



Cell analysis

Microplate instruments, assays, and accessories guide

Everything you need for your microplate assays

A one-stop solution for your microplate needs

Whether you are conducting fluorescence, luminescence, or colorimetric studies, our high-quality microplates, microplate readers, and assays work together to deliver reliable, accurate results—quickly—so you can focus on your research.



Thermo Scientific™ Nunc™ cell culture plates

Choose from a wide selection of surface modifications and formats for a variety of 2D and 3D cell-based assays.

Thermo Scientific™ Nunc™ black and white polystyrene plates

Get optimal performance with minimal background and crosstalk between wells for maximal signal detection.

Thermo Scientific™ Nunc™ Edge™ plates

Minimize evaporation concerns for live cell assays with long incubations.

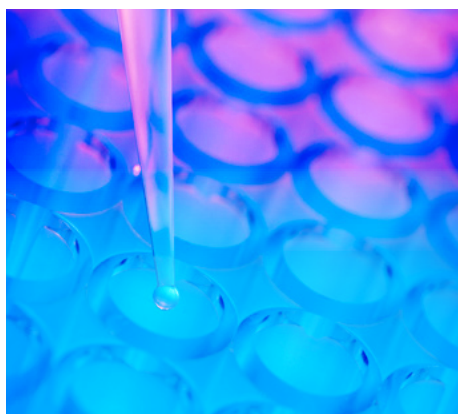
To find the Nunc plate that best suits your needs, go to thermofisher.com/cellcultureplates

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Cell health and imaging assays



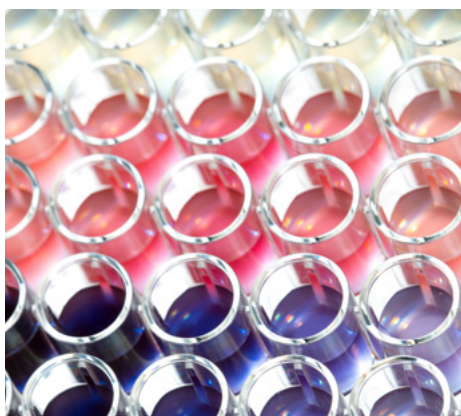
Fluorescence microplate assays

Combining the sensitivity of a fluorescence-based assay with a microplate format enables a rapid, quantitative readout that is suitable for high-throughput analysis. We offer a diverse selection of probes and assays for the analysis of cell viability, proliferation, cytotoxicity, apoptosis, ion flux, generation of reactive oxygen species, and various enzymatic activities. In a microplate well, the fluorescent signal can be generated within whole cells, in cell lysates, or in purified enzyme preparations. Fluorescence intensity can be measured from the well without the need for cellular imaging. Additionally, these products have been verified on multiple instrument platforms, including microplate readers.

For more information, go to thermofisher.com/microplate-fluor-assays

Choose from our comprehensive portfolio of Invitrogen™ microplate assays for cell health and imaging.

