applied biosystems

GlycanAssure™ AutoXpress Kit

USER GUIDE

Automated N-glycan purification and APTS labeling of glycoproteins

for use with AutoMate *Express*™ Instrument

Catalog Numbers A36063, A36064, A38929, and A38930

Publication Number MAN0017457

Revision B.0

For Research Use Only. Not for use in diagnostic procedures.

ThermoFisher SCIENTIFIC

Life Technologies Corporation | 5781 Van Allen Way | Carlsbad, CA 92008
For descriptions of symbols on product labels or product documents, go to **thermofisher.com/symbols-definition**.

The information in this guide is subject to change without notice.

Revision history: Pub. No. MAN0017457

Revision	Date	Description
B.0	12 December 2018	• Added Cat. Nos. A38929 and A38930. • Updated references to Cat. No. A38263. It is not an orderable part, but is included in Cat. Nos. A38929 and A38930.
A.0	26 January 2018	New document.

Contents

1 Product information

IMPORTANT! Before using this product, read and understand the information in the "Safety" appendix in this document.

Product description

The GlycanAssure™ AutoXpress Kit is an *N*-glycan rapid-release, APTS labeling, and cleanup kit for use with the AutoMate *Express*™ Instrument for glycoprotein sample preparation. The kit includes pre-filled reagent cartridges for automated N-glycan release, APTS glycan labeling with reductive amination, and excess dye cleanup with magnetic beads. The kit is designed for a starting glycoprotein amount of 20–100 µg.

The resulting labeled *N*-glycans can be analyzed with liquid chromatography (LC) on the Thermo Scientific™ Vanquish™ UHPLC System with Chromeleon™ Chromatography Data System (CDS) Software or with capillary electrophoresis (CE) on the Thermo Fisher Scientific 3500/3500xL Genetic Analyzer with GlycanAssure™ Data Acquisition Software and GlycanAssure™ Data Analysis Software.

Kit benefits include:

- The entire workflow is fully automated and is performed in ~1.5 hours.
- Rapid deglycosylation of complex glycoproteins occurs in 10 minutes.
- Released glycans are directly labeled without the need for glycan purification.
- The magnetic bead-based cleanup preserves sialylated glycans and effectively removes free dye from the labeling step.

Contents and storage

Table 1 GlycanAssure™ AutoXpress Kit

Contents	Amount		Storage
	Cat. No. A36063 (26 samples)	**Cat. No. A36064 (52 samples)**	
GlycanAssure™ AutoXpress Cartridges	1 box of 26	2 boxes of 26	–30°C to –10°C
GlycanAssure™ AutoXpress Beads	26 x 50 µL	52 x 50 µL	2°C to 8°C
Screw-cap tubes (1.5 mL)	52	104	18°C to 25°C
AutoMate *Express*™ Tips and Tip Holders	1 pack of 26 sets	2 packs of 26 sets	

Table 2 GlycanAssure™ AutoXpress Kit with CE Module

Contents	Amount		Storage
	Cat. No. A38929 (26 samples)	**Cat. No. A38930 (52 samples)**	
GlycanAssure™ AutoXpress Kit			
GlycanAssure™ AutoXpress Cartridges	1 box of 26	2 boxes of 26	–30°C to –10°C
GlycanAssure™ AutoXpress Beads	26 x 50 µL	52 x 50 µL	2°C to 8°C
Screw-cap tubes (1.5 mL)	52	104	18°C to 25°C

Contents	Amount		Storage
	Cat. No. A38929 (26 samples)	**Cat. No. A38930 (52 samples)**	
AutoMate *Express*™ Tips and Tip Holders	1 pack of 26 sets	2 packs of 26 sets	18°C to 25°C
GlycanAssure™ CE Module (Cat. No. A38263)			
GlycanAssure™ Landmark Red	1 × 33 µL	1 × 33 µL	–25°C to –15°C
GlycanAssure™ Loading Buffer	1 × 7.2 mL	1 × 7.2 mL	Room temp. (15°C to 30°C)
GlycanAssure™ LIZ™ Dye Size Standard	1 × 220 µL	1 × 220 µL	2°C to 8°C

Required materials not supplied

Unless otherwise indicated, all materials are available through **thermofisher.com**. MLS: Fisher Scientific (**fisherscientific.com**) or other major laboratory supplier.

