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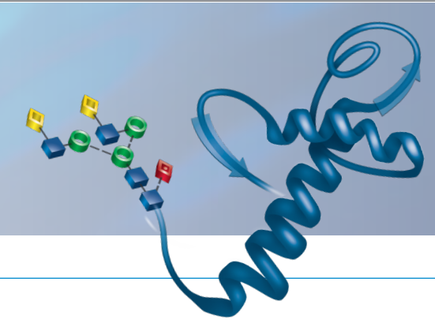
GlycoWorks Ordering Information

The GlycoWorks® consumable line includes standards (both labeled and unlabeled), reagents, column chemistries, and comprehensive sample preparation kits to meet your glycan characterization needs.



GLYCAN CHARACTERIZATION SELECTION GUIDE – DEGLYCOSYLATION

Product name	GlycoWorks Rapid Deglycosylation Kit - 3 x 8	GlycoWorks Rapid Deglycosylation Kit - 1 x 24	GlycoWorks Rapid Deglycosylation Kit - 4 x 24	GlycoWorks Rapid Deglycosylation Kit - 2 x 48	GlycoWorks Rapid Buffer, 5 mL	*Rapi*Gest™ SF, 1 mg	*Rapi*Gest SF, 3 mg	*Rapi*Gest SF, 10 mg	*Rapi*Gest SF, 50 mg	GlycoWorks Sample Collection Module(s)
Part no.	186008841	186008939	186008840	186004579	186008100	186001860	186008090	186002123	186002122	186007988 and 186008823
Sample scale	24 reactions	24 reactions	96 reactions	96 reactions	Bulk for buffer exchange or 20 reactions	2 samples	8 samples	24 samples	120 samples	96 samples and Automation
Product description and uses	The GlycoWorks Rapid Deglycosylation Kits are used to support existing *Rapi*Fluor-MS® (RFMS) users who are looking to: ■ Qualify and validate deglycosylation efficiency with the protocol. ■ Compare intact with partial PNGase F deglycosylation for site occupancy info. ■ Compare intact O-linked analysis.				This buffer is provided for *Rapi*Fluor-MS users who need to perform buffer exchange before running their samples with the kit.	*Rapi*Gest™ SF, is a patented anionic surfactant that drastically improves in-solution protein digestion in terms of speed and peptide recovery. It is especially valuable in protein sample preparation for mass spectrometry (MS) analysis by avoiding high background noise often seen from other common surfactants.				Tubes, caps, and trays needed for sample clean up to minimize sample transfer.
Features and benefits	■ Rapidly quantify and validate deglycosylation efficiency. ■ Quick screening for site occupancy information.				Useful for buffer exchange.	*Rapi*Gest SF helps solubilize proteins, making them more susceptible to enzymatic cleavage without inhibiting enzyme activity.				Tubes are customized to heat block p/n: 186007985 to ensure proper heating.
Components	**3 x 8 reaction sample sets:** (1) 0.035 mL/vial Rapid PNGase F Enzyme (1) 0.25 mL/vial GlycoWorks Rapid Buffer (3) 3 mg/vial *Rapi*Gest SF Surfactant	**1 x 24 reaction sample sets:** (1) 0.035 mL/vial Rapid PNGase F Enzyme (1) 0.25 mL/vial GlycoWorks Rapid Buffer (1) 10 mg/vial *Rapi*Gest SF Surfactant	**4 x 24 reaction sample sets:** (4) 0.035 mL/vial Rapid PNGase F Enzyme (4) 0.25 mL/vial GlycoWorks Rapid Buffer (4) 10 mg/vial *Rapi*Gest SF Surfactant	**2 x 48 reaction sample sets:** (2) 0.080 mL/vial Rapid PNGase F Enzyme (2) 1.50 mL/vial GlycoWorks Rapid Buffer (2) 20 mg/vial *Rapi*Gest SF Surfactant	(1) 5 mL vial	(1) 1 mg vial	(1) 3 mg vial	(1) 10 mg vial	(1) 50 mg vial	(15) 1 mL tubes for deglycosylation and labeling reaction (15) 600 µL tube inserts for SPE eluate collection (15) Cap strips with slits for direct injection (1) 1 mL round collection tray (1) Waste tray ▻► See Automation care and use manual for exact components for p/n: 186008823
Storage temperature	4 °C					Room temperature				Room temperature
Shelf life of unopened products	Minimum of 2 years					3 years from date of manufacture				Minimum of 1 year
Care and use manual	24: 715004903EN	96: 715004793EN	96: 715004793EN	Auto: 715005359EN	96: 715004793EN, 24: 715004903EN	715000122EN				96: 715004793EN, 24: 715004903EN, Auto: 715005359EN

