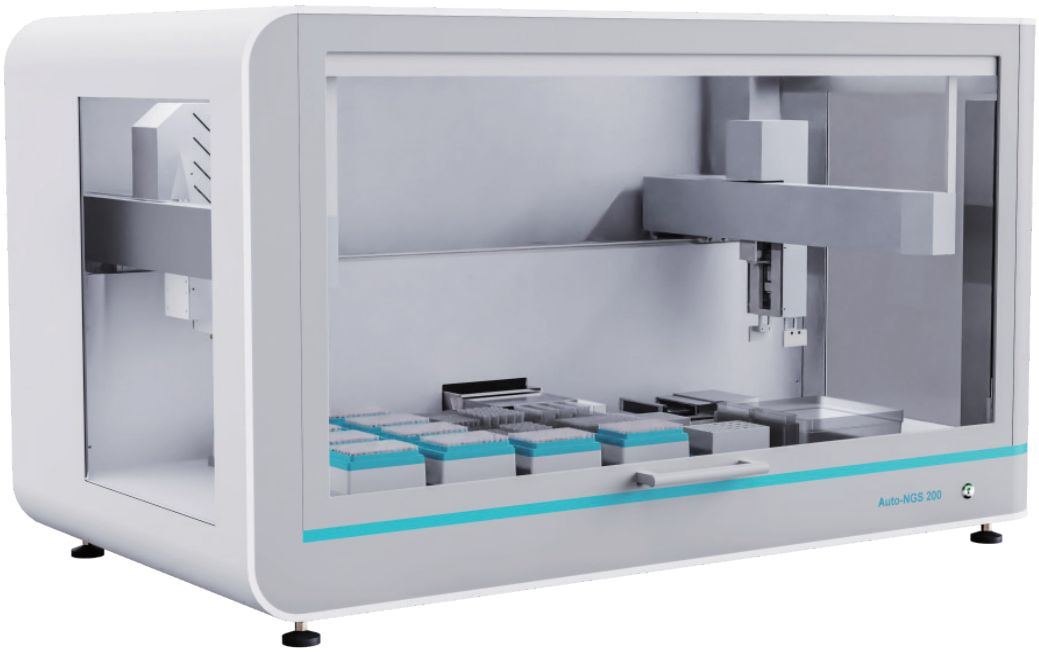
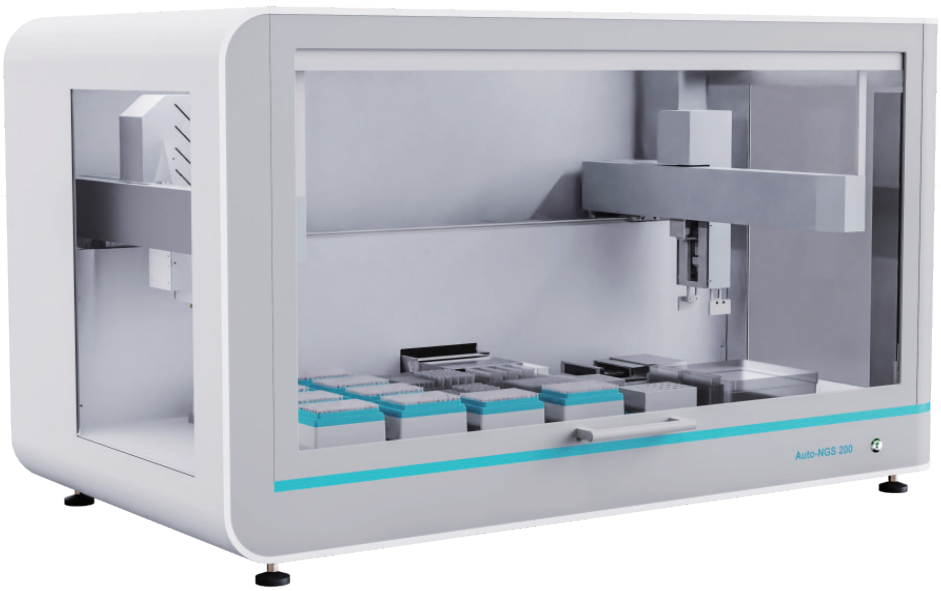
Auto-NGS 200

Automated NGS Library Preparation Workstation



Make It Possible to Automate the Whole Process of Library Preparation

Auto-NGS 200 is a one-stop library preparation workstation for library preparation, quantitation, multiplex targeting, and hybridization capture. With a built-in 24-well fluorometer and PCR amplification block, it truly achieves convenient operation of sample-to-library, without manual intervention throughout the whole process. The 27-plate design with gripper and plate stacking allows for relatively simple library preparation for 96 samples, as well as fully automated library preparation and hybridization capture for a simplified type of 48 samples.