Materials for N-glycan purification and APTS labeling

Table 3 Equipment and consumables

Item	Source
AutoMate *Express*™ Glycan Sample Preparation System (AutoMate *Express*™ Instrument + GlycanAssure™ AutoXpress Script (Protocol card[1])	A38075
Fisherbrand™ Standard Mini Centrifuge	Fisher Scientific™ 12-006-901
Fisher Scientific™ Vortex Mixer	02-215-365
(Optional) DynaMag™–2 Magnet (16-position Magnetic Stand)	12321D
Pipettes	MLS
Waste bottle	MLS
Water, HPLC Grade	MLS

[1] Can be purchased separately. Cat. No. A36164

Workflow

Prepare the GlycanAssure™ AutoXpress run (page 10)

Thaw the GlycanAssure™ AutoXpress Cartridges (page 11)

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Prepare the glycoprotein samples (page 11)

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Resuspend the GlycanAssure™ AutoXpress beads (page 12)

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Load and run the AutoMate *Express*™ Instrument (page 13)

Insert a protocol card (page 13)

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Load and insert the cartridge rack (page 15)

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Load and insert the tip and tube rack (page 18)

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Start the run (page 19)

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Liquid chromatography (LC) (page 23) **Capillary electrophoresis (CE) (page 27)**

2 Prepare the GlycanAssure™ AutoXpress run

Guidelines for working with GlycanAssure™ AutoXpress Cartridges

- Always use the plastics provided with the kit.
- Do not switch the supplied pre-filled reagents with any other buffers, because the protocols are specifically optimized with the reagents supplied with the kit.
- Tap the cartridges on the laboratory bench to collect reagents at the bottom of the wells.

  Note: Residual amounts of reagent on the sides of the wells is acceptable.
- Protect the cartridges from light.
- Use the cartridges within 1 hour of thawing.

Guidelines for working with the AutoMate *Express*™ Instrument

Before using the instrument, see the *AutoMate Express™ Instrument User Guide* (Pub. No. 4441982) and review the sections on safety and operating the instrument.

Thaw the GlycanAssure™ AutoXpress Cartridges

1. Thaw the cartridges at room temperature, protected from light, for 20–60 minutes before loading them onto the AutoMate *Express*™ Instrument. Thaw 1 cartridge per sample, up to a maximum of 13 samples.

   Note: Failure to completely thaw the cartridges before use can affect results.

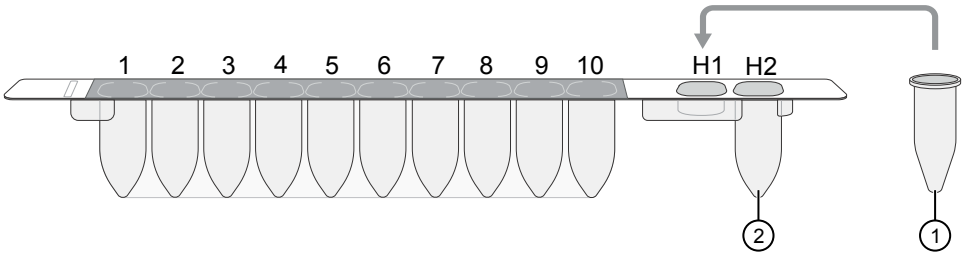
2. After the cartridge has thawed, flick the cartridge swiftly in a downward motion two times to collect the reagents at the bottom of the wells.

   Note: Gently tap the cartridges on the bench. It is not necessary to centrifuge the cartridges to bring all remaining drops to the bottom of the wells.

3. Visually check that wells contain approximately the correct amount of reagent.

Table 4 Pre-filled reagent volumes

Well	Volume	Well	Volume
1	50 µL	6	220 µL
2	Empty	7	220 µL
3	20 µL	8	50 µL
4	50 µL	9	30 µL
5	550 µL	10	20 µL



① Sample tube
② Empty well

Prepare the glycoprotein samples

The starting glycoprotein range for this workflow is 20–100 µg. For routine analysis, we recommend a starting glycoprotein amount of 50 µg using a glycoprotein concentration of 5mg/mL. Starting concentrations will vary with protein sample type. Dilute samples with HPLC grade water if necessary.

1. Add 10 µL of each sample to a screw-cap tube (up to 13 samples total).

   Note: Using volumes other than 10 µL can affect results.

2. Cap the tubes, then briefly centrifuge to collect the samples at the bottom of the tubes.

Resuspend the GlycanAssure™ AutoXpress beads

1. Vortex the tubes of GlycanAssure™ AutoXpress beads at medium speed for 3–5 seconds to mix the beads.

   Note: Vortex 1 tube per sample, up to a maximum of 13 samples.

2. Tap the tubes of beads on the bench to collect the contents to the bottom of the tube.

   IMPORTANT! Do not centrifuge the beads.