GLYCAN CHARACTERIZATION SELECTION GUIDE – CLEAN UP

Product name	GlycoWorks Phosphoglycan SPE Elution Buffer and SPE Reagents HILIC	GlycoWorks HILIC µElution™ Plate	GlycoWorks HILIC 1 cc, 20/pkg	GlycoWorks HILIC 1 cc Flangeless, 20/pkg	GlycoWorks SPE Reagents	Glycoworks RFMS Clean up Module
Part no.	186009763 and 186010209,	186002780	186007080	186007239	186007992, 186008747	186008913
Sample scale	4-pack format with 5 mL in each bottle	96 samples	10 reactions for 2-AB/ 20 for *Rapi*Fluor-MS	10 reactions for 2-AB/ 20 for *Rapi*Fluor-MS	96 samples and Automation	96 samples
Product description and uses	The GlycoWorks Phosphoglycan SPE Elution Buffer is a solution to use with the HILIC µElution plate in GlycoWorks RFMS Clean-up Module. Ammonium citrate has been added to ammonium acetate in this buffer to facilitate the elution and recovery of phosphorylated glycans.	This plate is ideal for removing contaminants like salts and detergents from hydrophilic analytes, such as carbohydrates, prior to mass spectrometry analysis. It enables elution volumes as low as 25 µL. Each well is packed with 5 mg of sorbent.	Each cartridge is packed with 10 mg sorbent.	Designed specifically for users who use the positive pressure manifold (PPM). Each cartridge is packed with 10 mg of sorbent.	Contains the elution buffer and sample diluent needed for running the SPE sample clean up portion of the GlycoWorks *Rapi*Fluor-MS N-Glycan Kit. This could also be used with the GlycoWorks Reductive Animation Protocol for optimization of elution up to tetrasialyated glycans.	One box that contains everything needed for *Rapi*Fluor-MS clean up for the 24 and 96 sample kit formats.
Features and benefits	It is recommended to use this eluent with the ACQUITY™ PREMIER Glycan BEH C_{18} AX Column for high selective separation for acidic glycans as well as HILIC separation with an ACQUITY PREMIER Glycan or Glycoprotein BEH Amide Column for the analysis of phosphorylated glycans with alternative selectivities. It is strongly recommended that analysis of phosphorylated glycans be performed with an ACQUITY PREMIER System.	Ideal for removing potential interferences like labeling byproducts and excess label for 2-AB and *Rapi*Fluor-MS.	The cartridges are dual purpose: ■ Extraction of glycans. ■ Removal of excess labeling reagent.		Optimized for robust and unbiased elution of glycans specific to the HILIC sorbent used for clean up that comes in the GlycoWorks Kits. For Automation, contains all the SPE reagents needed for clean up scaled for automation platforms.	
Components	The GlycoWorks Phosphoglycan SPE Elution Buffer, P/N 186009763, comes in a four-pack format with 5 mL in each bottle. The GlycoWorks Phosphoglycan SPE Reagents HILIC, P/N 186010209, includes 4 packs of each SPE elution buffer and sample diluent DFM/ACN used in HILIC separation.	(1) GlycoWorks HILIC µElution Plate	(20) 1 cc flanged cartridges	(20) 1 cc flangeless cartridges	(4) 5 mL/vial Elution Buffer (200 mM Ammonium Acetate Elution Buffer in 5% ACN pH 7.0) (4) 8 mL/vial Sample Diluent (32% DMF/ 68% ACN) (2) 12 mL/vial Elution Buffer (200 mM ammonium acetate in 5% ACN) (2) 22 mL/vial Sample Diluent (32% DMF/68% ACN) (2) 18 mL/vial Equilibration Solvent (15:85 Water/Acetonitrile) (2) 70 mL/vial Wash Solvent (1:9:90 (v/v/v) Formic Acid/Water/Acetonitrile)	(1) GlycoWorks HILIC µElution Plate (4) 5 mL/vial Elution Buffer (200 mM Ammonium Acetate Elution Buffer in 5% ACN pH 7.0) (4) 8 mL/vial Sample Diluent (32% DMF/ 68% ACN)
Storage temperature	Room temperature. If the container is opened repeatedly, it is recommended to check the pH of the elution buffer before use. Discard the buffer if the pH is out of the pH range of 6–9.	Room temperature – dry	Room temperature – dry		Room temperature	Room temperature
Shelf life of unopened products	Minimum of 1 year					
Care and use manual	720007133EN	96: 715004793EN, 24: 715004903EN	715004080EN		96: 715004793EN, 24: 715004903EN, Auto: 715005359EN	

GLYCAN CHARACTERIZATION SELECTION GUIDE – LABELING

Product name	GlycoWorks 2-AB Labeling Reagent Kit	GlycoWorks *Rapi*Fluor-MS Labeling Kits
Part no.	186007034	96: 186007989, 24: 186008091, and Auto: 186008822
Sample scale	96 samples	96 or 24 labeling kits
Product description and uses	This kit provides reagents needed to follow the GlycoWorks High-throughput or Single Use Kit protocols for 2-AB labeling of released glycans.	These are complete labeling kits needed to solubilize and label the released glycosylamine with *Rapi*Fluor-MS.
Features and benefits	Provides typically double the reagents compared to most labeling kits to get the most optimized signal for 2-AB labeled glycans. (Need to order p/n: 176003868 or 176003867 for the enzyme).	Provides increased fluorescence quantification and supreme mass spectral response.
Components	**96 samples (2 x 48):** (2) 36 mg/vial Dithiothreitol (2) 46 mg/vial Iodoacetamide (2) 0.7 mL/vial Glacial Acetic Acid (2) 0.4 mL/vial DMSO (2) 12 mg/vial Reductant Sodium Cyanoborohydride (2) 10 mg/vial 2-AB (2-Aminobenzamide)	**GlycoWorks *Rapi*Fluor-MS Labeling Module-96:** (4) 23 mg/vial *Rapi*Fluor-MS Reagent (4) 1 mL/vial Reagent Solvent **GlycoWorks *Rapi*Fluor-MS Labeling Module-24:** (3) 9 mg/vial *Rapi*Fluor-MS Reagent (3) 1 mL/vial Reagent Solvent **GlycoWorks *Rapi*Fluor-MS Labeling Module-Automation:** (2) 55 mg/vial *Rapi*Fluor-MS Reagent (2) 1 mL/vial Reagent Solvent
Storage temperature	Room temperature	
Shelf life of unopened products	Minimum of 1 year	
Care and use manual	Single Use: 715004080EN, HT: 715004079EN	96: 715004793EN, 24: 715004903EN, Auto: 715005359EN