Application	Fluorescence assay
Apoptosis	<ul style="list-style-type: none"> • CellEvent Caspase-3/7 Green Detection Reagent (Cat. No. C10723, C10423) • EnzChek Caspase-3 Assay Kit #1, Z-DEVD-AMC Substrate (Cat. No. E13183) • EnzChek Caspase-3 Assay Kit #2, Z-DEVD-R110 Substrate (Cat. No. E13184)
Calcium ion indicators	<ul style="list-style-type: none"> • Fluo-3 AM, Calcium Indicator (Cat. No. F1242) • Fluo-4 Direct Calcium Assay Kit (Cat. No. F10471) • Fluo-4 NW Calcium Assay Kit (Cat. No. F36206)
dsDNA	<ul style="list-style-type: none"> • Quant-iT PicoGreen dsDNA Assay Kit (Cat. No. P11496) • Quant-iT dsDNA Assay Kit, high sensitivity (Cat. No. Q33120) • Quant-iT dsDNA Assay Kit, broad range (Cat. No. Q33130)
Metabolic (cholesterol)	• Amplex Red Cholesterol Assay Kit (Cat. No. A12216)
Metabolic (glucose)	• Amplex Red Glucose/Glucose Oxidase Assay Kit (Cat. No. A22189)
Proliferation	<p>DNA content measurement</p> <ul style="list-style-type: none"> • CyQUANT Cell Proliferation Assay Kit (Cat. No. C7026) • CyQUANT NF Cell Proliferation Assay Kit (Cat. No. C35006) • CyQUANT Direct Cell Proliferation Assay Kit (Cat. No. C35011) <p>New DNA synthesis</p> <ul style="list-style-type: none"> • Click-iT EdU Alexa Fluor 488 HCS Assay (Cat. No. C10350) • Click-iT EdU Alexa Fluor 555 HCS Assay (Cat. No. C10352) • Click-iT EdU Alexa Fluor 594 HCS Assay (Cat. No. C10354) • Click-iT EdU Alexa Fluor 647 HCS Assay (Cat. No. C10356) • Click-iT EdU Proliferation Assay for Microplates (Cat. No. C10499)
Protein	• Quant-iT Protein Assay Kit (Cat. No. Q33210)
Reactive oxygen species	<ul style="list-style-type: none"> • CellROX Green Reagent (Cat. No. C10444) • CellROX Deep Red Reagent (Cat. No. C10422)
RNA	• Quant-iT RiboGreen RNA Assay Kit (Cat. No. R11490)
ssDNA	<ul style="list-style-type: none"> • Quant-iT OliGreen ssDNA Reagent (Cat. No. O7582) • Quant-iT OliGreen ssDNA Assay Kit (Cat. No. O11492)
Viability	<ul style="list-style-type: none"> • alamarBlue Cell Viability Reagent (Cat. No. DAL1025, DAL1100) • PrestoBlue Cell Viability Reagent (Cat. No. A13261, A13262) • LIVE/DEAD Viability/Cytotoxicity Kit (Cat. No. L3224)



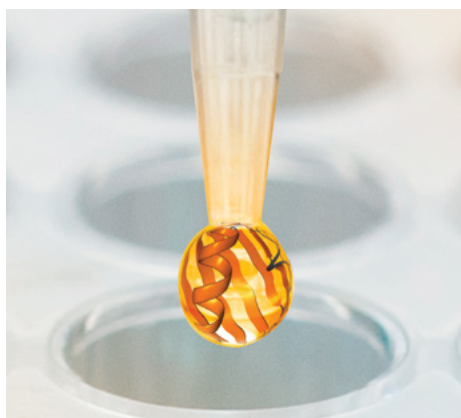
Absorbance microplate assays

For more than 30 years, absorbance-based detection has been the preferred choice for many microplate-based assays, such as ELISA and protein assays, nucleic acid quantitation, and enzymatic assays. A light source illuminates a sample, and a light detector measures how much of the initial light is transmitted through the sample. Many absorbance assays use a chromogenic substrate, which upon enzymatic conversion to the final product, results in a compound that will absorb light at a specific wavelength. Absorbance assays are popular because of their ease of use, cost-effectiveness, and superior well-to-well reproducibility. Additionally, the color change associated with an absorbance assay can help confirm the progression of an enzymatic reaction.

For more information, go to thermofisher.com/elisa, thermofisher.com/cytotoxicity, or thermofisher.com/microplate-cell-viability

Choose from our portfolio of reliable absorbance microplate assays.

Application	Absorbance assay
Cytotoxicity	• CyQUANT LDH Cytotoxicity Assay (Cat. No. C20300, C20301)
	• CyQUANT Cytotoxicity Assay Kit (G6PD Release Assay) (Cat. No. V23111)
Viability	• CyQUANT XTT Cell Viability Assay (Cat. No. X12223)
	• CyQUANT MTT Cell Viability Assay (Cat. No. V13154)



Luminescence microplate assays

Luminescence microplate assays utilize a biochemical or chemical reaction to generate photons that are detected by a photomultiplier tube (PMT) or charge coupled device (CCD) in the plate reader. Typically, the full spectrum of signal from luminescence assays is collected, and measurement is not restricted to particular wavelengths. Luminescence assays are popular because of their sensitivity and the large dynamic ranges.

