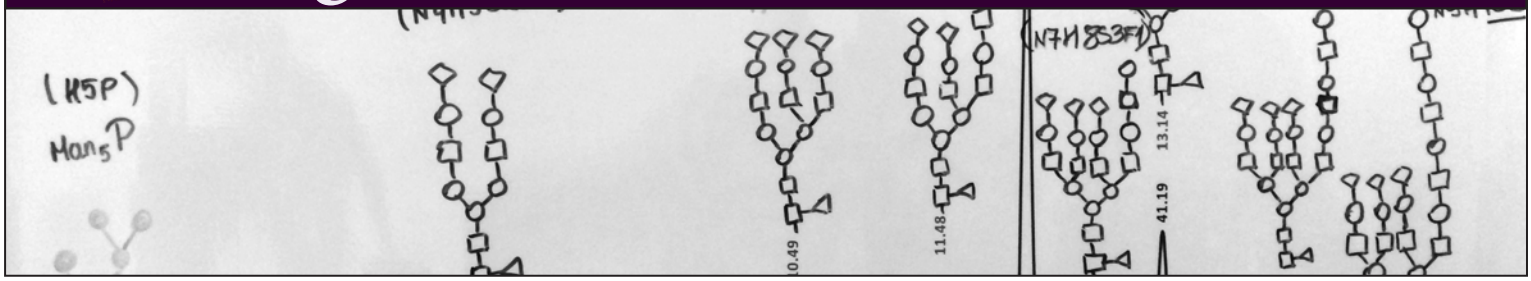
Ludger News

January/February 2019



GlySign Grant mid-term review meeting and workshop

The Mid-Term EU review meeting and training workshop for the GlySign project took place at Leiden University Medical College (LUMC) from 10-14 December (Leiden, NL). This was attended by Early Stage Researchers (ESRs), Senior Researchers involved in the project from beneficiary institutes and partner organizations, the EU project monitoring officer and the EU appointed scientific reviewer. The ESRs gave oral presentations of their work to date during this session, provided feedback to the EU officer and appointed reviewer and finally the consortium received feedback from the same reviewers. In addition there were training workshops for the ESRs on the following topics:

Biologicals for the Clinic - (led by Ludger Ltd and LUMC) – the ESRs presented reviews of the commercialization of different classes of biologicals for clinical use, followed by round table discussions of each sector. Other areas covered included: how to investigate Erythropoietin glycosylation using HILIC-mass spectrometry of fluorophore labelled glycans, how human derived immunoglobulins are produced for use in the clinic at the Sanquin Institute and some of the essentials for designing a workflow for producing and analyzing a biological.

Quality Management (led by Ludger Ltd and Horizons Unleashed Ltd.) - They also learnt some of the aspects of assuring consistent and accurate effectiveness of biological assays with a review of the ICHQ2(R1) guidelines for validation of an analytical assay and learnt about efficient ways of root cause analysis to help them troubleshoot when things go wrong in the lab.

Scientific Writing (led by LUMC) – An informative session on writing a scientific paper and how to compose a scientific journal rebuttal letter.

For more information on our collaborative programs, please visit our Research and Development webpages.

Colorectal cancer study using CRISPR technology

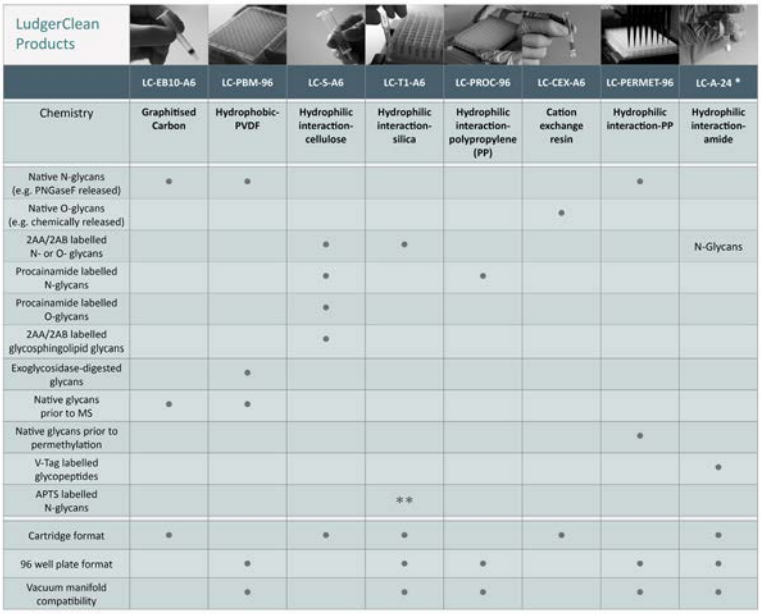
A study by groups at Ludger and Amsterdam UMC as part of the GlyCoCan grant, has demonstrated the altered expression of fucosyltransferases in colorectal cancer cells and its impact on *N*-glycosylation. Using CRISPR-dCas9-VPR technology to augment glycosyltransferase expression, resulted in a change of *N*-glycosylation at the cell surface. The findings show that exploitation of the CRISPR-dCas9-VPR system can provide a better insight into malignant cell transformation and how it is associated with tumor progression, metastasis and resistance to chemotherapy. This was recently published in Glycobiology.