GLYCAN CHARACTERIZATION SELECTION GUIDE – CLEAN UP

Product name	GlycoWorks HILIC µElution™ Plate	GlycoWorks HILIC 1 cc, 20/pkg	GlycoWorks HILIC 1 cc Flangeless, 20/pkg	GlycoWorks SPE Reagents	Glycoworks RFMS Clean up Module
Part no.	186002780	186007080	186007239	186007992, 186008747	186008913
Sample scale	96 samples	10 reactions for 2-AB/ 20 for *Rapi*Fluor-MS	10 reactions for 2-AB/ 20 for *Rapi*Fluor-MS	96 samples and Automation	96 samples
Product description and uses	This plate is ideal for removing contaminants like salts and detergents from hydrophilic analytes, such as carbohydrates, prior to mass spectrometry analysis. It enables elution volumes as low as 25 µL. Each well is packed with 5 mg of sorbent.	Each cartridge is packed with 10 mg sorbent.	Designed specifically for users who use the positive pressure manifold (PPM). Each cartridge is packed with 10 mg of sorbent.	Contains the elution buffer and sample diluent needed for running the SPE sample clean up portion of the GlycoWorks *Rapi*Fluor-MS N-Glycan Kit. This could also be used with the GlycoWorks Reductive Animation Protocol for optimization of elution up to tetrasialyated glycans.	One box that contains everything needed for *Rapi*Fluor-MS clean up for the 24 and 96 sample kit formats.
Features and benefits	Ideal for removing potential interferences like labeling byproducts and excess label for 2-AB and *Rapi*Fluor-MS.	The cartridges are dual purpose: ■ Extraction of glycans. ■ Removal of excess labeling reagent.		Optimized for robust and unbiased elution of glycans specific to the HILIC sorbent used for clean up that comes in the GlycoWorks Kits. For Automation, contains all the SPE reagents needed for clean up scaled for automation platforms.	
Components	(1) GlycoWorks HILIC µElution Plate	(20) 1 cc flanged cartridges	(20) 1 cc flangeless cartridges	(4) 5 mL/vial Elution Buffer (200 mM Ammonium Acetate Elution Buffer in 5% ACN pH 7.0) (4) 8 mL/vial Sample Diluent (32% DMF/ 68% ACN) (2) 12 mL/vial Elution Buffer (200 mM ammonium acetate in 5% ACN) (2) 22 mL/vial Sample Diluent (32% DMF/68% ACN) (2) 18 mL/vial Equilibration Solvent (15:85 Water/Acetonitrile) (2) 70 mL/vial Wash Solvent (1:9:90 (v/v/v) Formic Acid/Water/Acetonitrile)	(1) GlycoWorks HILIC µElution Plate (4) 5 mL/vial Elution Buffer (200 mM Ammonium Acetate Elution Buffer in 5% ACN pH 7.0) (4) 8 mL/vial Sample Diluent (32% DMF/ 68% ACN)
Storage temperature	Room temperature – dry	Room temperature – dry		Room temperature	Room temperature
Shelf life of unopened products	Minimum of 1 year				
Care and use manual	96: 715004793EN, 24: 715004903EN	715004080EN		96: 715004793EN, 24: 715004903EN, Auto: 715005359EN	