For more information, go to thermofisher.com/luciferase

Choose from our portfolio of Thermo Scientific™ luminescence microplate assays.

Application	Luminescence assay
Reporter gene (firefly)	• Pierce Firefly Luc One-Step Glow Assay Kit (Cat. No. 16196, 16197)
	• Pierce Firefly Luciferase Flash Assay Kit (Cat. No. 16174, 16175)
Reporter gene (Renilla)	• Pierce Renilla Luciferase Glow Assay Kit (Cat. No. 16166, 16167)
	• Pierce Renilla Luciferase Flash Assay Kit (Cat. No. 16164, 16165)
Reporter gene (Gaussia)	• Pierce Gaussia Luciferase Flash Assay Kit (Cat. No. 16158, 16159)

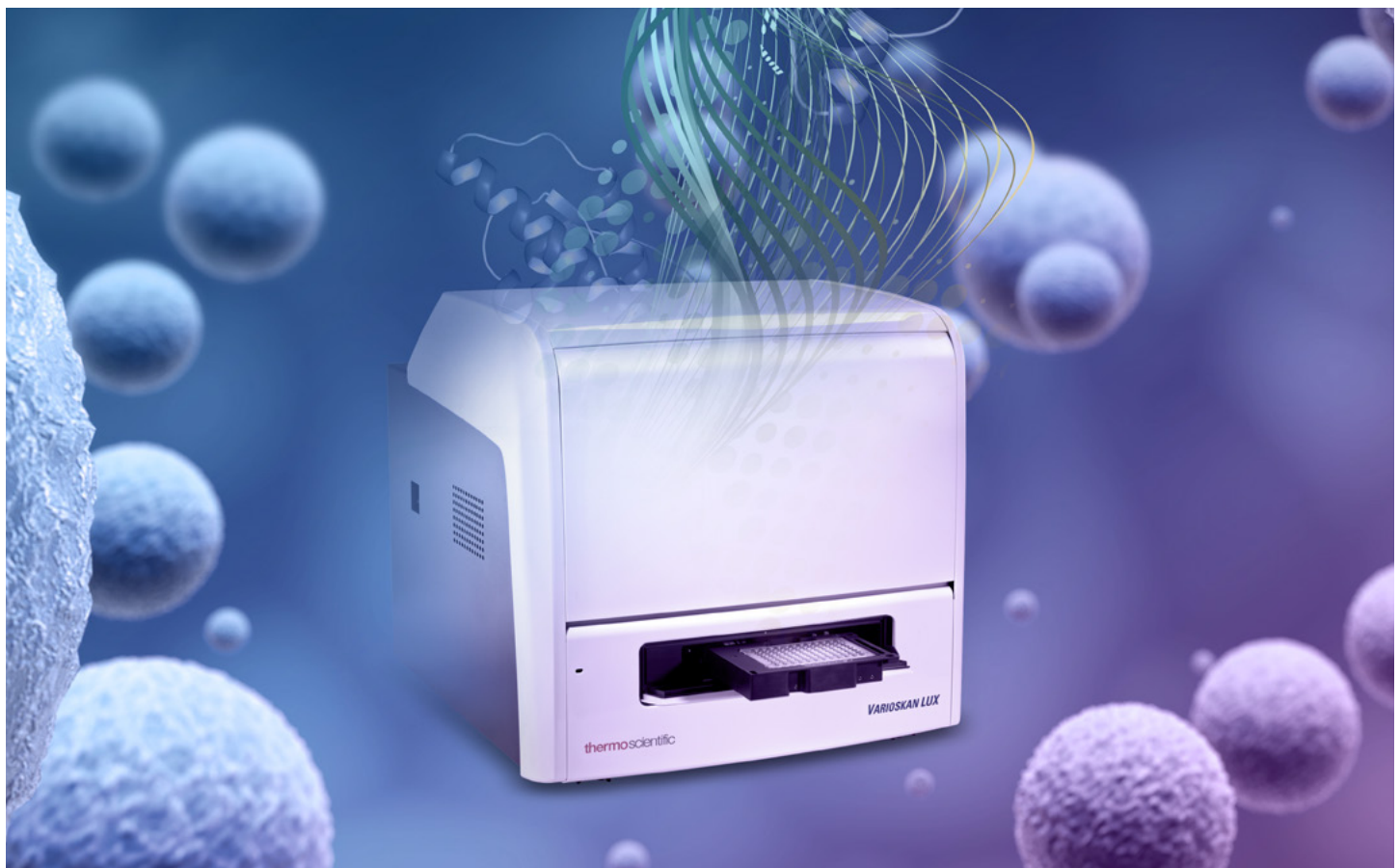
Microplate readers

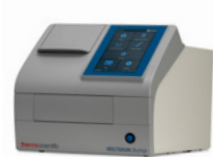
Thermo Scientific™ microplate readers provide flexibility, performance, and ease of use for a variety of microplate assays. Whether you need to measure fluorescence, absorbance, luminescence, time-resolved fluorescence (TRF), or perform AlphaScreen™ assays, we offer a microplate reader to meet the requirements of your specific workflow. With a portfolio of dedicated modular and upgradable multimode readers, we also have solutions that fit your current budget with options to meet the future needs of your laboratory.

Thermo Scientific plate readers have a number of features to help you save time and maximize productivity, including:

- Auto-calibration
- Easy export to Microsoft™ Excel™ format
- Automation readiness with robot compatibility
- No limit to the number of computers on which you can install our intuitive Thermo Scientific™ SkanIt™ Software
- Ready-to-use protocols available in an extensive online protocol library

For more information, go to [thermofisher.com/platereaders](https://www.thermofisher.com/platereaders)