Auto-NGS 200

Make library preparation experiments less complex and lengthy

- 24-channel pipettor (1~200 μL)
- 24-well fluorometer for automatic concentration detection
- Built-in PCR for amplification and hybridization
- Thermo shaker incubator to enhance the mixing effect
- Maximum processing capacity: 96 samples
- Plate layout: 27 plate positions
- Two robot arms, multiple blocks simultaneous operation
- 1420 mm*790 mm*800 mm

Whole process automation design

Fully open instrument configuration

Accurate and reproducible results

Whole Process Automation Design

Accurate and reproducible results with less than 0.5 h preparation time and no manual intervention during the process

By adding an original fluorometer block to the common automation platform design, Auto-NGS 200 achieves true automation of the whole process of library preparation within the machine, with the experimenter simply completing the plate layout under software guidance and clicking run to leave. The simple operation method significantly reduces the technical requirements of the operator and allows the experimenter to have more time to deal with other more important tasks. For basic library preparation processes, such as DNA-based genomic library preparation, Auto-NGS 200 can support up to 96 samples simultaneously, while for more complex processes, such as RNA-based transcriptome sequencing library preparation, Auto-NGS 200 can handle up to 48 samples.

Auto-NGS 200 enables experimental processes:

Library Preparation

- Fragmentation (Enzymatic Method)
- Purification
- End Repair + A-Tailing Adding
- Adaptor Connection
- Purification
- PCR Amplification
- Purification

Quantitative / Pooling

- Concentration Determination
- Normalization
- Pooling

Hybrid Capture

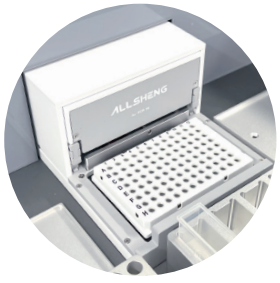
- Sample Concentration (Magnetic Bead Method)
- Probe Hybridization
- Magnetic Bead Preparation
- Magnetic Bead Capture
- PCR Amplification
- Purification

For library preparation of RNA samples, it can complete the whole process starting from RNA reverse transcription to library preparation.

A number of special blocks are built into the instrument, without any manual intervention.

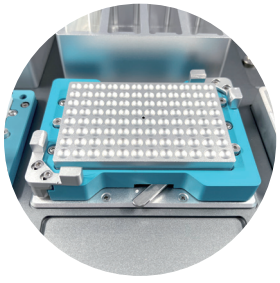
Built-in fluorometer block

Automatically complete the conc-entration quality control process



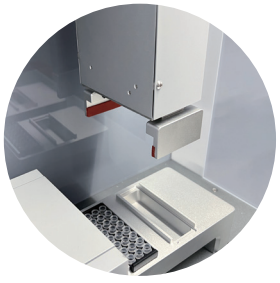
Built-in PCR block

All amplification processes in the applicable process



Thermo shaker incubator block

All preheating and mixing proce-sses in the applicable process



Gripper

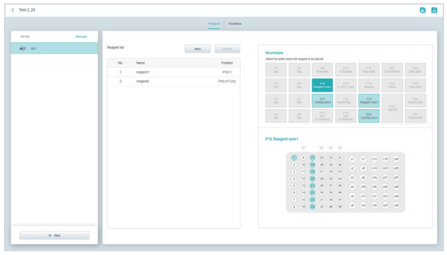
Transfer of well plates between different plate positions during the process

Fully Open Instrument Configuration

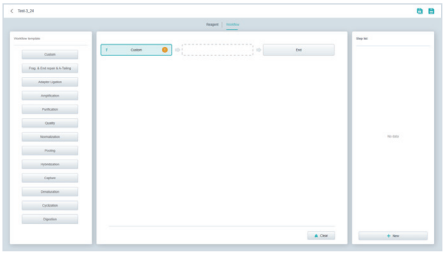
Experiment flow and plate layout can be freely customized according to the actual demand

Auto-NGS 200 adopts open design for both software and plate layout, and the program can be added and adjusted freely according to the needs of various kits. Moreover, the graphical interface design abandons the traditional automated workstation for program settings, and can be fully mastered after a simple learning process. On the plate setting, except for individual specific function block position can not be changed, the remaining plate position can be adjusted according to the actual needs, and support block customization, can be customized according to the actual needs of the reagent plate, sample loading plate and other specific forms.