GLYCAN CHARACTERIZATION SELECTION GUIDE – COMPLETE KITS FOR DEGLYCOSYLATION, LABELING, AND CLEAN UP

Product name	GlycoWorks *Rapi*Fluor-MS N-Glycan Starter Kit-96 Samples	GlycoWorks *Rapi*Fluor-MS N-Glycan Kit-96 Samples	GlycoWorks *Rapi*Fluor-MS N-Glycan Basic Kit-96 Samples	GlycoWorks *Rapi*Fluor-MS N-Glycan Starter Kit-24 Samples	GlycoWorks *Rapi*Fluor-MS N-Glycan Kit-24 Samples	GlycoWorks *Rapi*Fluor-MS N-Glycan Basic Kit-24 Samples	GlycoWorks *Rapi*Fluor-MS N-Glycan Refill Kit-24 Samples
Part no.	176003635	176003606	176003910	176003712	176003713	176003911	176003714
Sample scale	96 samples (4 x 24 format)			24 samples (3 x 8 format)			
Product description and uses	This starter kit includes everything needed for enzymatic deglycosylation, *Rapi*Fluor-MS labeling, SPE clean up, and UPLC® analysis (UPLC column and mobile phase concentrate).	This core kit includes everything needed for enzymatic deglycosylation, *Rapi*Fluor-MS labeling, and SPE clean up. A great follow up after ordering the starter kit.	This basic kit includes everything needed for enzymatic deglycosylation, *Rapi*Fluor-MS labeling, and SPE clean up. It does not contain the Sample Collection Module for customers who want to use their own tubes.	This starter kit includes everything needed for enzymatic deglycosylation, *Rapi*Fluor-MS labeling, SPE clean up, and UPLC analysis (UPLC column and mobile phase concentrate).	This core kit includes everything needed for enzymatic deglycosylation, *Rapi*Fluor-MS labeling, and SPE clean up. A great follow up after ordering the starter kit.	This basic kit includes everything needed for enzymatic deglycosylation, *Rapi*Fluor-MS labeling, and SPE clean up. It does not contain the Sample Collection Module for customers who want to use their own tubes.	This refill kit includes the GlycoWorks Deglycosylation Module and the GlycoWorks Labeling Module in order to supplement either the p/n: 176003712 or 176003713 kits as extra reagents for the 96 sample kit.
Features and benefits	With just 3 easy steps in less than one hour, the GlycoWorks *Rapi*Fluor-MS N-Glycan Kit reduces complicated, time-consuming sample preparation. *Rapi*Fluor-MS's unique chemical attributes provide increased fluorescence quantification and supreme mass spectral response. Now you can use a single label that provides valuable information from characterization to routine monitoring.						
Components	**GlycoWorks Deglycosylation Module - 4 x 24:** (4) 0.035 mL/vial Rapid PNGase F Enzyme (4) 0.25 mL/vial GlycoWorks Rapid Buffer (1) Intact mAb Mass Check Standard (4) 10 mg/vial *Rapi*Gest SF Surfactant **GlycoWorks *Rapi*Fluor-MS Labeling Module:** (4) 23 mg/vial *Rapi*Fluor-MS Reagent (4) 1 mL/vial Reagent Solvent **Glycoworks RFMS Clean up Module:** (4) 5 mL/vial Elution Buffer (4) 8 mL/vial Sample Diluent (1) GlycoWorks HILIC µElution Plate **GlycoWorks Sample Collection Module:** (15) 1 mL tubes for deglycosylation and labeling reaction (15) 600 µL tube inserts for SPE eluate collection (15) Cap strips with slits for direct injection (1) 1 mL round collection tray (1) Waste tray **Extras:** (1) 5050 mM Ammonium Formate Concentrate — Glycan Analysis (1) ACQUITY UPLC® Glycan BEH Amide, 1.7 µm, 2.1 x 150 mm Column	**GlycoWorks Deglycosylation Module - 4 x 24:** (4) 0.035 mL/vial Rapid PNGase F Enzyme (4) 0.25 mL/vial GlycoWorks Rapid Buffer (1) Intact mAb Mass Check Standard (4) 10 mg/vial *Rapi*Gest SF Surfactant **GlycoWorks *Rapi*Fluor-MS Labeling Module:** (4) 23 mg/vial *Rapi*Fluor-MS Reagent (4) 1 mL/vial Reagent Solvent **Glycoworks RFMS Clean up Module:** (4) 5 mL/vial Elution Buffer (4) 8 mL/vial Sample Diluent (1) GlycoWorks HILIC µElution Plate **GlycoWorks Sample Collection Module:** (15) 1 mL tubes for deglycosylation and labeling reaction (15) 600 µL tube inserts for SPE eluate collection (15) Cap strips with slits for direct injection (1) 1 mL round collection tray (1) Waste tray	**GlycoWorks Deglycosylation Module - 4 x 24:** (4) 0.035 mL/vial Rapid PNGase F Enzyme (4) 0.25 mL/vial GlycoWorks Rapid Buffer (1) Intact mAb Mass Check Standard (4) 10 mg/vial *Rapi*Gest SF Surfactant **GlycoWorks *Rapi*Fluor-MS Labeling Module:** (4) 23 mg/vial *Rapi*Fluor-MS Reagent (4) 1 mL/vial Reagent Solvent **Glycoworks RFMS Clean up Module:** (4) 5 mL/vial Elution Buffer (4) 8 mL/vial Sample Diluent (1) GlycoWorks HILIC µElution Plate	**GlycoWorks Deglycosylation Module - 3 x 8:** (1) 0.035 mL/vial Rapid PNGase F Enzyme (1) 0.25 mL/vial GlycoWorks Rapid Buffer (1) Intact mAb Mass Check Standard (3) 3 mg/vial *Rapi*Gest SF Surfactant **GlycoWorks *Rapi*Fluor-MS Labeling Module:** (3) 9 mg/vial *Rapi*Fluor-MS Reagent (3) 1 mL/vial Reagent Solvent **GlycoWorks RFMS Clean up Module:** (4) 5 mL/vial Elution Buffer (4) 8 mL/vial Sample Diluent (1) GlycoWorks HILIC µElution Plate **GlycoWorks Sample Collection Module:** (15) 1 mL tubes for deglycosylation and labeling reaction (15) 600 µL tube inserts for SPE eluate collection (15) Cap strips with slits for direct injection (1) 1 mL round collection tray (1) Waste tray **Extras:** (1) 5050 mM Ammonium Formate Concentrate — Glycan Analysis (1) ACQUITY UPLC Glycan BEH Amide, 1.7 µm, 2.1 x 150 mm Column	**GlycoWorks Deglycosylation Module - 3 x 8:** (1) 0.035 mL/vial Rapid PNGase F Enzyme (1) 0.25 mL/vial GlycoWorks Rapid Buffer (1) Intact mAb Mass Check Standard (3) 3 mg/vial *Rapi*Gest SF Surfactant **GlycoWorks *Rapi*Fluor-MS Labeling Module:** (3) 9 mg/vial *Rapi*Fluor-MS Reagent (3) 1 mL/vial Reagent Solvent **GlycoWorks RFMS Clean up Module:** (4) 5 mL/vial Elution Buffer (4) 8 mL/vial Sample Diluent (1) GlycoWorks HILIC µElution Plate **GlycoWorks Sample Collection Module:** (15) 1 mL tubes for deglycosylation and labeling reaction (15) 600 µL tube inserts for SPE eluate collection (15) Cap strips with slits for direct injection (1) 1 mL round collection tray (1) Waste tray	**GlycoWorks Deglycosylation Module - 3 x 8:** (1) 0.035 mL/vial Rapid PNGase F Enzyme (1) 0.25 mL/vial GlycoWorks Rapid Buffer (1) Intact mAb Mass Check Standard (3) 3 mg/vial *Rapi*Gest SF Surfactant **GlycoWorks *Rapi*Fluor-MS Labeling Module:** (3) 9 mg/vial *Rapi*Fluor-MS Reagent (3) 1 mL/vial Reagent Solvent **GlycoWorks RFMS Clean up Module:** (4) 5 mL/vial Elution Buffer (4) 8 mL/vial Sample Diluent (1) GlycoWorks HILIC µElution Plate	**GlycoWorks Deglycosylation Module - 3 x 8:** (1) 0.035 mL/vial Rapid PNGase F Enzyme (1) 0.25 mL/vial GlycoWorks Rapid Buffer (1) 3 mg/vial *Rapi*Gest SF Surfactant **GlycoWorks *Rapi*Fluor-MS Labeling Module:** (3) 9 mg/vial *Rapi*Fluor-MS Reagent (3) 1 mL/vial Reagent Solvent
Storage temperature	Room temperature/4 °C/-20 °C. Refer to each Module for specific storage.						
Shelf life of unopened products	Minimum of 1 year through 3 years. Refer to packaging on each component.						
Care and use manual	96: 715004793EN, Streamlined Protocol: 720005343EN, Streamlined for Disulfide Rich Glycoproteins: 720006992EN			24: 715004903EN, Streamlined Protocol: 720005470EN, Streamlined for Disulfide Rich Glycoproteins: 720006991EN			

