Acquire and analyze microplate data more quickly and easily
Enhanced SkanIt Software 6.0.1 for microplate readers.

Like many cell biology labs, those focused on neuroscience research rely on microplate readers. From measuring neuronal viability to studying neuronal mechanisms that lead to disease or determining the concentration of neuronal proteins, microplate readers are foundational instruments that enable the quantification of signals generated in many different types of microplate assays.

While the actual instrument performance of microplate readers differs very little between instrument suppliers, the software programs that operate the readers can provide highly contrasting experiences. Thermo Scientific™ microplate readers are operated by Thermo Scientific™ SkanIt™ Software, which offers a remarkably smooth user experience. With the release of SkanIt Software 6.0.1 in April 2019, this experience is even more straightforward and accommodating. Neuroscientists can acquire their data with a microplate reader control-and-analysis interface that not only is simple to use but also aids with error prevention, helps boost productivity, and can easily be used in conjunction with tools already essential in research labs, such as Microsoft™ Excel™ data analysis software. Here we discuss a few examples of the distinctive time-saving, hassle-free features offered by SkanIt software. These helpful features span the entire plate reading workflow, from protocol setup through execution to data analysis.

Preconfigured protocols that are ready to use right off the shelf

Instead of requiring you to set up your protocols from scratch, SkanIt software provides access to the prebuilt SkanIt Cloud Library of assay protocols. This collection of validated sessions contains representative protocols with measurement steps (and real data), as well as calculations and other analysis steps associated with typical bioassays, using the most common optical detection technologies: absorbance, fluorescence, time-resolved fluorescence, luminescence, and AlphaScreen (Amplified Luminescent Proximity Homogeneous Assay Screen) (Figure 1). Users can access this SkanIt Cloud Library to perform immediate measurements, or they can use the sessions as templates to create customized assay protocols. The SkanIt Cloud Library is also an excellent data source for training (including self-training) of users new to SkanIt software. The library currently contains more

A

Assay type	Detection technology (examples)
Quantification of dsDNA	Photometry (UV absorbance)
	Fluorescence (Invitrogen Quant-iT assays)
Quantification of RNA	Photometry (UV absorbance)
	Fluorescence (Invitrogen Quant-iT assays)
Quantification of proteins	Photometry (UV absorbance)
Colorimetric protein assays	Photometry (Bradford and Lowry assays)
Cell health	Photometry (Invitrogen Vybrant MTT assay)
	Fluorescence (Invitrogen PrestoBlue and alamarBlue assays)
	Luminescence (Promega CellTiter-Glo and Caspase-Glo 3/7 assays)
Reporter assays	Luminescence (Promega Dual-Luciferase reporter assays)
Protein–protein interactions	Luminescence (Promega NanoBRET PPI assays)
Ca^{2+} flux assays	Fluorescence (fluo-4 and fura-2 assays)

B
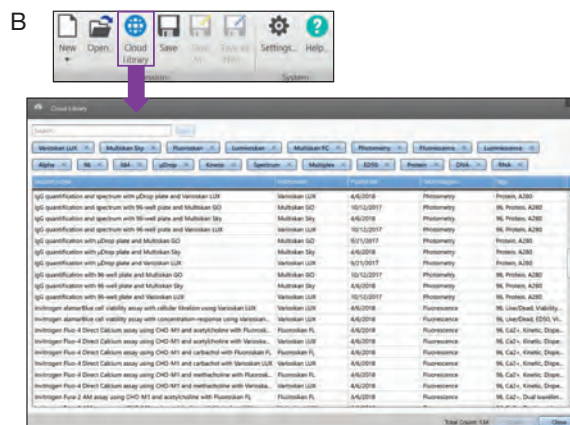
Figure 1. Execute microplate measurements more easily with Thermo Scientific microplate readers. The Thermo Scientific™ SkanIt™ Cloud Library offers a ready-to-use collection of relevant assays that can be either applied as-is or customized with quick editing. (A) Representative examples of assays included in the SkanIt Cloud Library. (B) A screenshot of the SkanIt Cloud Library, shown after selecting the Cloud Library icon from the SkanIt software Home menu.

than 130 instrument-specific assays and can be quickly searched with customized tags. The SkanIt Cloud Library will continue to expand as new applications emerge.