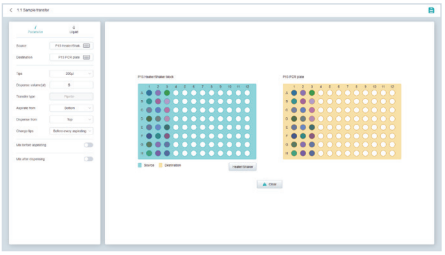
Simple program setting logic with intuitive interface design to help you quickly master the program editing methods



Reagent information input

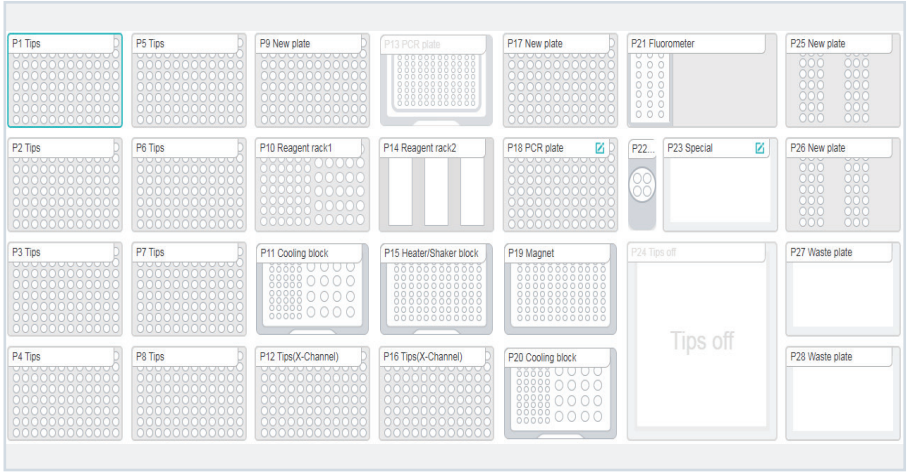


Library preparation process settings

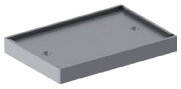


Detailed command settings

Support the customization of tabletop blocks. Based on the standard version, the plate block shape and position can be adjusted according to the application requirements.

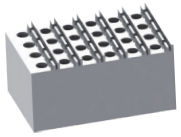


For example, in the sample loading area, depending on the form of sample storage, the corresponding block can be selected.



SBS standard tray

96 PCR plate



24×1.5 mL centrifuge tube

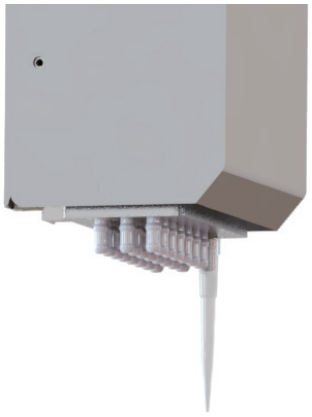
Flexible software with full-featured blocks enables the instrument to be adapted to a wide range of library preparation needs.

Accurate and Reproducible Results

Self-developed high-precision pipettor with fluorometer block to ensure accurate and reliable results

Auto-NGS 200 is equipped with a 24-channel pipettor developed by Allsheng, with a pipetting range of 1~200 μL. The excellent pipetting performance ensures accurate and stable results.The built-in fluorometer block has been developed from Allsheng Fluo series fluorometers. Years of technology have resulted in a block that offers performance comparable to a wide range of fluorescence detection instruments, but at a lower cost than other instruments.