ANDREW™ PIPETTING ROBOT GLYCOWORKS CHEMISTRY KITS

Product Name	Andrew+ 24-Sample GlycoWorks Application Kit	Andrew+ 96-Sample GlycoWorks Application Kit	Andrew+ 96HT Sample GlycoWorks Application Kit
Part No.	176003349	176003350	176003351
Sample scale	3 x 8 samples	4 x 24 samples	2 x 48 samples
Product description and uses	The protocol used for the implementation of the GlycoWorks RFMS kit on Andrew+ is the quality control (QC)/automation-friendly sample preparation method. The QC GlycoWorks RFMS protocol was validated by Waters on Andrew+. Experimental conditions and parameters were fine-tuned to fit the hardware configuration of the Andrew+ robot, i.e. labware Dominos and required, additional, connected devices, and produce reliable results, comparable to target scores and reproducibility among users.		
Features and benefits	The QC protocol is an adaptation of the standard variable volume (VV) method, in which the starting sample concentration and reagent concentrations used during protein denaturation, deglycosylation, and N-glycan labeling, have been carefully modified to allow pipetting volumes of 10 µL or more thus improving pipetting accuracy and generating results comparable to those produced by the standard VV method.		
Components	**GlycoWorks Deglycosylation Module:** (1) 0.035 ml/vial Rapid PNGaseF Enzyme (1) 0.25 ml/vial GlycoWorks Rapid Buffer (3) 3 mg/vial *Rapi*Gest SF Surfactant (1) Intact mAb Mass Check Standard **GlycoWorks *Rapi*Fluor-MS Labeling Module:** (1) GlycoWorks *Rapi*Fluor-MS labeling reagent (1) GlycoWorks *Rapi*Fluor-MS reagent solvent **GlycoWorks Sample Clean Up:** (1) GlycoWorks HILIC uElution Plate **GlycoWorks SPE Reagents - Automation:** (2) 12 ml/vial Elution Buffer (2) 22 ml/vial Sample Diluent (2) 18 ml/vial Equilibration Solvent (2) 70 ml/vial Wash Solvent	**GlycoWorks Deglycosylation Module:** (4) 0.035 ml/vial Rapid PNGaseF Enzyme (4) 0.25 ml/vial GlycoWorks Rapid Buffer (4) 10 mg/vial *Rapi*Gest SF Surfactant (1) Intact mAb Mass Check Standard **GlycoWorks *Rapi*Fluor-MS Labeling Module:** (4) GlycoWorks *Rapi*Fluor-MS labeling reagent (4) GlycoWorks *Rapi*Fluor-MS reagent solvent **GlycoWorks Sample Clean Up:** (1) GlycoWorks HILIC uElution Plate **GlycoWorks SPE Reagents - Automation:** (2) 12 ml/vial Elution Buffer (2) 22 ml/vial Sample Diluent (2) 18 ml/vial Equilibration Solvent (2) 70 ml/vial Wash Solvent	**GlycoWorks Deglycosylation Module:** (2) 0.08 ml/vial Rapid PNGaseF Enzyme (1) 1.5 ml/vial GlycoWorks Rapid Buffer (3) 20 mg/vial *Rapi*Gest SF Surfactant (1) Intact mAb Mass Check Standard **GlycoWorks *Rapi*Fluor-MS Labeling Module:** (2) 55 mg/vial *Rapi*Fluor-MS Reagent (2) 1 ml/vial Reagent Solvent **GlycoWorks Sample Clean Up:** (1) GlycoWorks HILIC uElution Plate **GlycoWorks SPE Reagents - Automation:** (2) 12 ml/vial Elution Buffer (2) 22 ml/vial Sample Diluent (2) 18 ml/vial Equilibration Solvent (2) 70 ml/vial Wash Solvent
Storage temperature	Room temperature/4°C/-20°C. Refer to each Module for specific storage.		
Shelf life of unopened products	Minimum of 1 year through 3 years. Refer to packaging on each component.		
Care and use manual	See care and use instructions at https://onelab.andrewalliance.com/app/lab/q7mb1W8b/library/glycoworks-n-glycan-sample-prep-NG0vlwjW and https://www.waters.com/webassets/cms/library/docs/720006966en.pdf		

