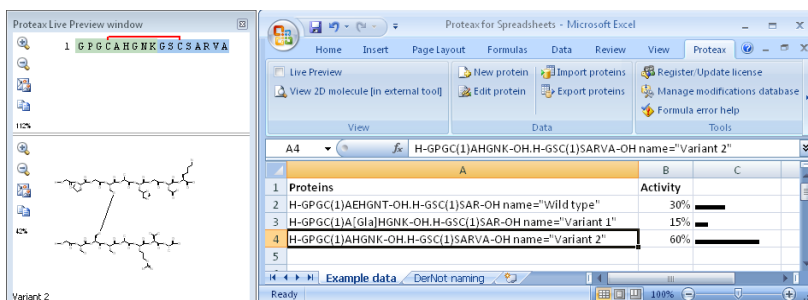


Proteax for Spreadsheets - protein chemistry-enabled spreadsheets

Biochemfusion's **Proteax® for Spreadsheets** - the first tool that allows you to work directly with chemically or post-translationally modified protein sequences in Microsoft Excel® and OpenOffice.org® Calc spreadsheets.

- Modified residues, terminals, disulfide bridges and lactam cyclizations.
- Sequence and structural identity checks.
- Protein comparison, manipulation, and naming via DerNot (**Derivatives Notation**) expressions.
- Two-way editor link to Lighthouse Data's GPMaw application for easy mass spec analysis.

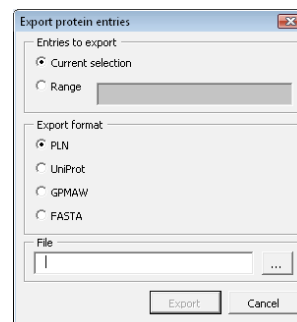


Proteax for Spreadsheets 1.1 includes live graphical preview of sequences and corresponding chemical structures.

Industry standard formats

Proteax for Spreadsheets can import and export protein entries in the following standard protein file formats:

- UniProt - the UniProt Consortium
<http://www.uniprot.org>
- GPMaw - by Lighthouse Data
<http://www.gpmaw.com>
- FASTA - (unmodified plain sequences only)
<http://www.ncbi.nlm.nih.gov/blast/fasta.shtml>



PLN notation - designed for spreadsheet and e-mail exchange

The industry standard formats above use multiple lines of text to describe a protein entry. Working with multi-line text in a spreadsheet can be challenging, especially when copy/paste operations are involved.

Biochemfusion's PLN (Protein Line Notation) format lets you work with complex protein structures in an easily read format that can be expressed as a single line of text - perfect for spreadsheets and e-mail exchange.

1 A C D E F
6 E G C G K

Simple modified peptide in PLN format:
H-AC (1) D [Gla] F-OH. H-EGC (1) GK-OH

Any protein entry read by Proteax for Spreadsheets can be converted into PLN, UniProt, or GPMaw format without chemical information loss.

1 T A G L V L A A L L V

Cyclosporin CsA in PLN format:

(cyc1o1) - [MeBmt] [Abu] [Sar] [MeLeu] V [MeLeu] A {d} A [MeLeu] [MeLeu] [MeVal] - (cyc1o1)

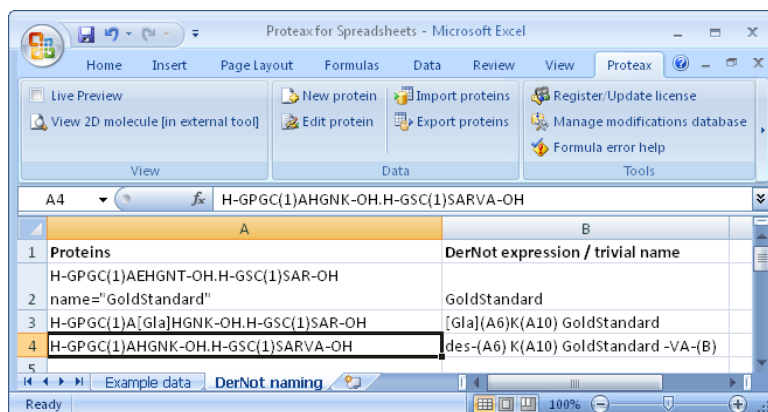
Creating and naming protein derivatives

Biochemfusion's **Derivatives Notation** (DerNot) expressions specify edit operations that can be applied to a protein entry: Residue substitutions, insertions, deletions, terminal modifications, and chain extensions. DerNot expressions resemble the notation that IUPAC recommends for trivial naming of protein derivatives - <http://www.chem.qmul.ac.uk/iupac/AminoAcid/AA22.html#AA22>.

Proteax for Spreadsheets can apply a DerNot expression to a reference protein entry to produce a protein derivative.

Similarly, Proteax for Spreadsheets can compare two protein entries and calculate the DerNot expression that will produce one protein from the other.

An actual example of DerNot calculation is shown to the right.



Proteins	DerNot expression / trivial name
H-GPGC(1)AEHGNT-OH.H-GSC(1)SAR-OH	GoldStandard
name="GoldStandard"	[Gla](A6)K(A10) GoldStandard
H-GPGC(1)A[Gla]HGNT-OH.H-GSC(1)SAR-OH	des-(A6)K(A10) GoldStandard -VA-(B)

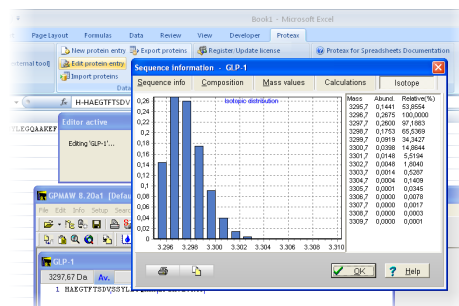
Scale up to company-wide databases

Protein entries used in Proteax for Spreadsheets are fully compatible with the Proteax Cartridge for Oracle® databases. This makes it easy to scale up from simple sharing of spreadsheets to a true multi-user relational database. Proteax Cartridge contains the same protein-related functions as Proteax for Spreadsheets, easing communication between spreadsheet users and server-side developers.

Mass spectrometry analysis

Proteax for Spreadsheets can interface to Lighthouse Data's GPMW. Protein entries can be sent to GPMW and analyzed using GPMW's suite of MS-related tools.

Changes made to a protein entry in GPMW are reflected in your spreadsheet as soon as you save the changed entry.



System requirements

Proteax for Spreadsheets will install on systems that are already running

- 32-bit Windows® 2000, XP, Vista, or Windows 7* Also works on Windows 7 64-bit.
- Microsoft Excel 2007, 2003 or OpenOffice.org Calc 3.x

You do *not* need administrator privileges to install Proteax for Spreadsheets.

Licensing

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GPMW is a 3rd party product by Lighthouse Data, <http://www.gpmaw.com>