3 Load and run the AutoMate *Express*™ Instrument

Insert a protocol card

For guidelines on handling protocol cards, see the *AutoMate Express*™ *Instrument User Guide* (Pub. No. 4441982).

1. Confirm that the power switch is in the off position.

   Note: If you insert the card while the instrument is on, the instrument will not recognize the card.

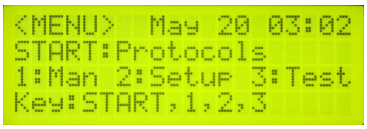
2. Open the card slot.

3. Insert the protocol card in the slot, with the arrow pointing toward the instrument and the label facing left.

4. Push the card completely into the card slot, then close the card slot.

5. Power on the instrument.
   When the card is fully inserted in the correct orientation, the display briefly shows information including the instrument version, then shows the **Main** menu.

IMPORTANT! Do not remove or insert the protocol card while the instrument is powered on. Removing the card stops the run, and it may cause instrument data file loss. If the card is removed during a run, immediately power off the instrument to minimize the potential for data loss.



Load and insert the cartridge rack

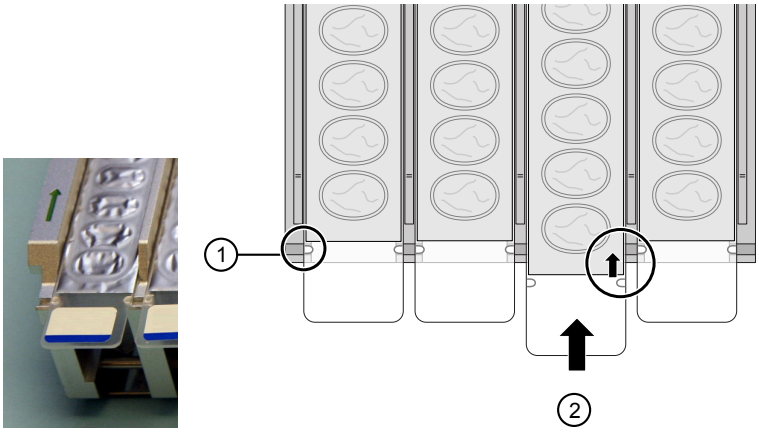
Wear gloves when you handle samples or load the cartridges, tips, and tubes in the rack.

1. Press **Start** to display step-by-step instructions for loading on the touchscreen.
2. Open the instrument door (push up the door), then remove the tip and tube rack and the cartridge rack.

① Push up

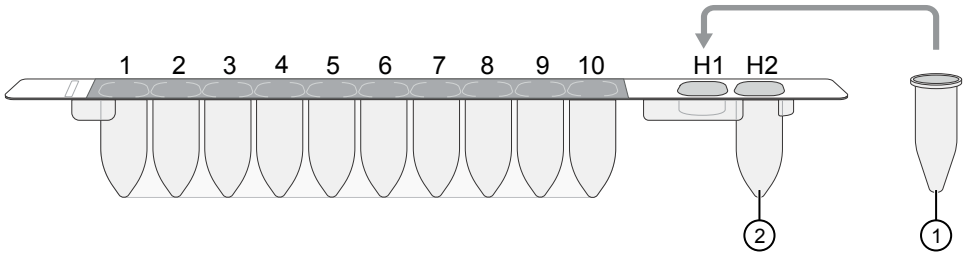
3. Load the reagent cartridges into the cartridge rack by sliding each reagent cartridge along the groove in the direction of the arrow until the reagent cartridge clicks into place. Ensure that the notches in the cartridge align with the notches in the cartridge rack.

   Note: An incorrectly loaded cartridge rack can cause the instrument to stop during a run.



① Correct position
② Slide the cartridge until the notches align and the cartridge clicks into place

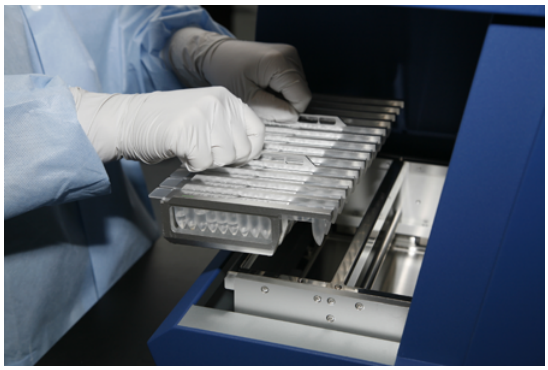
4. After the cartridges click into place, uncap the sample tubes (prepared in "Prepare the glycoprotein samples" on page 11), then place one sample tube into each cartridge at position H1.