Consideration	Multiskan™ FC Microplate Photometer	Multiskan™ SkyHigh Microplate Spectrophotometer	Varioskan™ LUX scanning multimode reader
Applications	Absorbance	Absorbance	Absorbance, fluorescence; optional: TRF, luminescence, AlphaScreen readout
Wavelength range (nm)	340–850	200–1,000	Absorbance and fluorescence excitation: 200–1,000 Fluorescence emission: 270–840 Luminescence: 360–670 (spectral scanning 270–840) TRF excitation: fixed to 334 (spectral scanning 200–840) TRF emission: 400–670 (spectral scanning 270–840) AlphaScreen excitation: fixed to 680 AlphaScreen emission: 400–660
Wavelength selection	Filters	Monochromator	Monochromator for UV-Vis absorbance and fluorescence intensity Filters for luminescence, TRF, AlphaScreen assays
Plate format	96 wells (384 wells optional)	Thermo Scientific™ μ Drop™ and μ Drop™ Duo Plates, 6–48 wells, 96 wells, 384 wells	6–1,536 wells (fluorometry, TRF, luminometry, AlphaScreen assays) μ Drop Plate/6–384 wells (absorbance)
Incubation	Optional	Yes	Yes
Shaking	Yes	Yes	Yes
Dispensers	No	No	Optional (to two)
Top/bottom reading	NA	NA	Top (standard) Bottom (optional)*
Cuvettes	No	Optional	With μ Drop Plate
Gas control module	No	No	Optional

* Instruments with bottom-read capabilities feature multi-location reads per well.

Request a quote at [thermofisher.com/platereaderquote](https://www.thermofisher.com/platereaderquote)

Skant Software

The intuitive interface of our updated Skant Software will guide you through the measurement process to help you get the results you need. Skant Software is available in two editions. The Research Edition is for scientists working in life sciences research, and the Drug Discovery Edition provides features to help you comply with the requirements in FDA 21 CFR Part 11.

