3500 and 3500xL Genetic Analyzers Quick Reference Card

For safety and biohazard guidelines, refer to the “Safety” appendix in the *Applied Biosystems 3500/3500xL Genetic Analyzers User Guide* (PN 4401661). Wear appropriate protective eyewear, clothing, and gloves.

Assumptions

The *3500 and 3500xL Genetic Analyzers Quick Reference Card* assumes that an Applied Biosystems technical representative installed your 3500 or 3500xL Genetic Analyzer. This card also assumes that the system is in working condition, consumables are installed, and the system has been properly calibrated.

Guidelines

Assays

An assay contains the instrument protocol (dye set and run configuration) and primary analysis protocol needed to collect data and basecall or sizecall a sample. Assays, File Name Conventions, and Results Groups may already be listed in the plate template when you create a plate from a template. If no assay is listed, add at least one assay.

File Name Conventions and Results Groups

File Name Conventions and Results Groups are optional, but they are very useful for naming and organizing data files.

- By default, data files are named in this format: <*sample name*>_<*well*>
- If you do not specify a Results Group, files are stored in the location specified in the File Name Convention or as set in Preferences. If the location for stored files specified in the Results Group is different from the location specified in the File Name Convention, the files are stored in the location specified in the Results Group.

Primary analysis protocols

A primary analysis protocol allows you to specify basecalling (sequencing), sizecalling (fragment analysis), and QC (HID analysis) settings for generating analyzed results immediately after data collection.

Normalization

For fragment analysis and HID applications using the GeneScan™ 600 LIZ® Size Standard v2.0, the 3500 Series Data Collection Software includes a normalization feature that attenuates signal variations associated with instrument, capillary array, sample salt load, and injection variability between capillaries and across instruments.

For more information

For more information about the tasks described in this quick reference card, refer to the:

- *Applied Biosystems 3500/3500xL Genetic Analyzers User Guide* (PN 4401661)
- 3500 Series Data Collection Software Help System*,* which you can access by clicking ? in the toolbar

Workflow

Refer to the specified chapters in the *Applied Biosystems 3500/3500xL Genetic Analyzers User Guide* (PN 4401661) for more information about the tasks in the workflow.

Before you start a run

Chapter 2: Start the System

1. Check the instrument status ➜

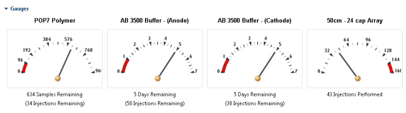
Indicator lights must be green.

2. Check the Integration Server Monitor status ➜

The icon in the right lower corner of the screen must show that the 3500 Server Monitor has started.

3. Check the consumables status in the Dashboard ➜

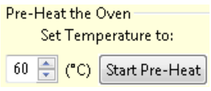
All consumables must show a valid status.



634 Samples Remaining (34 Injections Remaining)
5 Days Remaining (50 Injections Remaining)
5 Days Remaining (30 Injections Remaining)
43 Injections Performed

Review the information for the number of injections, samples, or days remaining for each consumable.

4. Pre-heat the oven



In the Dashboard, click the **Start Pre-heat** feature to warm the oven and detection cell while you prepare for a run. The preheat function automatically turns off after 2 hours.

Note: Applied Biosystems recommends that the instrument remain at the selected temperature for at least 30 minutes before the start of a run.

Assemble the plate and load it in the instrument

Assemble the plate or tubes with the appropriate plate retainers and bases, then load the assembled sample plate on the autosampler.

Create a plate and link the plate to a run

Chapter 3: Set Up and Run

1. Define plate properties ➜

a. In the Dashboard, click **Create Plate from Template**, then select an appropriate plate template.

b. Click **Open** to define plate properties.

c. Enter the plate details.

Note: If you are performing secondary analysis, select the **Perform Auto-Analysis** check box and follow the prompts. For more information, refer to the *Applied Biosystems 3500/3500xL Genetic Analyzers User Guide* (PN 4401661):
- Appendix B, Secondary Analysis: Sequencing
- Appendix C, Secondary Analysis: Fragment

d. Click the **Assign Plate Contents** button at the bottom of the screen.

2. Assign plate contents ➜

a. Enter sample names:
  1. Click the Plate Map or Table View tab, then in the plate view, click a well.
  2. Type a sample name directly into the field, then press **Enter**.