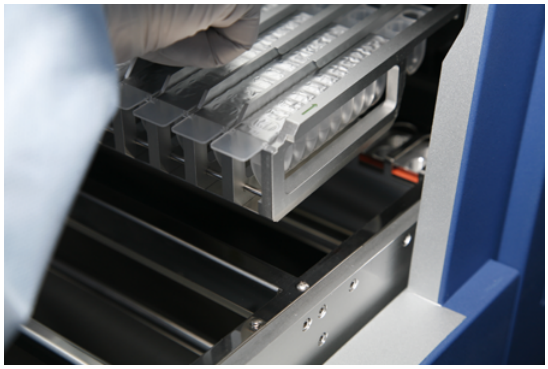


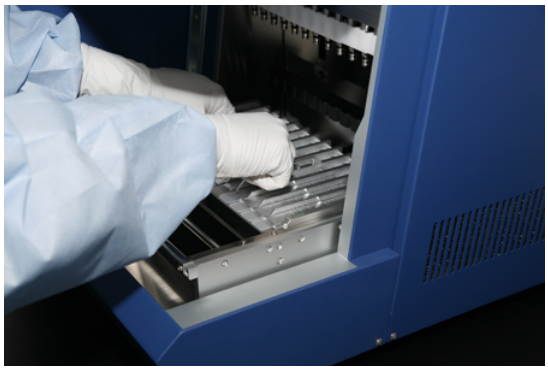
① Sample tube
② Empty well

5. Insert the loaded cartridge rack into the instrument.

WARNING! Do not touch the surface of the heat block. Touching the block can cause burns.







Load and insert the tip and tube rack

IMPORTANT! Follow these guidelines to avoid potential problems during the run:

- Load the cartridge rack into the instrument first, followed by the tip and tube rack. Loading the tip and tube rack first causes the instrument to stop during a run.
- Use only the supplied screw-cap tubes. Using other tubes will result in instrument or experiment failure.
- If you are processing fewer than 13 samples, be sure to load the tips and tubes in the same positions as the GlycanAssure™ AutoXpress Cartridges that are loaded in the cartridge rack.

Note: Press  after following each on-screen prompt.

1. Load the tip and tube rack in the following order:

   Note: If you are processing fewer than 13 samples, be sure to load the tips and tubes in the same positions as the GlycanAssure™ AutoXpress Cartridges that are loaded in the cartridge rack.

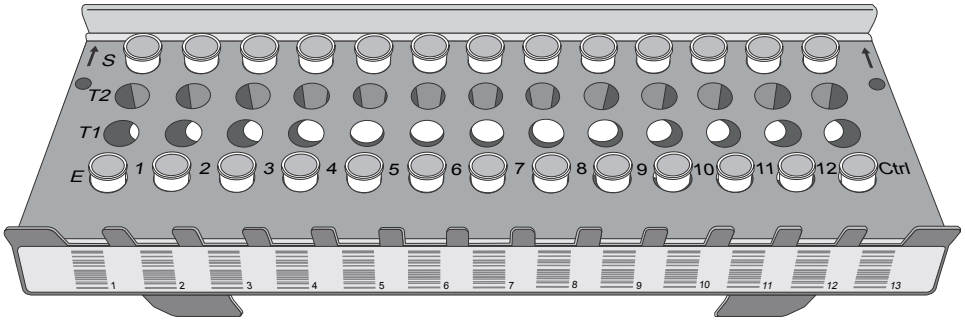
   a. **Row E**—Load the screw-cap elution tubes, with the caps off.

   b. **Row T1**—Load AutoMate *Express*™ tips inserted into tip holders.

   c. **Row T2**—Load AutoMate *Express*™ tips inserted into tip holders.

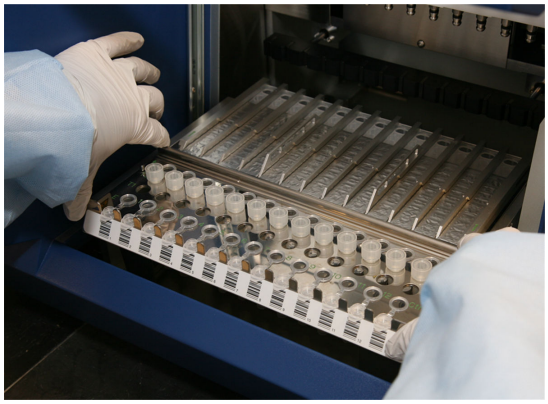
      Note: Two tip and tip holder sets are required per sample.

   d. **Row S**—Load GlycanAssure™ AutoXpress Beads.