Skant Software makes microplate reading easy

Skant Software provides excellent usability and flexibility, even for the most challenging microplate assays. This software offers visual workflow setup and effortless data reduction and exporting.

- Capable of endpoint, kinetic, spectral scanning, bottom reading with a multipoint option, and kinetic-spectral measurements
- Extensive Skant Cloud Library of ready-made protocols is available
- Intuitive user interface simplifies measurement setup
- Virtual pipette tool makes it easy to define sample-to-plate layout
- Built-in calculations for fast, accurate data analysis, including:
 - Parallel line analysis
 - Enzyme kinetics (K_m and V_{max})
 - Z-factor
 - Linear and logistic curve fitting with extrapolation
 - And many more
- Single-click data export to Excel software.
- Manually or automatically export data to .xlsx, .pdf, .xml, and .txt file formats
- Open license software allows unlimited installation on multiple computers
- No annual fee to use the software

For more information, go to thermofisher.com/skanit

Varioskan LUX Multimode Microplate Reader

Designed to suit a wide variety of needs, the Thermo Scientific™ Varioskan™ LUX Multimode Microplate Reader provides a flexible range of measurement modes. The instrument simplifies measurement setup with automatic dynamic range selection, and its smart safety controls help you avoid experimental errors. The Varioskan LUX multimode reader raises the bar for reliability and ease.



- Five detection modes: absorbance, fluorescence, luminescence, TRF, and AlphaScreen modules
- Five measurement modes: endpoint, kinetic, spectral, multipoint, and kinetic spectra
- Spectral scanning for assay optimization
- Simultaneous dispensing and measurement of fast reactions right from the start
- Integrated gas module for control of CO₂ and O₂
- Extensive library of prebuilt protocols available online

For more information, go to thermofisher.com/varioskanlux

Wellwash Versa Microplate Washer

Wash 96- or 384-well plates securely with the Thermo Scientific™ Wellwash™ Versa Microplate Washer, an automation-ready microplate strip washer for routine ELISA applications. Designed for high performance and versatility, the Wellwash microplate washer is easy to use and convenient with a graphical interface, local language version, and USB port.



See more at thermofisher.com/wellwash

ELISA platforms

ELISAs are popular for protein quantitation because of their ease of use and the rapid and consistent results they provide, which are easy to analyze. Our ELISA kits are developed to meet industry-standard specifications, including standard calibration, precision, sensitivity, specificity, recovery, lot-to-lot consistency, linearity, and parallelism.




Find out more about our testing standards at thermofisher.com/elisastandards



Rigorous assay verification of ELISA kits helps ensure consistent, reliable results.

Specification	Description	What does it mean for you?
Standard calibration	Calibrated to National Institute for Biological Standards and Control (NIBSC) standards (if available).	Allows accurate quantitation and consistent standard of reference across multiple platforms.
Precision	Average inter-assay CV of <10% Average intra-assay CV of <10%	Obtain consistent results.
Sensitivity	Relevant levels of protein are detected for specific assay type.	Enables detection of low levels of protein.
Specificity	Cross-reactivity tests are performed with similar analytes.	Helps to ensure accurate measurement of the protein of interest.
Recovery	Buffers are optimized to minimize matrix effects.	Helps to ensure accurate quantitation of samples within complex matrices, including serum and plasma.
Lot-to-lot consistency	In-house controls are tested to evaluate whether the data are within set ranges.	Helps to ensure consistent results with new lots.
Linearity of dilution	Linear results over the quantitative range of the assay.	Serial dilutions of samples are quantitated accurately.
Parallelism	Recombinant protein standards mimic native proteins.	Samples can be measured with confidence.

Choose from a variety of Invitrogen™ ELISA kits, including complete, ready-to-use kits and preoptimized reagents to make your own assay.

