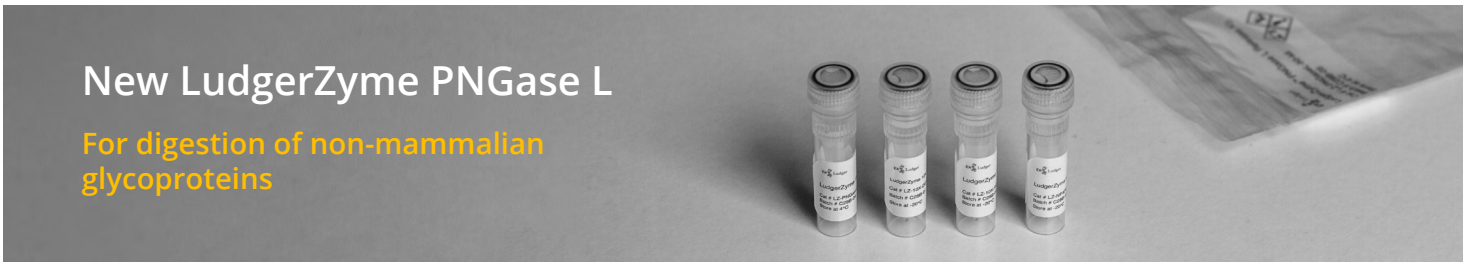
Ludger News

September/October 2022



We are pleased to announce the launch of a new endoglycosidase enzyme, **LudgerZyme PNGase L [LZ-PNGaseL-50]**.

LudgerZyme PNGase L is a recombinant glycoamidasesidase cloned from Flavobacterium akiainvivens. This enzyme is suitable for release of a broad spectrum of N-glycans (high-mannose, hybrid and complex) from glycoproteins and glycopeptides, including those **from non-mammalian sources** such as plants, insects and parasites carrying **α1-3 linked core fucose and xylose moieties**.

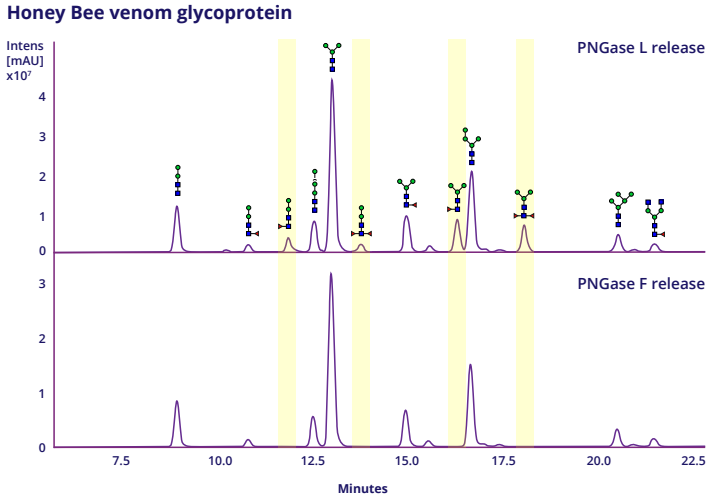


Figure 1. HILIC-UHPLC stack plot analysis of procainamide labelled N-Glycan Release from Honey Bee venom glycoprotein released with PNGase L (LZ-PNGase L-50); (top) and corresponding sample digested with PNGase F (LZ-rPNGaseF-kit) (bottom). Peaks from top chromatogram are labelled with glycan structures.

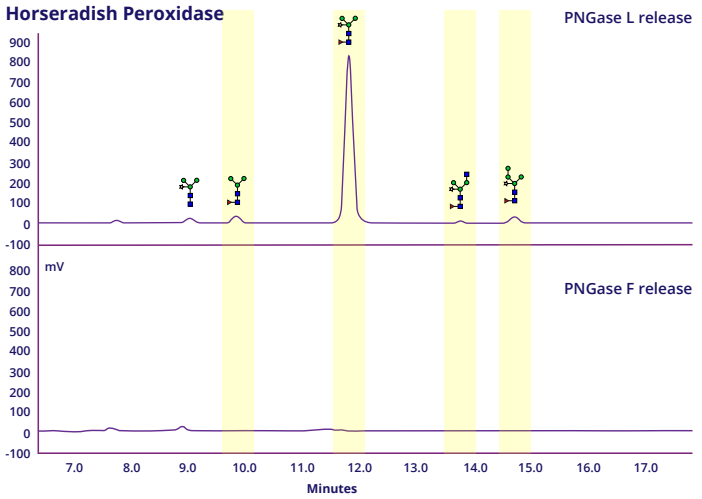
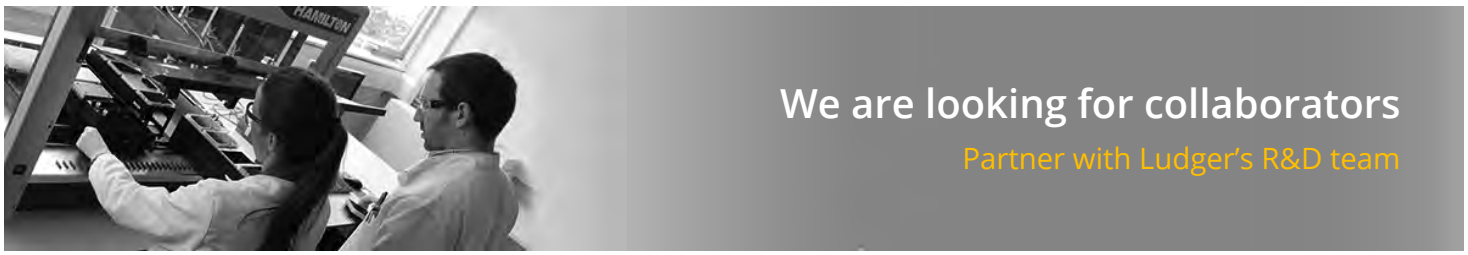


Figure 2. HILIC-UHPLC stack plot analysis of procainamide labelled N-Glycan Release from Horseradish peroxide glycoprotein released with PNGase L (LZ-PNGase L-50); (top) and corresponding sample digested with PNGase F (LZ-rPNGaseF-kit) (bottom). Peaks from top chromatogram are labelled with glycan structures.