Transcriptional activation of fucosyltransferase (FUT) genes using the CRISPR-dCas9-VPR technology reveals potent N-glycome alterations in colorectal cancer cells. Blanas A, Cornelissen LAM, Kotsias M, van der Horst JC, van de Vrugt HJ, Kalay H, Spencer DIR, Kozak RP, van Vliet SJ. Glycobiology. 2018 Nov 22. doi: 10.1093/glycob/cwy096

To view this and others, please visit our Ludger Publications webpage.

Updated clean-up and labeling technology tables

We have updated our LudgerClean and LudgerTag chooser tables to incorporate all of the clean-up and labeling technologies that we offer. This should make it easier to select the most appropriate kits for your needs but of course you can always contact us directly if you have questions.



LudgerClean Products	LC-EB10-A6	LC-PBM-96	LC-S-A6	LC-T1-A6	LC-PROC-96	LC-CEX-A6	LC-PERMET-96	LC-A-24 *
Chemistry	Graphitised Carbon	Hydrophobic-PVDF	Hydrophilic interaction-cellulose	Hydrophilic interaction-silica	Hydrophilic interaction-polypropylene (PP)	Cation exchange resin	Hydrophilic interaction-PP	Hydrophilic interaction-amide
Native N-glycans (e.g. PNGaseF released)	•	•					•	
Native O-glycans (e.g. chemically released)						•		
2AA/2AB labelled N- or O- glycans			•	•				N-Glycans
Procainamide labelled N-glycans			•		•			
Procainamide labelled O-glycans			•					
2AA/2AB labelled glycosphingolipid glycans			•					
Exoglycosidase-digested glycans		•						
Native glycans prior to MS	•	•						
Native glycans prior to permethylation							•	
V-Tag labelled glycopeptides								•
APTS labelled N-glycans				**				
Cartridge format	•		•	•		•		•
96 well plate format		•		•	•		•	•
Vacuum manifold compatibility		•		•	•		•	•

* LC-A's may be applicable for 2AB/2AA labelled O-glycans, Proc labelled N- or O-glycans, 2AB/2AA GSLs and APTS labelled N-glycans, but these have not been tested in-house

** Additional buffer required, please enquire for details

LudgerTag Products	LT-KAB-A2	LT-KAB-VP24	LT-KAB-VP96	LT-KAA-A2	LT-KAA-VP24	LT-KPROC-24	LT-KPROC-VP24	LT-KPROC-96	LT-KDMB-A1	LT-VTAG-24	LT-VTAG-C30	LT-MONO-96	LT-PERMET-96**	LT-PERMET-VP96***
Application:														
N-glycans	✓	✓	✓	✓	✓	✓	✓	✓			✓		✓	✓
O-glycans	✓	✓	✓	✓	✓	✓	✓	✓					✓	✓
GSL glycans	✓	✓	✓	✓	✓	✓	✓	✓					✓	✓
IgG glycopeptides										✓				
Sialic acids									✓					
Monosaccharides												✓		
Release*									included		included	included		
Label	2AB	2AB	2AB	2AA	2AA	Procainamide	Procainamide	Procainamide	DMB	V-Tag	V-Tag	2AA	Permethylation	Permethylation
Reductant:														
Sodium Cyanoborohydride	✓			✓		✓		✓				✓		
Picoline borane		✓	✓		✓		✓							
Analytical platform:														
HPLC analysis	• • •	• • •	• • •	• • •	• • •	• • •	• • •	• • •	• • •	• • •	• • •	• • •		
UHPLC analysis	• • •	• • •	• • •	• • •	• • •	• • •	• • •	• • •	• • •	• • •	• • •	• • •		
LC-ESI-MS analysis	• •	• •	• •	• •	• •	• • •	• • •	• • •			•		• •	• •
MALDI-MS	• •	• •	• •	• •	• •					• •			• • •	• • •
Number of samples	24	24	96	24	24	24	24	96	22	24	30	96	96	96

Analytical platform sensitivity range: • • (medium) ⟶ • • • (high)
MS signal detection can be affected with sample purity and presence of salt contaminants.

* for release of N-glycans use PNGase F (Cat# E-PNG-xx or LZ-rPNGaseF-kit), for O glycans use LudgerLiberate Orela kit (Cat# LL-ORELA-A2) or hydrazinolysis kit (LL-HYDRAZ-A2), for GSLs use ceramide glycanase (Cat# LZ-CER-HM-KIT), for IgG glycopeptides use protease enzyme e.g. trypsin.

** with Methyl Iodide

*** without Methyl Iodide. This kit can be shipped outside of the UK.

Click the above images for more information and to view the respective tables.