



# Ludger

## News

### Christmas opening times and shipping dates

Ludger closes at the end of December 24<sup>th</sup> 2013 and we will be open again on January 2<sup>nd</sup> 2014.

Our last date for shipments this year is Tuesday 17<sup>th</sup> December 2013. The next ship date after the New Year will be Friday 3<sup>rd</sup> January 2014.

### Permethylated IgG glycan standards for MS analysis

Ludger now offers a permethylated IgG glycan library to use as a system suitability standard during MS analysis. We also offer a C13 version which can be used as an internal standard in the same MALDI chip spot as your C12-labelled permethylated glycans. Both are sufficient for 20 MS runs.

N-glycan IgG library, permethylated:  
**Cat # CPM-IGG-01**

N-glycan IgG library, permethylated with heavy (13C) MeI:  
**Cat # CPM-C13-IGG-01**

### Automation of glycan labelling and clean up using the Hamilton STARlet robot

Preparing N-glycan samples that have been released from biopharmaceuticals for their analysis can be challenging, as the fluorescent labelling and clean up steps are time consuming. Laboratories require a system that is simple to operate, scalable and repeatable.

We are working with the Hamilton STARlet robot to automate glycan labelling and clean up for up to 96 samples simultaneously. The total time taken for labelling and clean-up is 4.5 hours.

This system; utilising LudgerTag VP kits and LudgerClean T1 cartridges, has improved laboratory efficiency without compromising reliability of data.

Contact us: [info@ludger.com](mailto:info@ludger.com)

### 2AB labelled O glycan standards

We are pleased to announce that we now sell the following purified O-glycan standards, labelled with 2-aminobenzamide (2AB):

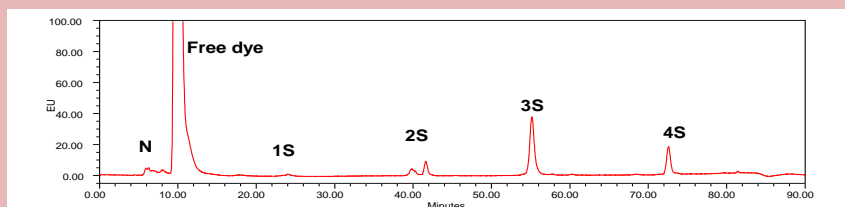
2AB labelled core 1 O-glycan, C1	<b>Cat # CAB-C1-01</b>	100pmol
2AB labelled sialylated core 1 O-glycan, C1S(3)1	<b>Cat # CAB-C2S(3,3)2-02</b>	50pmol
2AB labelled di-sialylated core 2 O-glycan, C2S(3,3)2	<b>Cat # CAB-C1S(3)1-02</b>	50pmol

## Charge-based analysis of N-glycans

Many glycoproteins contain sialylated, sulphated or phosphorylated sugars, including drugs containing Mannose-6-Phosphate (Man6P). Mannose-6-Phosphate is a key targeting signal for transport of glycoproteins to lysosomes and is present in therapeutic enzymes (enzyme replacement therapies) developed for treatment of lysosomal storage diseases.

Ludger has produced an ammonium formate buffer concentrate with a pH of 9 (above the pKa for phosphated glycans), which allows good separation of all sialic acids, phosphorylated and sulphated sugars using an anion exchange column.

This concentrate (**Cat# LS-C-BUFFX4**) simplifies the preparation of solvent for anion exchange, whilst avoiding the variations in buffer pH between batches which could lead to out-of-specification problems during glycan analysis. Simply dilute with water, add acetonitrile and use directly as an HPLC elution gradient when performing glycan analysis using the LudgerSep C3 column, **Cat # LS-C3-7.5x75**.



**Figure 1: Separation of 2AB labeled N-glycans from bovine fetuin on LudgerSepC3 7.5 x 75mm column using LS-C pH 9 solvent.**

1S, 2S, 3S & 4S indicate the mono-, di-, tri- and tetra-sialylated glycan peaks. N = neutral glycans.

Please contact us if you wish to receive information about Ludger products, request a quote, place an order or to enquire about our custom glycoprofiling services:

[info@ludger.com](mailto:info@ludger.com)

## Grant Collaborations:

Ludger is currently involved in the following EU FP7 Funded Programmes :

**HighGlycan** (2011-2016)

**IBD-BIOM** (2012-2016)

**Marie Curie ITN – GlycoPar** (Dec 2013-2017)

## LudgerTag VP kits

LudgerTag VP kits have been developed for labelling glycan samples with 2AA or 2AB. The kits incorporate 2-picoline borane (2PB) as a reductant, which is much less toxic than sodium cyanoborohydride. Sample labelling can be performed in 1 hour (versus 2-3 hours with sodium cyanoborohydride). This technology has now been patented and exclusively licenced to Ludger Ltd.

2AB labelling kit with 2-picoline borane  
2AA labelling kit with 2-picoline borane

**Cat #LT-KAB-VP24**  
**Cat #LT-KAA-VP24**

We recommend LudgerClean T1 cartridges (**Cat # LC-T1-A6**) to clean up samples post labelling.