AUTOMATION KITS – FOR TECAN® FREEDOM EVO® 100/4

Product name	GlycoWorks *Rapi*Fluor-MS N-Glycan Script Parameters Starter Kit-Automation	GlycoWorks *Rapi*Fluor-MS N-Glycan Script Starter Kit-Automation	GlycoWorks *Rapi*Fluor-MS N-Glycan Starter Kit-Automation	GlycoWorks *Rapi*Fluor-MS N-Glycan Kit-Automation	GlycoWorks *Rapi*Fluor-MS N-Glycan Basic Kit-Automation
Part no.	176004150	176004151	176004152	176004153	176004154
Sample scale	96 samples (2 x 48 format)				
Product description and uses	The GlycoWorks *Rapi*Fluor-MS N-Glycan Kits for automation have been designed for use with automated platforms enabling high-throughput glycoprotein sample preparation for analysis of N-glycans with minimal user intervention. The protocol is validated using monoclonal antibodies and has also been tested to perform for a wide range of other N-linked glycoproteins.				
Features and benefits	All reagents in the kit are scaled to residual volumes needed for many automated instrumentation allowing for versatility when choosing your platform. Script part numbers contain valuable information and scripts to help get started achieving automation results faster no matter the automation platform.				
Components	**GlycoWorks Deglycosylation Module:** (2) 0.08 mL/vial Rapid PNGase F Enzyme (2) 1.5 mL/vial GlycoWorks Rapid Buffer (2) 20 mg/vial *Rapi*Gest SF Surfactant (1) Intact mAb Mass Check Standard **GlycoWorks *Rapi*Fluor-MS Labeling Module:** (2) 55 mg/vial *Rapi*Fluor-MS Reagent (2) 1 mL/vial Reagent Solvent **GlycoWorks Sample Clean Up:** (1) GlycoWorks HILIC µElution Plate **GlycoWorks SPE Reagents – Automation:** (2) 12 mL/vial Elution Buffer (2) 22 mL/vial Sample Diluent (2) 18 mL/vial Equilibration Solvent (2) 70 mL/vial Wash Solvent Sample Diluent **GlycoWorks Tecan Sample Collection Module – Automation:** (2) 1 mL round collection plates (1) 200 µL PCR Plate (1) Pre-slit cap mat (1) Waste tray **Extras:** (1) *Rapi*Fluor-MS Intact mAb Mass Check Standard (1) 5050 mM Ammonium Formate Concentrate – Glycan Analysis (1) ACQUITY UPLC Glycan BEH Amide, 1.7 µm, 2.1 x 150 mm Column (1) GlycoWorks *Rapi*Fluor-MS Sample Prep Script Parameters Document	**GlycoWorks Deglycosylation Module:** (2) 0.08 mL/vial Rapid PNGase F Enzyme (2) 1.5 mL/vial GlycoWorks Rapid Buffer (2) 20 mg/vial *Rapi*Gest SF Surfactant (1) Intact mAb Mass Check Standard **GlycoWorks *Rapi*Fluor-MS Labeling Module:** (2) 55 mg/vial *Rapi*Fluor-MS Reagent (2) 1 mL/vial Reagent Solvent **GlycoWorks Sample Clean Up:** (1) GlycoWorks HILIC µElution Plate **GlycoWorks SPE Reagents – Automation:** (2) 12 mL/vial Elution Buffer (2) 22 mL/vial Sample Diluent (2) 18 mL/vial Equilibration Solvent (2) 70 mL/vial Wash Solvent Sample Diluent **GlycoWorks Tecan Sample Collection Module – Automation:** (2) 1 mL round collection plates (1) 200 µL PCR Plate (1) Pre-slit cap mat (1) Waste tray **Extras:** (1) *Rapi*Fluor-MS Intact mAb Mass Check Standard (1) 5050 mM Ammonium Formate Concentrate – Glycan Analysis (1) ACQUITY UPLC Glycan BEH Amide, 1.7 µm, 2.1 x 150 mm Column (1) GlycoWorks Automation Script Pack-CD for Tecan	**GlycoWorks Deglycosylation Module:** (2) 0.08 mL/vial Rapid PNGase F Enzyme (2) 1.5 mL/vial GlycoWorks Rapid Buffer (2) 20 mg/vial *Rapi*Gest SF Surfactant (1) Intact mAb Mass Check Standard **GlycoWorks *Rapi*Fluor-MS Labeling Module:** (2) 55 mg/vial *Rapi*Fluor-MS Reagent (2) 1 mL/vial Reagent Solvent **GlycoWorks Sample Clean Up:** (1) GlycoWorks HILIC µElution Plate **GlycoWorks SPE Reagents – Automation:** (2) 12 mL/vial Elution Buffer (2) 22 mL/vial Sample Diluent (2) 18 mL/vial Equilibration Solvent (2) 70 mL/vial Wash Solvent Sample Diluent **GlycoWorks Tecan Sample Collection Module – Automation:** (2) 1 mL round collection plates (1) 200 µL PCR Plate (1) Pre-slit cap mat (1) Waste tray **Extras:** (1) *Rapi*Fluor-MS Intact mAb Mass Check Standard (1) 5050 mM Ammonium Formate Concentrate – Glycan Analysis (1) ACQUITY UPLC Glycan BEH Amide, 1.7 µm, 2.1 x 150 mm Column	**GlycoWorks Deglycosylation Module:** (2) 0.08 mL/vial Rapid PNGase F Enzyme (2) 1.5 mL/vial GlycoWorks Rapid Buffer (2) 20 mg/vial *Rapi*Gest SF Surfactant (1) Intact mAb Mass Check Standard **GlycoWorks *Rapi*Fluor-MS Labeling Module:** (2) 55 mg/vial *Rapi*Fluor-MS Reagent (2) 1 mL/vial Reagent Solvent **GlycoWorks Sample Clean Up:** (1) GlycoWorks HILIC µElution Plate **GlycoWorks SPE Reagents – Automation:** (2) 12 mL/vial Elution Buffer (2) 22 mL/vial Sample Diluent (2) 18 mL/vial Equilibration Solvent (2) 70 mL/vial Wash Solvent Sample Diluent **GlycoWorks Tecan Sample Collection Module – Automation:** (2) 1 mL round collection plates (1) 200 µL PCR Plate (1) Pre-slit cap mat (1) Waste tray	**GlycoWorks Deglycosylation Module:** (2) 0.08 mL/vial Rapid PNGase F Enzyme (2) 1.5 mL/vial GlycoWorks Rapid Buffer (2) 20 mg/vial *Rapi*Gest SF Surfactant (1) Intact mAb Mass Check Standard **GlycoWorks *Rapi*Fluor-MS Labeling Module:** (2) 55 mg/vial *Rapi*Fluor-MS Reagent (2) 1 mL/vial Reagent Solvent **GlycoWorks Sample Clean Up:** (1) GlycoWorks HILIC µElution Plate **GlycoWorks SPE Reagents – Automation:** (2) 12 mL/vial Elution Buffer (2) 22 mL/vial Sample Diluent (2) 18 mL/vial Equilibration Solvent (2) 70 mL/vial Wash Solvent Sample Diluent
Storage temperature	Room temperature/4 °C/-20 °C. Refer to each Module for specific storage.				
Shelf life of unopened products	Minimum of 1 year through 3 years. Refer to packaging on each component.				
Care and use manual	Auto: 715005359EN				

GLYCAN CHARACTERIZATION SELECTION GUIDE – STANDARDS

Product name	Intact mAb Mass Check Standard	*Rapi*Fluor-MS Intact mAb Mass Check Standard	2-AB Glycan Performance Test Standard	*Rapi*Fluor-MS Glycan Performance Test Standard	2-AB Dextran CalibrationLadder	*Rapi*Fluor-MS Dextran Calibration Ladder	*Rapi*Fluor-MS High Mannose Standard	*Rapi*Fluor-MS Sialylated Glycan Performance Test Standard	*Rapi*Fluor-MS Quantitative Standard
Part no.	186006552	186008843	186006349	186007983	186006841	186007982	186008317	186008660	186008791
Product description and uses	An intact mouse protein purified by Protein-A with a known molecular weight, ideal for higher molecular weight intact mass measurements.	The *Rapi*Fluor-MS Intact mAb Mass Check Standard contains *Rapi*Fluor-MS labeled, released N-glycans obtained from 30 µg of Intact mAb Mass Check Standard (p/n: 186006552).	2-AB labeled human IgG - QC verified to contain the components needed to benchmark and evaluate ACQUITY UPLC BEH Glycan, 1.7 µm Columns.	RFMS labeled human IgG - QC verified with the ACQUITY UPLC BEH Glycan, 1.7 µm Column.	This standard has an observed GU from 2 to 30. This feature improves the large glycan retention time assignment.		Contains high mannose structures: M5, M6, M7, M8, and M9.	Highly sialylated *Rapi*Fluor-MS labeled, released N-glycans.	Highly purified synthetic peptide that has been derivatized with a single *Rapi*Fluor-MS label and purposefully designed to elute via HILIC chromatography with a GU (glucose unit) value of approximately 4.
Features and benefits	Useful as a control standard for labeling experiments: Simple mAb with 4 major glycoforms.	Useful as a simple benchmarking standard to qualitatively check the proficiency of sample preparations, chromatographic resolution and detector sensitivity. It contains 4 peaks typical of a mAb N-glycan profile (FA2, FA2G1, FA2G1' and FA2G2) as well as several other frequently encountered low abundance species (A2, FA2G2Sg1, and FA2G2Ga2).	Benchmarking column performance.		Glycan profile obtained from UPLC-HILIC/FLR systems can be calibrated against the labeled dextran ladders and assigned with glucose unit (GU) values.		Proficiency or system suitability test standard: Used on its own or it can be spiked into an N-glycan pool.	Proficiency or system suitability test standard, especially for non-mAb users to fill the chromatographic gap for highly sialylated glycans.	Used as a standard to quantify absolute amounts of *Rapi*Fluor-MS labeled analytes.
Components	(1) 1 mg/vial	(1) 400 pmol/vial	(1) 228 pmol/vial	(1) 400 pmol/vial	(1) 200 µg/vial		(1) 1000 pmoles of purified, N-glycans from bovine ribonuclease B.	(1) 30 µg of Fetuin from fetal bovine serum or approximately 400 pmol released RFMS-glycans.	(1) 100 pmol/vial
Storage temperature	-20 °C	-20 °C	-20 °C	-20 °C	4 °C		-20 °C		
Shelf life of unopened products	Minimum of 1 year								3 year
Care and use manual	72004420EN	72004420EN	720004431EN, 720003042EN	720005349EN	720004463EN	720005348EN	720005531EN	720005778EN	720005917EN