Verified, ready-to-use kits	Measure phospho-specific proteins	Reduce steps and hands-on time	Coat it yourself and keep costs low
			
Invitrogen™ coated ELISA kits	Invitrogen™ phospho-specific coated ELISA kits	Invitrogen™ instant ELISA kits	Invitrogen™ uncoated ELISA kits
Highly verified ELISA kits with precoated plates provide lower inter- and intra-assay variability with ready-to-use reagents to help ensure consistent data.	Designed to deliver accurate, sensitive, and fast quantitation of total, phosphorylated, modified, or cleavage site-specific proteins in a broad range of sample types.	Simply add sample to perform 1-wash, 1-hour ELISA. These kits come with most assay components already added and lyophilized in the bottom of the 96-well plate.	These kits include all reagents required to prepare and run the ELISA, including ELISA-optimized matched antibody pairs, standards, detection reagents, coating buffers, sample diluent, and substrate solution.

Try our enhanced search tool at thermofisher.com/elisa

Colorimetric and fluorometric protein and peptide assays

We offer numerous colorimetric assays for detection and quantitation of total protein that can be utilized in both tube and microplate formats. Thermo Scientific™ Pierce™ protein assays provide exceptional accuracy, compatibility, and broad applicability that enable most laboratory protein samples to be determined with ease. We also offer easy-to-use colorimetric and fluorescent peptide assays that are designed specifically to improve the sensitivity and reproducibility of peptide mixture quantitation.

Highlights:

- **Wide selection**—multiple assays to choose from based on your sample composition
- **Simple format**—many assays are in mix-and-read format; others have a short incubation time
- **Minimal sample requirement**—most assays require 10 µL of sample in the microplate format



Working ranges for Thermo Scientific™ protein and peptide assays.

Reagent	Protocol	Assay incubation time (min)	Estimated working range (µg/mL)
Pierce Rapid Gold BCA Protein Assay	Standard tube or microplate	5	20–2,000
BCA Protein Assay	Standard tube or microplate	30	20–2,000
	Enhanced tube		5–250
Micro BCA Protein Assay	Standard tube	60	0.5–20
	Standard microplate		2–40
Pierce BCA Protein Assay—Reducing Agent Compatible	Standard tube or microplate	45	125–2,000
Pierce 660 nm Protein Assay	Standard tube	5	25–2,000
	Standard microplate		50–2,000
Pierce Detergent Compatible Bradford Assay	Standard tube	10	100–1,500
	Standard microplate		2–25
Pierce Coomassie Plus (Bradford) Assay	Standard tube or microplate	10	100–1,500
	Microtube or microplate		1–25
Pierce Coomassie (Bradford) Protein Assay	Standard tube or microplate	10	100–1,500
	Microtube or microplate		1–25
Pierce Modified Lowry Protein Assay	Standard protocol	10 and 30	1–1,500
	Standard microplate		10–1,500
Pierce Fluorometric Peptide Assay	Standard microplate	5	5–1,000
Pierce Colorimetric Peptide Assay	Standard microplate	30	25–1,000

The accuracy of BCA and the speed of the Bradford protein assay

The Thermo Scientific™ Pierce™ Rapid Gold BCA Protein Assay is an enhanced formulation that provides all the benefits of our trusted BCA assay. It offers the same excellent linearity with a reduced incubation time, enabling you to accurately measure your protein solutions in minutes at room temperature (RT).