① Row E—Screw-cap elution tubes (with caps removed)
② Row T1—Tips and tip holders (not shown)
③ Row T2—Tips and tip holders (not shown)
④ Row S—GlycanAssure™ AutoXpress Beads

2. Insert the loaded tip and tube rack into the instrument with row E in the front.



Start the run

1. Ensure that you have loaded and inserted the racks correctly and that all tubes are uncapped, then close the instrument door.

2. Press **Start** from the **Home** screen.

3. Verify that **Glycan Prep** is displayed, then press .

4. Press **Start** to begin the run.

IMPORTANT! Do not open the door during a protocol run. To cancel the run, see the *AutoMate Express*™ *Instrument User Guide* (Pub. No. 4441982).

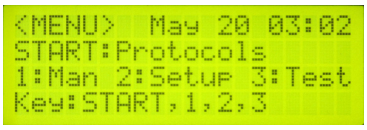
Note: If you lose power or the power cord is unplugged, the run stops. When the power resumes, the digital display shows the **Main** menu. You cannot resume the run. If the tips are still on the syringe unit when the power resumes,

return the tips to the original positions as described in the *AutoMate Express*™ *Instrument User Guide* (Pub. No. 4441982).

Cancel a run

1. Press **Stop** to pause the run.
   The display shows the following:

2. Press **Stop** again.
   The instrument stops after the current step is completed. The screen returns to the **Main** menu.



3. Press **1** to go to the **Manual** screen.

   Note: When the run is interrupted, the axes and tip do not automatically return to the original positions.

4. Select one of the following options:

Option	Description
To return tips to the holders	Press **2** (Return Tip). **Note:** Upon completion, the instrument returns to the **Main** menu.
To move axes when tips do not need to be returned to holders	1. Press **1** (ORG) to go to the **ORG** screen. 2. Move each individual axis to the origin by pressing **1**, **2**, **3**, **4**, respectively, or press **0** to return all axes to the origin.  3. Press **ESC** to return to **Main** menu.

You are now ready to a start a new run.

Complete the run and store the eluant

At the end of the run, the instrument beeps and briefly displays "Completed" before returning to the **Home** screen.

1. Open the instrument door, then remove and cap the elution tubes that contain the labeled glycan samples.
2. Remove the cartridge rack and tip and tube rack.
3. Properly dispose of the used reagents, reagent cartridges, tips, and tubes.

   Note: All hazardous reagents are automatically collected in the sample tube at the end of the run.

   WARNING! The used reagent cartridges and the sample tube contain solvent (acetonitrile) and low pH reagents (APTS dye). Refer to Safety Data Sheets and local, state, and national regulations for proper labeling, handling, and disposal.

4. After each run, clean the tip and tube rack as needed. Follow the cleaning procedures in the *AutoMate Express*™ *Instrument User Guide* (Pub. No. 4441982).

   Note: No cooling period is required between runs.

5. Close the instrument door, then proceed immediately to Liquid chromatography (LC) or Capillary electrophoresis (CE).

Labeled glycan samples can be stored at 4°C for same-day use, or at –20°C for up to 3 months.

Troubleshooting

Observation	Possible cause	Recommended action
No reagent in wells	The reagents are hidden under the foil seal.	Flick the cartridges in a downward motion, or tap gently on the bench to collect the reagents to the bottom of the wells.
	There is a leak in the foil seal of the cartridge.	Use a new cartridge.
The run stops	The tubes are capped (sample tube, bead tube, or eluant tube).	Uncap all 1.5 mL tubes, discard the cartridge, then begin a new run.

B

LC and CE recommendations

Liquid chromatography (LC)

Materials for LC

Table 5 Liquid chromatography system

Item	Source
Chromeleon™ Chromatography Data System (CDS) Software	CHROMELEON7 or higher
Thermo Scientific™ Vanquish™ Fluorescence Detector F (Micro flow cell: 2-µL, biocompatible)	VF-D50-A
One of the following instruments, equipped with the Vanquish™ Fluorescence Detector F:	
Thermo Scientific™ Vanquish™ Horizon UHPLC System (1,500 bar binary)	IQLAAAGABHFAPUMZZZ
Thermo Scientific™ Vanquish™ Flex Binary UHPLC System (1,000 bar binary)	IQLAAAGABHFAPUMBJC
Thermo Scientific™ Vanquish™ Flex Quaternary UHPLC System (1,000 bar quaternary)	IQLAAAGABHFAPUMBHV

