Integrated Solutions for Reliable Results

Data Integrity™ Bundle

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LI-COR

Great Data is the Foundation of Discovery

In the face of fast-evolving best practices and reporting guidelines for research, an essential component of any lab is technology that helps minimize error and variability. Researchers have trusted LI-COR imaging systems, analysis software, reagents, consumables, and support to deliver the highest quality data and ensure data integrity for 50 years.

New Guidelines for Data Accuracy and Reproducibility

The need for consistent, replicable data has never been as critical as it is now. Leading journals and granting agencies have identified common sources of reproducibility error and developed stringent new recommendations for researchers—including validation, normalization, replicate analysis, documentation of statistical analysis, and proper image and data format. Together, these guidelines help prevent data inconsistency and the subsequent loss of time and funds that impact industry and academia alike.

Data Integrity Bundle

To produce reproducible and accurate data, LI-COR offers the Data Integrity Bundle. The Data Integrity Bundle is a comprehensive collection of imaging systems, reagents and infrared dyes, data analysis software, training, and support. Each key feature is intended to help you follow best practices. The bundle simplifies the imaging process while directing your research toward data results of remarkable quality and transparency.

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Accurate Detection

Odyssey® Imagers

The Odyssey imagers—the Odyssey M, Odyssey DLx, and Odyssey XF—minimize variation and maximize precision with fluorescent detection; they provide stable detection chemistry that is vital for reliable and reproducible quantitative data. Two key features, multiplex detection and wide dynamic range, make it easy to take reliable, unsaturated images for documentation and discovery.

Multiplex Detection

Each Odyssey Imager detects multiple targets on the same assay, allowing you to normalize samples and streamline the detection process.

520 nm Channel	700 nm Channel	800 nm Channel	Overlaid Images
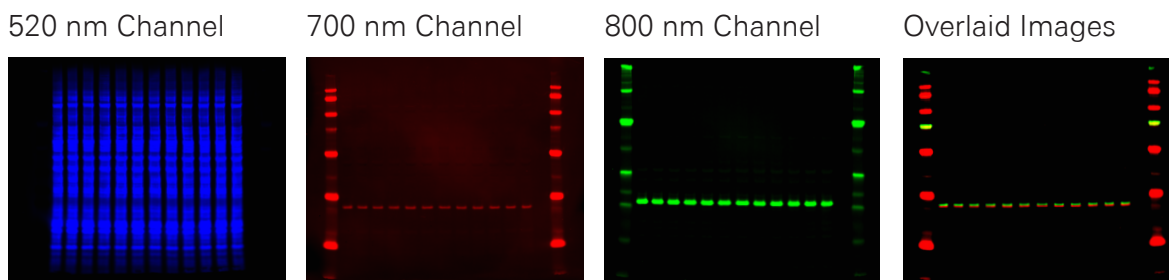
Multiplex with ease. See your targets and loading controls, such as Revert™ 520 Total Protein Stain, on the same blot with multiplex detection using the 520 nm, 700 nm, and 800 nm channels.

Wide Dynamic Range

All Odyssey Imagers have a wide dynamic range of detection. A wide dynamic range allows each imager to capture the full data range, including the strongest and weakest signals, in a single image; by capturing all data, you can also determine a combined linear range for multiple targets in an assay.
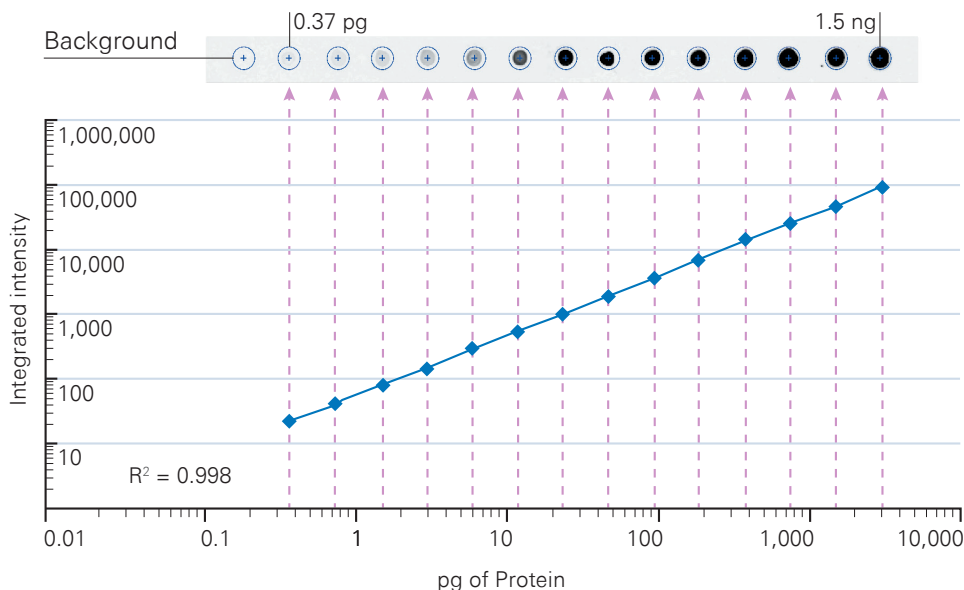
Enhance the accuracy of your data. The wide dynamic range of Odyssey Imagers enables highly sensitive detection without instrument saturation.