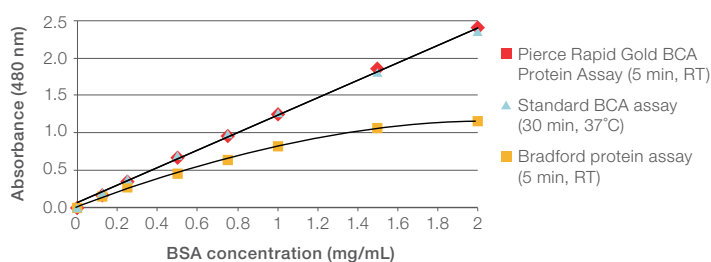


Figure 1. The Pierce Rapid Gold BCA Protein Assay provides the accuracy of our original BCA assay with the speed of the Bradford assay. Standard curves for the Pierce Rapid Gold BCA, standard BCA, and Bio-Rad™ Bradford protein assays were produced with purified BSA in 0.9% saline (0–2 mg/mL). All assays were conducted according to the manufacturer protocols in a microplate format. For the BCA assay, 25 μ L of the BSA sample was added to 200 μ L of the BCA working reagent and incubated for 30 minutes at 37°C. For the Pierce Rapid Gold BCA Protein Assay, 20 μ L of the BSA sample was added to 200 μ L of the Rapid Gold BCA working reagent and incubated at room temperature for 5 minutes. For the Bradford assay, 10 μ L of the BSA sample was added to 200 μ L of the Bradford reagents and incubated at room temperature for 5 minutes.

Highlights:

- **Fast**—assay results in 5 minutes at RT
- **Accurate**—low coefficient of variation (CV) and excellent linearity
- **Convenient**—simple, easy-to-perform assay
- **Flexible**—compatible with detergent

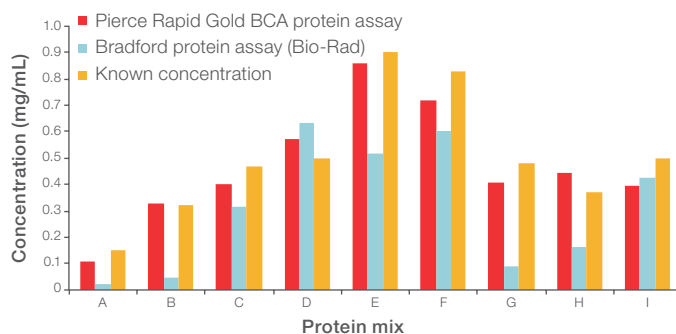


Figure 2. Accuracy of the Pierce Rapid Gold BCA Protein Assay and Bradford protein assay with known protein mixes. Both assays were conducted according to the respective manufacturer protocols in a microplate format. For the Bradford assay, 10 μ L of the BSA sample was added to 200 μ L of the Bradford working reagent and incubated at room temperature for 5 minutes. For the Pierce Rapid Gold BCA Protein Assay, 20 μ L of sample was added to 200 μ L of Rapid Gold BCA working reagent and incubated at room temperature for 5 minutes. Known concentrations were based on manufacturers' indicated concentrations and confirmed by absorbance at 280 nm.



Download the protein assay technical handbook to help you select the appropriate assay method based on assay time, sensitivity, compatibility, standard curve linearity, and protein-to-protein variation. Learn about our wide range of copper- and dye-based colorimetric assays and fluorescent protein assays, as well as our more specialized assays to quantify peptides, antibodies, protein modifications, or functional (enzymatic) proteins. Discover tools and strategies to optimize your protein quantitation assays to help ensure more accurate downstream results.