Table 6 Equipment and consumables

Item	Source
Thermo Scientific™ 9-mm MS-Certified Clear Screw Thread Kit (100 vials and 100 caps with pre-assembled septa)	MSCERT5000-31LVW
100% acetonitrile, HPLC grade	Fisher Scientific™ A998-4
Ammonium formate, 99%	Fisher Scientific™ A666-500
Thermo Scientific™ Accucore™ 150 Amide HILIC LC Column (2.6-µm, 150 Å, 2.1 × 150 mm)	16726-152130

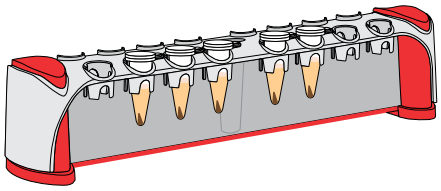
Prepare mobile phase

1. Add 6.31 g of ammonium formate to 0.9 L of deionized water, then mix thoroughly until all salts are dissolved.
2. Filter the solution through a 0.2-µm HPLC-certified nylon filter, then transfer to a glass mobile phase bottle.
3. Carefully add formic acid to adjust the pH to 4.4.
4. Bring the total volume to 1 L with deionized water.

Prepare the glycan sample for LC

If frozen, thaw the labeled glycan sample. Protect from light.

1. *(Optional)* Place the labeled glycan sample on the DynaMag™–2 Magnet for ~30 seconds to remove any residual beads.



2. Add the following components to each LC vial:

Component	Volume
100% acetonitrile	45 µL
Labeled glycan supernatant **Note:** Avoid residual bead carryover.	15 µL

3. Tightly cap the vial, then vortex for 10 seconds at high speed to mix thoroughly.
4. Place the vials on the instrument.

LC analysis parameters

Table 7 Instrument parameters

Parameter	Value
Column	Accucore™ 150 Amide HILIC LC Column (2.1 × 150 mm, 2.6-µm, 150 Å)
Column temperature	50°C
Injection volume	15 µL
FLD	λ_{ex} 455 nm, λ_{em} 500 nm
Mobile phase B	100% acetonitrile
Mobile phase A	100 mM ammonium formate, pH 4.4 (prepared in Prepare mobile phase (page 24))
Data collection rate	10 Hertz
Sensitivity	7 or lower, as appropriate for your samples
PMT gain & Filter Wheel	Auto & 435 nm
Lamp mode	High power

Table 8 50-minute method

Time	Flow rate	Acetonitrile	100 mM ammonium formate, pH 4.4
0.0 minutes	0.45 mL/minute	68%	32%
45.0 minutes	0.45 mL/minute	55%	45%
45.5 minutes	0.45 mL/minute	40%	60%
47.0 minutes	0.45 mL/minute	40%	60%
47.5 minutes	0.45 mL/minute	68%	32%
50.0 minutes	0.45 mL/minute	68%	32%

Example LC data (from the Accucore™ 150 Amide HILIC LC Column)

Figure 1 and Figure 2 provide representative LC data from the Accucore™ 150 Amide HILIC LC Column (with Vanquish™ Fluorescence Detector F).