24-channel high-precision pipettor for faster and more accurate pipetting



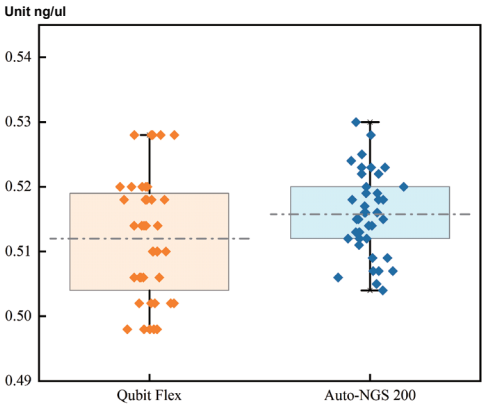
Standard volume: 2 μL			
Channel	Measured mean value (μL)	Accuracy	CV
1	1.99	-0.50%	2.28%
2	1.95	-2.30%	1.87%
3	1.93	-3.60%	4.16%
4	1.93	-3.50%	3.82%
5	1.98	-1.20%	3.08%
6	1.97	-1.60%	2.92%
7	1.98	-1.20%	5.03%
8	1.93	-3.60%	2.48%

Standard volume: 200 μL			
Channel	Measured mean value (μL)	Accuracy	CV
1	200.25	0.13%	0.10%
2	200.44	0.22%	0.27%
3	199.69	-0.16%	0.10%
4	199.89	-0.06%	0.32%
5	200.03	0.02%	0.16%
6	200.04	0.02%	0.25%
7	199.93	-0.03%	0.24%
8	200.54	0.27%	0.33%

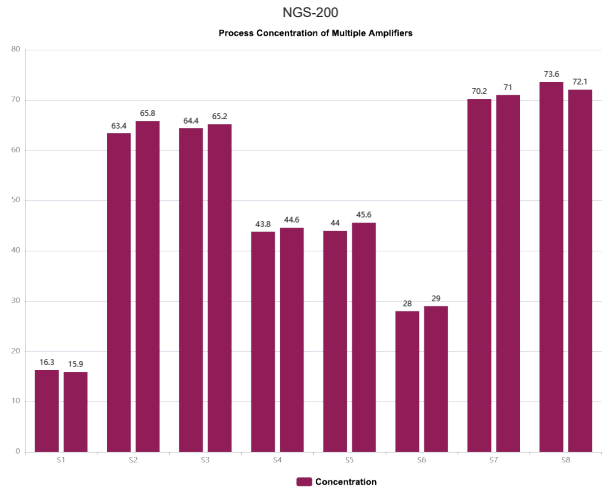
Note: due to space limitations, only 8-channel pipettor actual measured data are displayed, each channel are repeated 10 times to take the average value, the detection environment for the humidity 44.1 % rh; air pressure 1020 kpa; temperature 24.5 °C.

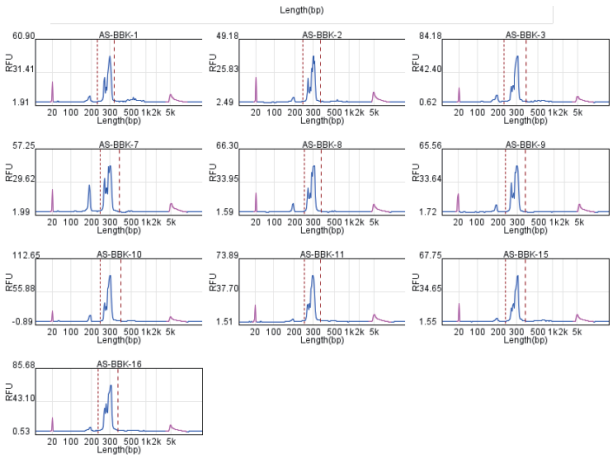
High performance fluorometer block for accurate and reliable results

Using Auto-NGS 200 and Qubit Flex for concentration detection on 8 groups of 8 low concentration samples, with a sample addition of 2 μL. The results showed no significant difference between the two test results.