Download the free handbook at thermofisher.com/protein-assay-handbook

To find out more, go to thermofisher.com/proteinassays

Ordering information

Product	Quantity	Cat. No.
Protein and peptide quantitation assays		
Pierce 660 nm Protein Assay Kit	450 mL	22662
Pierce BCA Protein Assay Kit	500 mL	23227
Pierce BCA Protein Assay Kit—Reducing Agent Compatible	275 mL	23250
Pierce Bovine Serum Albumin Standard, 2 mg/mL	10 x 1 mL	23209
Pierce Bovine Gamma Globulin Standard Ampules, Pre-Diluted Set	7 x 3.5 mL	23213
Pierce Bovine Serum Albumin Standard Pre-Diluted Set	7 x 3.5 mL	23208
Pierce Coomassie (Bradford) Protein Assay Kit	950 mL	23200
Pierce Coomassie Plus (Bradford) Assay Kit	950 mL	23236
Pierce Detergent Compatible Bradford Assay Kit	450 mL	23246
Pierce Micro BCA Protein Assay Kit	500 mL	23235
Pierce Modified Lowry Protein Assay Kit	530 mL	23240
Pierce Quantitative Colorimetric Peptide Assay	500 assays	23275
Pierce Quantitative Fluorometric Peptide Assay	500 assays	23290
Pierce Rapid Gold BCA Protein Assay Kit	500 mL	A53225
To view additional products, go to thermofisher.com/proteinassays		
ELISA kits		
AKT (Phospho) [pS473] Human ELISA Kit	96 tests	KHO0111
AMPK Alpha-1,2 (Phospho) [pT172] Human ELISA Kit	96 tests	KHO0651
Alpha Synuclein Human ELISA Kit	96 tests	KHB0061
Amyloid Beta 40 Human ELISA Kit	96 tests	KHB3481
	192 tests	KHB3482
Amyloid Beta 42 Human ELISA Kit	96 tests	KHB3441
	192 tests	KHB3442
Amyloid Beta 42 Mouse ELISA Kit	96 tests	KMB3441
Amyloid Beta 42 Human ELISA Kit, Ultrasensitive	96 tests	KHB3544
CD27 (Soluble) Human Instant ELISA Kit	128 tests	BMS286INST
CREB (Phospho) [pS133] Human ELISA Kit	96 tests	KHO0241

Product	Quantity	Cat. No.
c-Myc (Total) Human ELISA Kit	96 tests	KHO2041
EPO Receptor Human ELISA Kit	96 tests	EHEPOR
FAK (Phospho) [pY397] Human ELISA Kit	96 tests	KHO0441
G-CSF Human Instant ELISA Kit	128 tests	BMS2001INST
IFN Alpha Mouse ELISA Kit	960 tests	BMS6027TEN
IFN Gamma Human ELISA Kit	480 tests	EHIFNG5
IFN Gamma Human ELISA Kit	480 tests	KHC4021C
IFN Gamma Human Uncoated ELISA Kit	960 tests	88-7316-88
IFN Gamma Human Uncoated ELISA Kit	1,920 tests	88-7316-77
IFN Gamma Mouse Uncoated ELISA Kit	960 tests	88-7314-88
IgG Subclass Human ELISA Kit	192 tests	991000
IL-1 Beta Human Instant ELISA Kit	128 tests	BMS224INST
IL-1 Beta Mouse Uncoated ELISA Kit	960 tests	88-7013-88
IL-2 Human Instant ELISA Kit	128 tests	BMS221INST
IL-6 Human ELISA Kit, High Sensitivity	96 tests	BMS213HS
IL-6 Human Instant ELISA Kit	128 tests	BMS213INST
IL-6 Mouse Uncoated ELISA Kit	960 tests	88-7064-88
IL-18 Human Instant ELISA Kit	128 tests	BMS267INST
Insulin Human ELISA Kit	96 tests	KAQ1251
IP-10/CXCL10 Human Instant ELISA Kit	128 tests	BMS284INST
PRAS40 (Phospho) [pT246] Human ELISA Kit	96 tests	KHO0421
SAA Livestock ELISA Kit	96 tests	KAA0021
STAT3 (Phospho) [pY705] Multispecies ELISA Kit	96 tests	KHO0481
Tau (Phospho) [pS396] Human ELISA Kit	96 tests	KHB7031
Tau (Phospho) [pT181] Human ELISA Kit	96 tests	KHO0631
Tau (Total) Human ELISA Kit	96 tests	KHB0041
Tau (Total) Human ELISA Kit	192 tests	KHB0042
TNF Alpha Human ELISA Kit	96 tests	KHC3011
TNF Alpha Human Instant ELISA Kit	128 tests	BMS223INST
TNF Alpha Human Uncoated ELISA Kit	960 tests	88-7346-88
TNF Alpha Mouse Uncoated ELISA Kit	960 tests	88-7324-88
TNF Alpha Mouse Uncoated ELISA Kit	1,920 tests	88-7324-77
Rapid ELISA Mouse mAb Isotyping Kit	60 tests	37503
To view additional products, go to thermofisher.com/elisa		

Find out more at thermofisher.com/microplatereaders

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