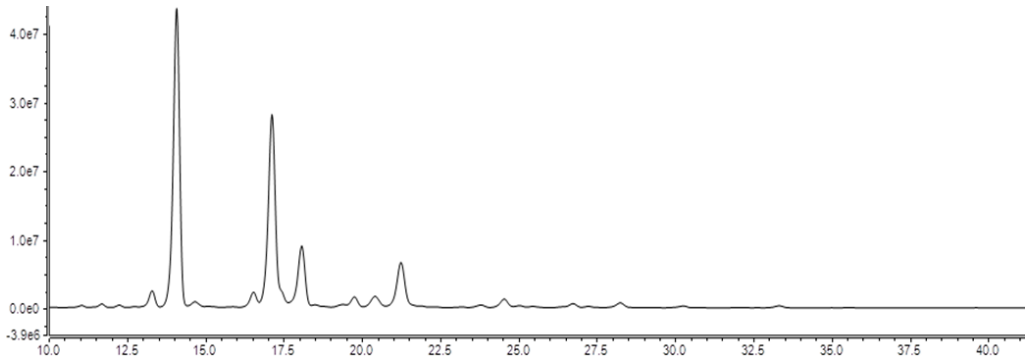


Figure 1 *N*-Glycan profile of NIST mAb #8671 (lot# 14HB-D-001)—Zoomed-out

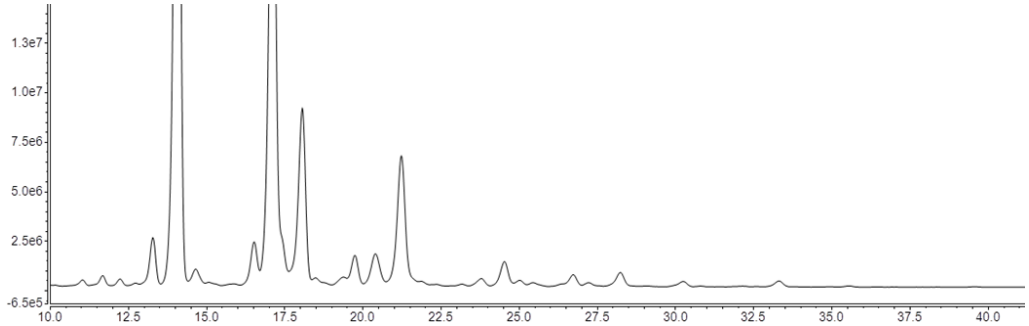


Figure 2 *N*-Glycan profile of NIST mAb #8671 (lot# 14HB-D-001)—Zoomed-in

Capillary electrophoresis (CE)

Materials for CE

Table 9 Capillary electrophoresis system

Item	Source
3500 Genetic Analyzer for Protein Quality Analysis, with software	A30886 Contact your local sales office.
3500xL Genetic Analyzer for Protein Quality Analysis, with software	A30887 Contact your local sales office.

Table 10 Equipment and consumables

Item	Source
GlycanAssure™ CE Module	A38263[1]
MicroAmp™ Optical 96-Well Reaction Plate	4306737
Septa for 3500/3500xL Genetic Analyzers, 96 well	4412614
Retainer & Base Set (Standard) for 3500/3500xL Genetic Analyzers, 96 well	4410228
Heat block or oven	MLS

[1] Cat. No. A38263 is included in the GlycanAssure™ AutoXpress Kit with CE Module (Cat. Nos. A38929 and A38930). See"Contents and storage" on page 6.

Prepare the glycan sample for CE

Dilute the labeled glycan sample 20–40X with HPLC-grade water, then use 2 µL of the diluted glycan sample for CE analysis.

Perform CE separation

1. Prepare the CE sample loading mixture:
   a. Combine the following components in a microcentrifuge tube:

GlycanAssure™ CE Module Component	Volume for 24 wells
GeneScan™ 600 LIZ™ Dye Size Standard v2.0	2.0 µL
CE Loading Buffer	200.0 µL
Landmark Red	2.0 µL[1]

[1] Use 2.0 µL as a starting point and adjust as required.

   b. Cap the tube, mix well, then centrifuge to bring the solution to the bottom.

   c. Incubate the tube at 60°C for 5 minutes in a heat block or oven, then cool to room temperature.

2. Load the MicroAmp™ Optical 96-Well Reaction Plate:
   a. Add 8 µL per well of the CE sample loading mixture to the first three columns of the plate (24 wells).

b. Add 2 µL per well of the diluted labeled glycans to the wells that contain CE sample loading mixture.

3. Pipet up and down at least six times to mix.
4. Place a plate septa on the plate.
5. Briefly centrifuge the plate at 1,000 rpm for 1 minute to bring the solution to the bottom.
6. Load the plate into the Retainer and Base Set (Standard) for the 3500/3500xL Genetic Analyzer.
7. Load the plate/retainer onto the 3500/3500xL Genetic Analyzer.
8. In the GlycanAssure™ Data Acquisition Software, click **Run Setup** to set up the run.
9. Start the capillary electrophoresis run.

For more information on performing the run, see the *3500/3500xL Genetic Analyzer with GlycanAssure™ Data Acquisition Software User Guide* (Pub. No. 100036372).

Perform data analysis

For information on performing data analysis, see the *GlycanAssure™ Data Analysis Software v1.0 User Guide* (Pub. No. 100036373).

Example CE data

Figure 3 provides representative CE data from the 3500xL Genetic Analyzer (24 capillary).