Note: You can right-click and use the Fill Series options to populate all sample names on the plate.

b. To change the assay, File Name Conventions and Results Groups, select the wells you want to change, then select the check box(es) of interest.

IMPORTANT! To normalize fragment or HID data, select an assay that contains a sizecalling protocol or a QC protocol that specifies a normalization size standard.

c. (Optional) In the Customize Sample Info pane, select the sample type for either a few or all of the samples on the plate.

IMPORTANT! This step is required if you are performing autoanalysis

d. Save the changes made by selecting **Save Plate ▸ Save** or **Save As**.

e. Click **Link Plate for Run** in the Assign Plates for Run screen or **Load Plates for Run** in the navigation pane to assign the plate and specify the position of the plate in the autosampler.

3. Load plates for the run ➜

a. Inspect the information presented on the screen. Confirm that the linked plate is in the correct position of the autosampler.

b. Click **Start Run** or review the injection list by clicking **Create Injection List** in the Load Plates for Run screen or **Preview Run** in the navigation pane.

4. Preview run

View and edit (if necessary) the injection list details.

Note: You can assign duplicate injections at this time.

a. (Optional) Rearrange the injection list order based on your preference.

b. Click **Start Run**.

Monitor the run and review results

Chapter 4: Review Results

1. Monitor the run ➜

During an instrument run, use the Monitor Run screen to:
- View individual sample results by selecting a well in the plate view or from the sample tab.
- View results for an entire injection by selecting a row from the injection list.
- Edit the injection list:
  - Re-inject
  - Change the order
  - Delete injections
  - Abort an injection or terminate the injection list.
- Start, pause, or resume a run.
- Use the Flag Summary Table to review failed samples.

If the sample quality falls below the specified quality thresholds (set in the Basecalling, Sizecalling or QC protocols), a flag is set for the sample. You can select the sample and choose to re-inject if necessary.

To re-inject a sample, select the sample from the Sample tab or the Flag Summary Table. To re-inject an entire injection (8 or 24), select the injection of interest from the:
- Injection list
- Array tab
- Plate map tab

2. Review results

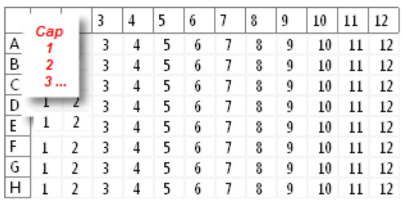
Click **Review Results** to view the results for any completed injections.

After the run is complete, the Review Results screen provides detailed views of:
- Sequencing results
- Fragment/HID results
- Reports that you can use to perform Quality Control of data

Note: If you are conducting a Fragment/HID analysis, the View Fragment/HID Results screen, by default, shows the Fragment Samples only. To see the HID Samples, click **HID Samples**.

Plate mapping – capillary array map

8 capillary: 96-well plate

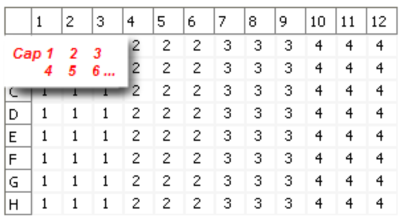


			3	4	5	6	7	8	9	10	11	12
A			3	4	5	6	7	8	9	10	11	12
B			3	4	5	6	7	8	9	10	11	12
C			3	4	5	6	7	8	9	10	11	12
D	1	2	3	4	5	6	7	8	9	10	11	12
E	1	2	3	4	5	6	7	8	9	10	11	12
F	1	2	3	4	5	6	7	8	9	10	11	12
G	1	2	3	4	5	6	7	8	9	10	11	12
H	1	2	3	4	5	6	7	8	9	10	11	12

8 capillary: 96-well plate

384-well plate is not supported on the
3500 Genetic Analyzers
(8-capillary)

24 capillary: 96-well plate



	1	2	3	4	5	6	7	8	9	10	11	12
				2	2	2	3	3	3	4	4	4
				2	2	2	3	3	3	4	4	4
C	1	1	1	2	2	2	3	3	3	4	4	4
D	1	1	1	2	2	2	3	3	3	4	4	4
E	1	1	1	2	2	2	3	3	3	4	4	4
F	1	1	1	2	2	2	3	3	3	4	4	4
G	1	1	1	2	2	2	3	3	3	4	4	4
H	1	1	1	2	2	2	3	3	3	4	4	4

