproducibility <0.5% mAb, non-reduced main peak <5% All other peaks	± 20%	± 20%	± 20% ± 10 % (CAII, BLG)	CV <2.5%	
Sizing Resolution*	± 10% difference in molecular weight	Resolution >1.0 for VeriMAB reference standard by full width half max	± 10% difference in molecular weight	± 10% difference in molecular weight	14-80 kDa ± 10% < 14 kDa ± 20%		Comparable to IEX and conventional CZE
Linear Dynamic Range	10-2000 ng/µl	10 - 1000 ng/µl (mAb, non-reduced main peak)	5.0 – 2000 µg/mL	antibodies 50 ng/mL - 500 µg/mL (4 logs) other protein 10 ng/mL - 100 µg/mL (4 logs)	30 - 2000 µg/mL (BLG, CAII in PBS)		
Maximum Total Protein Concentration	2 mg/mL	2 mg/mL	10 mg/mL		10 mg/mL		10 mg/mL
Sensitivity Limit of Detection (LOD)	0.2 ng/µl	5 µg/mL (mAb, non-reduced main peak)	5 µg/mL	0.1 % of total protein	4 µg/mL CAII (8 µg/mL BSA) in PBS	Assay precision is <4 % for the major glycan peaks	
Quantitation Reproducibility	<10%		30 % CV up to 120 kDa		30 % CV up to 120 kDa	CV<10 % for peak ≥2.5 % of total glycan	CV < 5 % for varying concentration from 1-3 mg/mL CV< 3% at constant concentration
Maximum Salt Concentration	1M NaCl at pH 6.5 to 8.5	1M NaCl at pH 6.5 to 8.5	1M NaCl at pH6.5 to 8.5		0.5 M Total Salt		
Chip Primes per Reagent Kit	10	10	10	4	4	4	N/A
Chip Sample Lifetime	400	400	400	400	400	400	500
Sample Analysis Time	65 sec	65 sec	42 sec	42 sec	60 sec	68 sec	90-110 sec

* Resolution is defined as the difference in migration times divided by the sum of the full width half max for two closely migrating peaks

Hardware Specifications

LabChip GXII Touch Specifications			
Height	25.75 in	Power requirements	100-240 Vac
Width	19.25 in	Power Consumption	N/A
Depth	18.25 in	Plate Formats	96 or 284 well
Weight	54 lbs (24.5 kg)	Excitation/Emission	635/700 nm
Temperature Range	18 - 26 °C	Humidity Range	20 % - 80 % RH

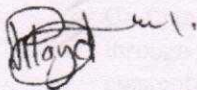
Intellectual Property

We consistently seek patent protection for our key microfluidic technologies. We are also the exclusive licensee of key microfluidic patents from UT-Battelle, LLC, relating to patents covering inventions by Dr. J. Michael Ramsey. In addition, we rely upon trade secrets, know-how, continuing technological innovation, and in-licensing opportunities to develop and maintain our competitive intellectual property position. Most of our microfluidic patents are directed in the following technical areas:

- control of movement of fluid and other material through interconnected microchannels.
- continuous flow, high-throughput screening assay methods and systems.
- chip-based assay chemistries and methods.
- chip-compatible sample access.
- software for control of microfluidic-based systems and data analysis.
- chip manufacturing processes.
- analytical and control instrumentation.
- analytical system architecture.

Please see the attached Exhibit A for a listing of some of our key patents.

Regards



Lloyd Bwanali, Ph.D

Product Manager

Revvity, Inc.

M: 774.432.8321

68 Elm Street, Hopkinton, Massachusetts, 01748

EXHIBIT A

PATENT LIST

6,001,229
6,342,142
5,858,195
6,010,607
6,010,608
6,033,546
6,475,363
5,779,868
5,880,071
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6,547,942
6,834,240
7,426,442
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7,155,344
6,366,924
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5,955,028
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