GLYCAN CHARACTERIZATION SELECTION GUIDE – COLUMNS

Product name	ACQUITY UPLC and ACQUITY Premier Glycoprotein BEH Amide, 300Å Columns	ACQUITY UPLC and ACQUITY Premier Glycan BEH Amide, 130Å Columns	XBridge and XBridge Premier Glycan BEH Amide, 130Å Columns	ACQUITY Premier and XBridge Premier Glycan BEH C_{18} AX, 95Å Columns
***Part no.**	■ 176003700: ACQUITY UPLC Glycan 1.7 µm, 2.1 x 50 mm Column, 1/pk with Glycoprotein Performance Test Standard ■ 176003701: ACQUITY UPLC Glycan 1.7 µm, 2.1 x 100 mm Column, 1/pk with Glycoprotein Performance Test Standard ■ 176003702: ACQUITY UPLC Glycan 1.7 µm, 2.1 x 150 mm Column, 1/pk with Glycoprotein Performance Test Standard ■ 186008010: Glycoprotein Performance Test Standard ■ 186009547: ACQUITY Premier Glycan 1.7 µm, 2.1 x 50 mm Column ■ 186009548: ACQUITY Premier Glycan 1.7 µm, 2.1 x 100 mm Column ■ 186009549: ACQUITY Premier Glycan 1.7 µm, 2.1 x 150 mm Column	■ 186004740: ACQUITY UPLC Glycan 1.7 µm, 2.1 x 50 mm Column ■ 186004741: ACQUITY UPLC Glycan 1.7 µm, 2.1 x 100 mm Column ■ 186004742: ACQUITY UPLC Glycan 1.7 µm, 2.1 x 150 mm Column ■ 186009522: ACQUITY Premier Glycan 1.7 µm, 2.1 x 50 mm Column ■ 186009523: ACQUITY Premier Glycan 1.7 µm, 2.1 x 100 mm Column ■ 186009524: ACQUITY Premier Glycan 1.7 µm, 2.1 x 150 mm Column ■ 186009974: ACQUITY Premier Glycan VanGuard FIT 1.7 µm, 2.1 x 50 mm Column ■ 186009575: ACQUITY Premier Glycan VanGuard FIT 1.7 µm, 2.1 x 100 mm Column ■ 186009576: ACQUITY Premier Glycan VanGuard FIT 1.7 µm, 2.1 x 150 mm Column	■ 186007264: XBridge Glycan 2 5 µm, 2.1 x 100 mm ***XP*** Column ■ 186007265: XBridge Glycan 2.5 µm, 2.1 x 150 mm ***XP*** Column ■ 186008038: XBridge Glycan 2.5 µm, 3.0 x 30 mm ***XP*** Column ■ 186008039: XBridge Glycan 2.5 µm, 3.0 x 75 mm ***XP*** Column ■ 186008040: XBridge Glycan 2.5 µm, 3.0 x 150 mm ***XP*** Column ■ 186007268: XBridge Glycan 2.5 µm, 4.6 x 50 mm ***XP*** Column ■ 186007269: XBridge Glycan 2.5 µm, 4.6 x 100 mm ***XP*** Column ■ 186007270: XBridge Glycan 2.5 µm, 4.6 x 150 mm ***XP*** Column ■ 186007502: XBridge Glycan 3.5 µm, 2.1 x 50 mm Column ■ 186007503: XBridge Glycan 3.5 µm, 2.1 x 100 mm Column ■ 186007504: XBridge Glycan 3.5 µm, 2.1 x 150 mm Column ■ 186007273: XBridge Glycan 3.5 µm, 4.6 x 50 mm Column ■ 186007274: XBridge Glycan 3.5 µm, 4.6 x 100 mm Column ■ 186007275: XBridge Glycan 3.5 µm, 4.6 x 150 mm Column ■ 186007276: XBridge Glycan 3.5 µm, 4.6 x 250 mm Column ■ 186009941: XBridge Premier Glycan 2.5 µm, 2.1 x 50 mm Column ■ 186009942: XBridge Premier Glycan 2.5 µm, 2.1 x 100 mm Column ■ 186009943: XBridge Premier Glycan 2.5 µm, 2.1 x 150 mm Column ■ 186009944: XBridge Premier Glycan 2.5 µm, 4.6 x 50 mm Column ■ 186009945: XBridge Premier Glycan 2.5 µm, 4.6 x 100 mm Column ■ 186009946: XBridge Premier Glycan 2.5 µm, 4.6 x 150 mm Column	■ 186009758: ACQUITY Premier Glycan 1.7 µm, 2.1 x 50 mm column ■ 186009759: ACQUITY Premier Glycan 1.7 µm, 2.1 x 100 mm column ■ 186009760: ACQUITY Premier Glycan 1.7 µm, 2.1 x 150 mm column ■ 186009947: XBridge Premier Glycan 2.5 µm, 2.1 x 50 mm column ■ 186009948: XBridge Premier Glycan 2.5 µm, 2.1 x 100 mm column ■ 186009949: XBridge Premier Glycan 2.5 µm, 2.1 x 150 mm column ■ 186009950: XBridge Premier Glycan 2.5 µm, 4.6 x 50 mm column ■ 186009951: XBridge Premier Glycan 2.5 µm, 4.6 x 100 mm column ■ 186009952: XBridge Premier Glycan 2.5 µm, 4.6 x 150 mm column ■ *Rapi*Fluor-MS™ Sialylated Glycan Performance Test Standard, (p/n: 186008660) — Use with IonHance™ Mobile Phase Concentrates ■ Glycan C_{18} AX Ammonium Formate Concentrate, pH 4.7 (p/n: 186009762)
System	UPLC /UPLC Premier System	UPLC /UPLC Premier System	UHPLC/HPLC /UHPLC Premier System/HPLC	UPLC/UPLC Premier and UHPLC/UHPLC Premier
Application space	Intact glycoprotein, glycoprotein fragment, glycopeptide, and released N and O-glycans. Phosphorylated and Highly Siaylated Glycoproteins	Released N-glycans. Phosphorylated and Highly Siaylated Glycoproteins	Released N-glycans. Phosphorylated and Highly Siaylated Glycoproteins	Mixed-mode (anion-exchange/reversed-phase) column providing a charge based separation and extra resolution for acidic glycans
Features and benefits	■ Optimized wide-pore, HILIC stationary phase for resolving glycoforms from intact or digested glycoproteins. ■ Generation of domain specific glycan linkages with or without MS. ■ Elucidation of site specific glycan occupancy. ■ High resolution glycopeptide mapping without limitations due to peptide/glycan size or composition. ■ Improved resolution in separations of large, released N-glycans such as for EPO or Factor IX. ■ ACQUITY Premier Glycan Columns with MaxPeak High Performance Surfaces (HPS) Technology, reduce sample loss caused by non-specific adsorption on metal surfaces.	■ Improved component resolution in less time compared to existing HPLC-based methods. ■ Optimized for use with ACQUITY UPLC System with fluorescence or MS detection. ■ Based on Waters BEH particle and bonding technology for stable and reproducible labeled glycan separations. ■ ACQUITY Premier Glycan Columns with MaxPeak High Performance Surfaces (HPS) Technology, reduce sample loss caused by non-specific adsorption on metal surfaces.	■ Available column configuration for use on existing UHPLC or HPLC Instrumentation. ■ Based on Waters BEH particle and bonding technology for stable and reproducible labeled glycan separations. ■ ACQUITY Premier Glycan Columns with MaxPeak High Performance Surfaces (HPS) Technology, reduce sample loss caused by non-specific adsorption on metal surfaces.	■ *The ACQUITY Premier Glycan BEH C_{18} AX Column utilizes MaxPeak™ High Performance Surfaces, an innovative technology designed to increase analyte recovery, sensitivity, and reproducibility by minimizing analytes/surface interactions that can lead to sample losses. -Assist in the analysis of chemically labeled glycans that have been released from biopharmaceutical therapeutics. -Orthogonal technology to hydrophilic interaction chromatography (HILIC)*
Column storage	Store the column in 100% acetonitrile. Do not store columns in highly aqueous (<50% organic) mobile phases.	Store the column in 100% acetonitrile. Do not store columns in highly aqueous (<50% organic) mobile phases.	Store the column in 100% acetonitrile. Do not store columns in highly aqueous (<50% organic) mobile phases.	*Do not store columns in buffered eluents or highly aqueous (< 50% organic) mobile phase. A storage solvent with 90%/10% (v/v) acetonitrile/water is highly recommended.*
Care and use manual	720005408EN	720003042EN	720004882EN	720007065