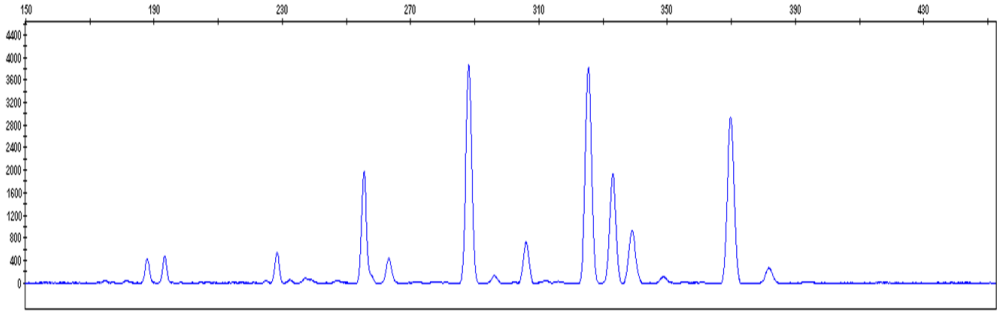


Figure 3 *N*-Glycan profile of human IgG

C

Safety

WARNING! GENERAL SAFETY. Using this product in a manner not specified in the user documentation may result in personal injury or damage to the instrument or device. Ensure that anyone using this product has received instructions in general safety practices for laboratories and the safety information provided in this document.

- Before using an instrument or device, read and understand the safety information provided in the user documentation provided by the manufacturer of the instrument or device.
- Before handling chemicals, read and understand all applicable Safety Data Sheets (SDSs) and use appropriate personal protective equipment (gloves, gowns, eye protection, and so on). To obtain SDSs, see the "Documentation and Support" section in this document.

Chemical safety

WARNING! GENERAL CHEMICAL HANDLING. To minimize hazards, ensure laboratory personnel read and practice the general safety guidelines for chemical usage, storage, and waste provided below. Consult the relevant SDS for specific precautions and instructions:

- Read and understand the Safety Data Sheets (SDSs) provided by the chemical manufacturer before you store, handle, or work with any chemicals or hazardous materials. To obtain SDSs, see the "Documentation and Support" section in this document.
- Minimize contact with chemicals. Wear appropriate personal protective equipment when handling chemicals (for example, safety glasses, gloves, or protective clothing).
- Minimize the inhalation of chemicals. Do not leave chemical containers open. Use only with adequate ventilation (for example, fume hood).
- Check regularly for chemical leaks or spills. If a leak or spill occurs, follow the manufacturer's cleanup procedures as recommended in the SDS.
- Handle chemical wastes in a fume hood.
- Ensure use of primary and secondary waste containers. (A primary waste container holds the immediate waste. A secondary container contains spills or leaks from the primary container. Both containers must be compatible with the waste material and meet federal, state, and local requirements for container storage.)
- After emptying a waste container, seal it with the cap provided.
- Characterize (by analysis if necessary) the waste generated by the particular applications, reagents, and substrates used in your laboratory.
- Ensure that the waste is stored, transferred, transported, and disposed of according to all local, state/provincial, and/or national regulations.
- **IMPORTANT!** Radioactive or biohazardous materials may require special handling, and disposal limitations may apply.

Biological hazard safety

WARNING! BIOHAZARD. Biological samples such as tissues, body fluids, infectious agents, and blood of humans and other animals have the potential to transmit infectious diseases. Conduct all work in properly equipped facilities with the appropriate safety equipment (for example, physical containment devices). Safety equipment can also include items for personal protection, such as gloves, coats, gowns, shoe covers, boots, respirators, face shields, safety glasses, or goggles. Individuals should be trained according to applicable regulatory and company/ institution requirements before working with potentially biohazardous materials. Follow all applicable local, state/provincial, and/or national regulations. The following references provide general guidelines when handling biological samples in laboratory environment.

- U.S. Department of Health and Human Services, *Biosafety in Microbiological and Biomedical Laboratories (BMBL)*, 5th Edition, HHS Publication No. (CDC) 21-1112, Revised December 2009; found at:
  www.cdc.gov/biosafety/publications/bmbl5/BMBL.pdf
- World Health Organization, *Laboratory Biosafety Manual*, 3rd Edition, WHO/CDS/CSR/LYO/2004.11; found at:
  www.who.int/csr/resources/publications/biosafety/Biosafety7.pdf

Documentation and support

Related documentation

Document	Publication number
AutoMate Express™ Instrument User Guide	4441982
3500/3500xL Genetic Analyzer with GlycanAssure™ Data Acquisition Software User Guide	100036372
GlycanAssure™ Data Analysis Software v1.1 User Guide	100036373
Documentation for the Vanquish™ Horizon UHPLC System	See **thermofisher.com/vanquish**
Related product document	**Publication number**
GlycanAssure™ HyPerformance APTS Kit Quick Reference	MAN0016960
GlycanAssure™ HyPerformance APTS Kit User Guide	MAN0016959

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  - Safety Data Sheets (SDSs; also known as MSDSs)

    Note: For SDSs for reagents and chemicals from other manufacturers, contact the manufacturer.

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