Hassle-free measurements with Automatic Dynamic Range

Setting up fluorescence or luminescence assays using a microplate reader that requires manual adjustment of its gain setting is a
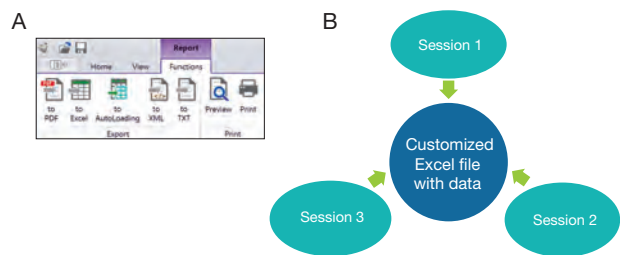
cumbersome process. For example, if the effect of a certain neurotoxic compound is being studied over a broad concentration range, it can be expected that the signal will vary significantly across the measured wells. With instruments that require manual gain adjustment, finding the gain setting that will produce the optimal instrument response is time-consuming and frustrating. High-concentration samples can saturate instrument optics and require a lower gain setting, whereas low-concentration samples may not be easily detectable and require a higher gain setting.

In contrast, SkanIt software includes an Automatic Dynamic Range (ADR) feature for performing fluorescence and luminescence measurements with the Thermo Scientific™ Varioskan™ LUX Multimode Microplate Reader. By selecting ADR, the instrument automatically adjusts the optimal gain setting based on the signal intensity in each well. As a result, using the ADR with the Varioskan LUX reader significantly broadens the quantifiable range of assays, compared to instruments requiring manual gain setting (Figure 2). Because ADR acts quickly in real time, the gain is set to its optimal value in each well, even when users are performing kinetic or spectral measurements. This distinctive feature, available exclusively for the Varioskan LUX reader, greatly simplifies the optimization of assays and makes the data comparable from run to run.
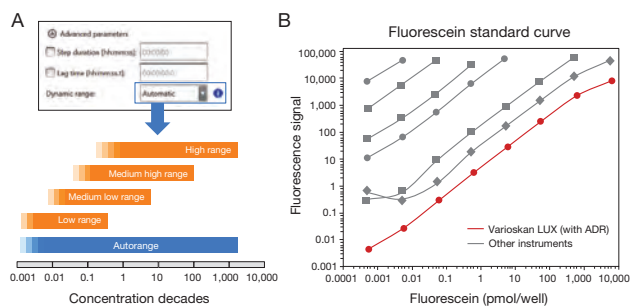
Figure 2. Don't bother with manual gain settings. Selecting Automatic Dynamic Range (ADR) in Thermo Scientific™ SkanIt™ Software helps save time and reduce effort when measuring fluorescence and luminescence assays with the Thermo Scientific™ Varioskan™ LUX Multimode Microplate Reader. (A) A screenshot shows the selection of ADR in SkanIt software. (B) Instead of having to perform several measurements with different gains (as required on instruments from other suppliers), optimal results can be obtained after a single measurement using the Varioskan LUX microplate reader with ADR, as shown in this example of a fluorescein standard curve obtained on several instruments using different gain settings.

Figure 3. Conveniently autoload data into Excel software. With the Excel AutoLoading feature, the measured or calculated data from Thermo Scientific™ SkanIt™ Software can be mapped to a customized Microsoft™ Excel™ template. (A) This screenshot shows the AutoLoading option in SkanIt software. (B) The AutoLoading feature allows the results from multiple experiments to be combined into a single Excel file, facilitating the use of customized and shared Excel templates.

Conveniently send data directly to customized Excel files using the AutoLoading tool

Post-measurement processing of data in Excel software is the most common practice when analyzing the results of a microplate assay. While all SkanIt software versions have single-click export to Excel software, SkanIt Software 6.0.1 includes an Excel AutoLoading tool for additional convenience. This new feature supports automatic loading of data from SkanIt software into a specific predesigned target Excel file (Figure 3). This tool is especially convenient for users who:

■ Are accustomed to using specific Excel files to make calculations

■ Use shared data templates within their research group

■ Wish to combine data from multiple experiments in Excel software

Using Excel AutoLoading, SkanIt calculation steps can also be easily exported to custom Excel templates. This convenient tool is one more way SkanIt software enables easy reporting and analysis.

Take advantage of the newest SkanIt software features

SkanIt software gives you full control over the instrument settings for all Thermo Scientific microplate readers, supporting the optimal use of instrument features and offering visual workflow setup and effortless data reduction and exporting. Find additional features and capabilities of the recently launched SkanIt Software 6.0.1 at thermofisher.com/skanit. ■

Product	Quantity	Cat. No.
SkanIt™ Software for Microplate Readers, Research Edition	1 each	5187139
SkanIt™ Software Upgrade Package, Research Edition (for Fluoroskan™, Fluoroskan™ FL, Fluoroskan™ Ascent, Fluoroskan™ Ascent FL, Luminoskan™, and Luminoskan™ Ascent microplate reader models)	1 each	N17646
Varioskan™ LUX Multimode Microplate Reader (absorbance, fluorescence intensity, and luminescence measurements; top- and bottom-reading options)	1 each	VLBLATD0