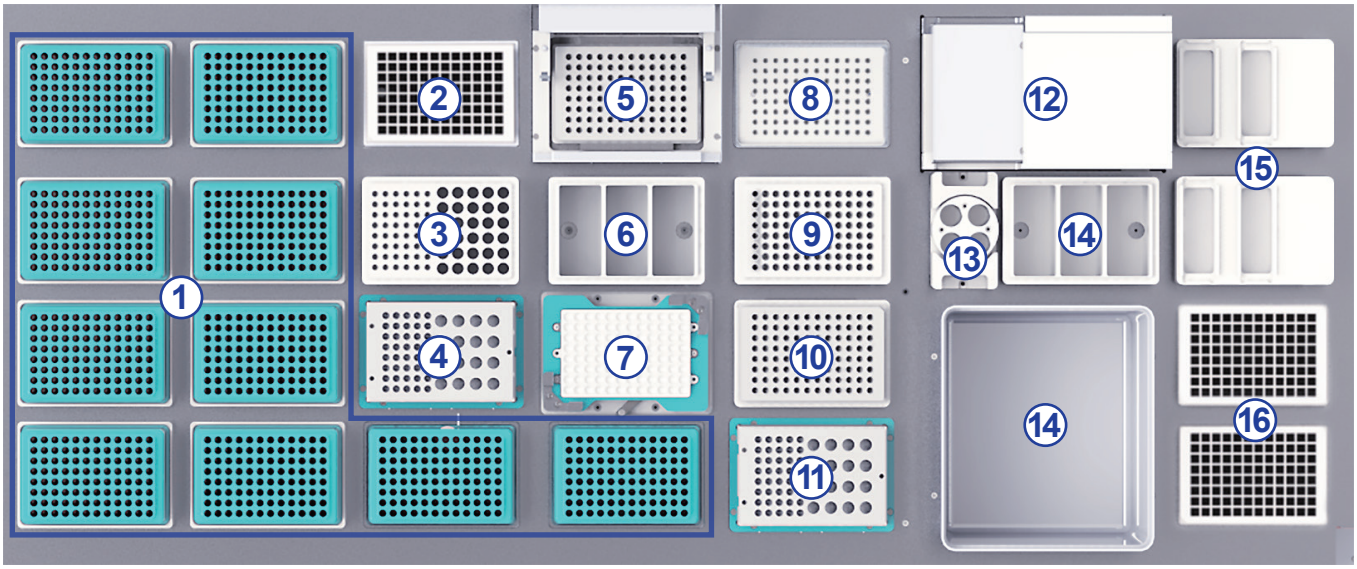
Stable performance of the various blocks ensures the high-quality of the final library





The above figure shows the results of genomic library preparation for DNA standards using NGS-200.

Easily Automated Library Preparation

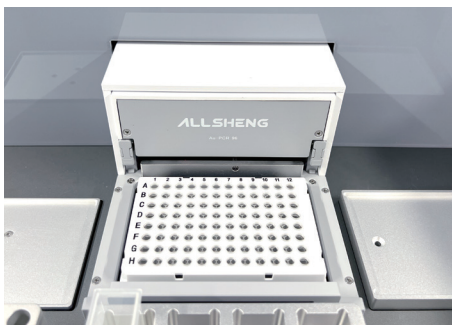


① Tip area
② New plate area (stackable)
③ Reagent area
④ Reagent area (4~105 °C)
⑤ Thermal cycling area
⑥ Reagent area
⑦ Heating and mixing (30 °C~ 105 °C)
⑧ New plate area (stackable)
⑨ Sample area
⑩ Magnetic plate
⑪ Temp. control block (4~105 °C)
⑫ Fluorometer
⑬ Magnetic bead mixing block
⑭ Waste area
⑮ Consumables
⑯ Waste plate

Fluorometer

- Supports up to 24 samples simultaneously
- Supports other reagents on the market

Thermal cycling area



- Use of silicone plate to avoid manual intervention in the process
- Developed by Allsheng, with stable performance

External code scanner

- The instrument can be connected to an external scanner for entering sample information.