24 capillary: 384-well plate

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
A	1	3	1	3	1	3	5	7	5	7	5	7	9	11	9	11	9	11	13	15	13	15	13	15
B	2	4	2	4	2	4	6	8	6	8	6	8	10	12	10	12	10	12	14	16	14	16	14	16
C	1	3	1	3	1	3	5	7	5	7	5	7	9	11	9	11	9	11	13	15	13	15	13	15
D	2	4	2	4	2	4	6	8	6	8	6	8	10	12	10	12	10	12	14	16	14	16	14	16
E	1	3	1	3	1	3	5	7	5	7	5	7	9	11	9	11	9	11	13	15	13	15	13	15
F	2	4	2	4	2	4	6	8	6	8	6	8	10	12	10	12	10	12	14	16	14	16	14	16
G	1	3	1	3	1	3	5	7	5	7	5	7	9	11	9	11	9	11	13	15	13	15	13	15
H	2	4	2	4	2	4	6	8	6	8	6	8	10	12	10	12	10	12	14	16	14	16	14	16
I	1	3	1	3	1	3	5	7	5	7	5	7	9	11	9	11	9	11	13	15	13	15	13	15
J	2	4	2	4	2	4	6	8	6	8	6	8	10	12	10	12	10	12	14	16	14	16	14	16
K	1	3	1	3	1	3	5	7	5	7	5	7	9	11	9	11	9	11	13	15	13	15	13	15
L	2	4	2	4	2	4	6	8	6	8	6	8	10	12	10	12	10	12	14	16	14	16	14	16
M	1	3	1	3	1	3	5	7	5	7	5	7	9	11	9	11	9	11	13	15	13	15	13	15
N	2	4	2	4	2	4	6	8	6	8	6	8	10	12	10	12	10	12	14	16	14	16	14	16
O	1	3	1	3	1	3	5	7	5	7	5	7	9	11	9	11	9	11	13	15	13	15	13	15
P	2	4	2	4	2	4	6	8	6	8	6	8	10	12	10	12	10	12	14	16	14	16	14	16

Maintenance schedule

Daily
Before each run
Check the status of the consumables in the Dashboard by viewing the status of the anode buffer, cathode buffer, and polymer.
Ensure that all the buffer is in the non-waste section of the container.
Ensure that the plates are properly assembled. **IMPORTANT!** Align the holes in the plate retainer with the holes in the septa to avoid damaging capillary tips.
Ensure that the plate assemblies and the cathode buffer container are positioned on the plate deck properly. They should sit securely on the deck.
Daily or before each run
Check the pump block to ensure that it fits securely on the instrument.
Ensure that the array locking lever on the capillary array is secured.
Check for bubbles in the pump block and channels. **Note:** Use the Remove Bubble wizard to remove bubbles.
Check the load-end header to ensure that the capillary tips are not crushed or damaged.
Check for leaks and dried residue around the buffer pin, check valve, and array locking lever. **IMPORTANT!** If leaks persist, contact Applied Biosystems.
Clean the instrument surfaces of dried residue, spilled buffer, or dirt.

Weekly
Check the storage conditions of the used arrays to ensure that the array tip is covered in the reservoir.
Run the Wash Pump and Channels wizard.
Clean the anode buffer container pin-valve assembly on the polymer delivery pump.
Restart the computer and instrument.

Monthly/Quarterly
Refer to the *Applied Biosystems 3500/3500xL Genetic Analyzers User Guide* (PN 4401661) for monthly/quarterly maintenance tasks.

IMPORTANT! The 3500 Series Data Collection Software prompts you with Applied Biosystems recommended reminders in the Maintenance Notifications section of the Dashboard. You can add your own custom notifications in the maintenance calendar.

NOTICE TO PURCHASER: PLEASE REFER TO THE APPLIED BIOSYSTEMS 3500/3500xL GENETIC ANALYZERS USER GUIDE (PN 4401661) FOR LIMITED LABEL LICENSE OR DISCLAIMER INFORMATION.

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