* More column dimensions can be found at www.waters.com/glycoproteins.

GLYCAN CHARACTERIZATION SELECTION GUIDE – ACCESSORIES

Product name	Modular Heat Block	Vacuum Manifold Shims	Positive Pressure Manifold Spacer	GlycoWorks Rapid Buffer	GlycoWorks Automation Script Pack- USB for Hamilton
Part no.	186007985	186007986	186007987	186008100	715006093
Sample scale	96 tubes	3	1	1	USB
Product description and uses	Customized to hold 1 mL tubes that are in strips of 8 in a 96-well format. For dry baths modules that fit the block refer to www.waters.com. (p/n: 186007988).	For use with a vacuum manifold.	For use with a positive pressure manifold.	50 mM HEPES pH 7.9 Rapid Buffer.	This GlycoWorks *Rapi*Fluor-MS Hamilton MicroLab Prep Script has been designed for use with Hamilton automation platform enabling high-throughput sample preparation for released N-Glycans with minimal user intervention. Step-by-step instructions and what is needed fr the workstation deck layout are provided in Care and Use manual.
Features and benefits	This is specifically used in the GlycoWorks *Rapi*Fluor-MS N-Glycan Kit workflow using the tubes included in the Sample Collection Module. (p/n: 186007988).	Allows for the collection plate to be lifted enough for the wells to fall directly in to eliminate cross over contamination.	Allows for the collection plate to be lifted enough for the wells to fall directly in to eliminate cross over contamination. This also has a window for easy viewing.	Bulk provided for buffer exchange if needed.	This starter kit should be ordered with 176004154 **GlycoWorks *Rapi*Fluor-MS N-Glycan Basic Kit-Automation**
Components	1 Modular Heat Block	Set of 3 shims	1 spacer	1 vial of 5 mL	1-USB
Storage temperature	Room temperature	Room temperature	Room temperature	4 °C	N/A
Shelf life of unopened products	None	None	None	2 years	N/A
Care and use manual	715004793EN, 715004903EN	715004793EN, 715004903EN	715004793EN, 715004903EN	96: 715004793EN, 24: 715004903EN, Auto: 715005359EN	720007620EN

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