Specification

Model	Auto-NGS 200
Throughput	1~96
Tiles number	25 standard tiles + (TIP off box + waste liquid area)
Pipettor	Specification: 200 μL; 24-channel (can be used as a single channel) Pipetting range: 50 μL tip: 1-200 μL; 200 μL tip: 2-200 μL Minimum detection volume: 20 μL
Pipetting precision	1 μL: ≤8 %; 2 μL: ≤5 %; 5 μL: ≤4 %; 20 μL: ≤1 %; 100 μL: ≤1 %; 200 μL: ≤1 %
Pipetting accuracy	1 μL: ±10 %; 2 μL: ±8 %; 5 μL: ±4 %; 20 μL: ±2 %; 100 μL: ±1 %; 200 μL: ±1 %
Temperature control block	Including 2 temperature control blocks Temperature control range: 4~105 °C Temperature control accuracy: ≤1 °C Temperature control uniformity: ≤1 °C @55 °C
Gene amplification block	Temperature control range: thermo lid: +30 °C~+120 °C; block: +4 °C~+99 °C Uniformity: ≤0.7 °C Accuracy: ≤±0.3 °C
Fluorescence detection range	0.4 ng~100 ng
Automatic clamping and heating mixing block	Yes
Magnetic plate	96-well annular magnetic plate
Gripper	Including one
Stacking plate lifting block	Including one
UV sterilization	Equipped with UV sterilization lamp, HEPA device
Instrument port	USB port
Information management	External scanner for entering sample/reagent information Expandable LIS system connection Expandable cloud database connection
Ambient condition	Temperature requirement: 20±5 °C Relative humidity: ≤80%
Power input	100~240 V, 50 / 60 Hz, rated power 1200 W

Ordering Information

Instrument Ordering Information

Code	Description
AS-27040-00	Auto-NGS 200 automated NGS library preparation workstation
AS-27041-01	TIP off box (recommended to store less than 1000 pcs)
AS-27041-02	Reagent rack (place 3×120 mL reservoir)
AS-27041-03	Magnetic plate for workstation (fixed, 96 PCR plate)
AS-27021-02	Standard tray (standard height plate for SBS consumables, such as ALLSHENG boxed TIPs)
AS-27021-03	Heightened tray (higher than the standard tray for SBS consumables, such as ALLSHENG boxed TIPs)
AS-27021-04	PCR tube holder (8-strip PCR tube, non-skirted 96-well PCR plate)
AS-23010-00	Au-Cooler dry bath incubator for workstation (heating and cooling), 24 V DC, 160 W, with CAN
AS-23160-00	Au-Shaker 3020TL automatic locking thermo shaker incubator for workstation (heating), 24 V DC, 120 W, with CAN

Consumables

Code	Description	Code	Description
AS-22012-201	96 square-well U bottom 1.0 mL plate	AS-27042-02	Fluorometer consumables tray for workstations
AS-22012-202	96 square-well U bottom 2.0 mL plate	AS-27042-03	Fluorometer shade cover for workstations
AS-22012-203	96 V bottom reservoir	AS-27042-04	2.0 mL storage tube
AS-RT-120-N	Disposable 120 mL reagent tank, PP material, transparent and sterile	AS-27042-05	PCR plate sealing cover
AS-27042-01	0.2 mL 8-strip PCR tube	AS-27042-06	0.1 mL full-skirted PCR plate

TIP Consumables

Code	Volume	Description	Packing
AS-TT-50-N-LB	50 μL	Allsheng tip, transparent, boxed	96 pcs/box 24 boxes/carton
AS-TT-50-NL-LB	50 μL	Allsheng tip, transparent, boxed, low adsorption	
AS-TT-50-NS-LB	50 μL	Allsheng tip, transparent, boxed, sterile	
AS-TT-50-NSL-LB	50 μL	Allsheng tip, transparent, boxed, sterile, low adsorption	
AS-TTF-50-NS-LB	50 μL	Allsheng tip, transparent, boxed, sterile, filter element	
AS-TTF-50-NSL-LB	50 μL	Allsheng tip, transparent, boxed, sterile, filter element, low adsorption	
AS-TT-200-N-LB	200 μL	Allsheng tip, transparent, boxed	
AS-TT-200-NL-LB	200 μL	Allsheng tip, transparent, boxed, low adsorption	
AS-TT-200-NS-LB	200 μL	Allsheng tip, transparent, boxed, sterile	
AS-TT-200-NSL-LB	200 μL	Allsheng tip, transparent, boxed, sterile, low adsorption	
AS-TTF-200-NS-LB	200 μL	Allsheng tip, transparent, boxed, sterile, filter element	
AS-TTF-200-NSL-LB	200 μL	Allsheng tip, transparent, boxed, sterile, filter element, low adsorption	