The PNGase L enzyme was developed and it is produced in collaboration with **Newcastle University**. In comparison with PNGase F, our **PNGAse L enzyme** non-specifically releases N-glycans from broader variety of glycoprotein sources without an extensive sample preparation (see figure 1 and 2).

For enquiries or more information, please contact **info@ludger.com**



Ludger's Medical Glycomics Programmes have been established to study changes in glycosylation in health and disease. The detailed study of glycan interactions, structural patterns, and the interaction with protein will provide a thorough understanding of glycosylation and pave the way to identify glycan biomarkers. These **glycan biomarkers** can further be exploited to create early warning diagnostic systems for diseases, and they also have potential for better **prognosis** of existing disease conditions. We are currently working on studying **inflammatory diseases, cancers, diabetes, and cardiovascular disease**.

We actively collaborate with strategic partners across the globe and develop novel methodologies and/or innovative research as well as patents. A couple of examples of recently published articles which resulted from collaborations are listed below:

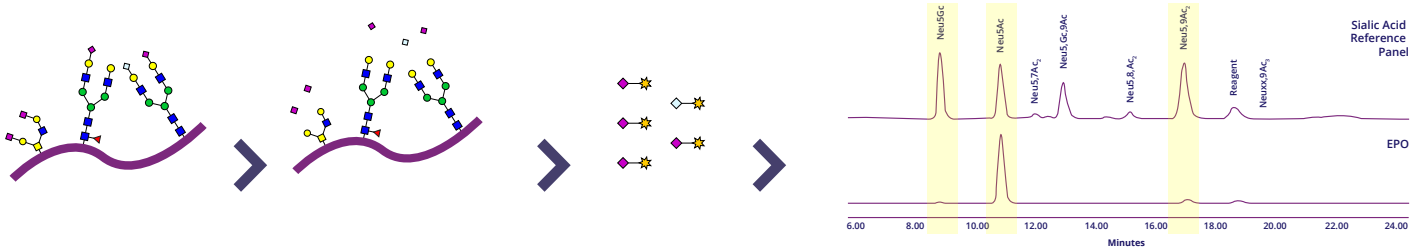
- **Royal College of Surgeons in Ireland** titled *"Biomolecular Corona Stability in Association with Plasma Cholesterol Level"* in the journal of Nanomaterials. Collaborator: Dr Marco Monopoli
- **University of Sheffield** titled *"Structural and functional characterisation of a stable, broad-specificity multimeric sialidase from the oral pathogen Tannerella forsythia"* in Biochemical Journal. Collaborators: Professors Graham Stafford and John Rafferty.

If your organisations vision and objectives align with ours, we would like to invite you collaborate with us to develop innovate glycomics solutions! Please register your interest and contact us at **info@ludger.com** We look forward to hearing from you.

Sialic acid quantitation and profiling of glyco-therapeutics

Sialic acids are negatively charged monosaccharides found on the non-reducing termini of glycans. They play a crucial role in the 3D conformation, and in turn, the stability and serum half-life of therapeutic glycoproteins. A diverse range of sialic acids are found in nature, but the two major sialic acids found on N-glycans and O-glycans in biopharmaceuticals are N-acetyl-neuraminic acid (Neu5Ac, or NANA) and N-glycolyl-neuraminic acid (Neu5Gc, or NAGA). Neu5Gc can be immunogenic as it is not synthesised by humans. Therefore, monitoring the absolute quantities and levels of sialic acids in therapeutic glycoproteins is essential and a regulatory requirement at all stages of the development and manufacturing of biotherapeutics.

At **Ludger**, we offer everything you need to perform both Neu5Ac/Neu5Gc absolute quantitation and relative quantitation of O-acetylated Neu5,9Ac2. Please have a look at our workflow below.



Preparation	Release	Labelling	RP-LC Analysis		Results
5 mL sample aliquots* in a vacuum-centrifuge for 1-2hrs	LT-KDMB-A1 2M acetic acid @80°C for 2hrs	LT-KDMB-A1 DMB @50°C for 3hrs	LS-R1-4.6x150 25 µL for 30 min	LS-UR2-2.1x100 5 µL for 15 min	
Fetuin glycoprotein standard (GCP-FET-50U-X4) A2G2S2 glycopeptide standard (BQ-GPEP-A2G2S2-10U)		N-acetylneuraminic acid quantitative standards (CM-NEU-AC-01) N-glycolyneuraminic acid quantitative standards (CM-NEU-GC-01)			Neu5AC & Neu5Gc amounts in nmol/mg of protein
		N-acetylneuraminic acid qualitative standard (CM-NEU5,9AC2-01) Sialic acid reference panel (CM-SRP-01)			Relative proportions of Neu5,9,Ac2

For any technical enquiry or quote request, please contact **info@ludger.com**

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