Stable Detection Chemistry

Reagents and Consumables

LI-COR reagents and consumables are designed to work in conjunction with LI-COR imaging systems. IRDye® infrared dyes and VRDye™ secondary antibodies and protein labeling kits, among others, are ideal for stable detection and consistent data. With LI-COR reagents and consumables, accurate normalization and quantification are easy to achieve in accordance with publication best practices.
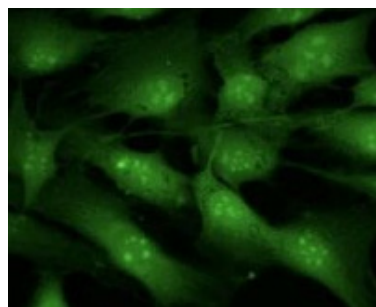
Enhanced Detection Sensitivity

Minimize background autofluorescence and improve detection sensitivity with reagents optimized for fluorescence imaging.
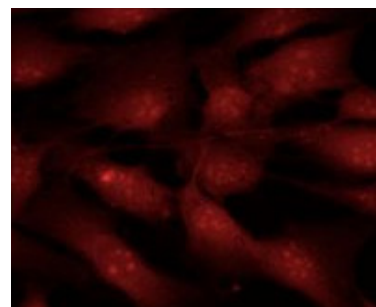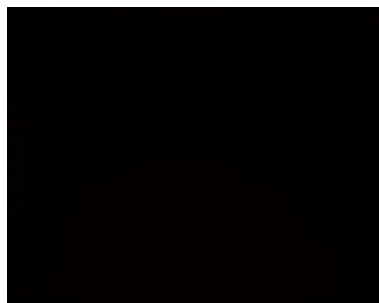
Visible Fluorescence
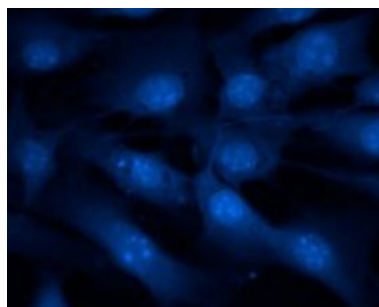
430 nm

488 nm

532 nm

Near-Infrared (no background)

800 nm

Imaging with near-infrared (NIR) fluorescence increases the limit of detection of low abundance targets due to reduced autofluorescence of biological samples and membranes. For visible targets with higher expression, the Odyssey M Imager offers extremely high sensitivity and no imager saturation in biologically relevant samples.

Reliable Analysis

Empiria Studio® Software
Expert-level Analysis Made Simple

Transform raw images into replicable, high quality data with Empiria Studio Software. As a post-acquisition Data Integrity Software, Empiria Studio Software simplifies quantitative data analysis.

The First and Only Data Integrity Software

Empiria Studio has raised the standard for data analysis software as the first ever Data Integrity Software.

As Data Integrity Software, Empiria Studio performs better and does more than traditional signal identification software. Unlike other options, it incorporates publishers' best practices and systematic workflows to prevent and minimize common sources of error and help you achieve transparent, trustworthy data for discovery and publication.

Publishers' Best Practices

Meet the standards set by top-tier journals to increase the opportunity for approval. Every step of Empiria Studio is designed with their best practices in mind for better, publishable results.

Systematic Workflows

Mitigate potential analysis errors among the researchers in your lab. The workflows in Empiria Studio are intended to generate consistency and meet publication standards step by step.

Easy Documentation and Sharing

Document and share all your data among colleagues, labs, and publishers. Empiria Studio streamlines the file and data sharing process for quick and straightforward accessibility.

Consistent and Improved Results for Everyone

A signal identification software, such as Image Studio™ Software, helps with identifying and quantifying specific targets. As the only available Data Integrity Software, Empiria Studio not only identifies and quantifies an image's signal levels but it also helps identify and correct sources of error—an advantage exclusively offered by Empiria Studio.

When tested against signal identification software, Empiria Studio users also finish their analyses in less time and achieve significantly lower % CV. It works for everyone in your lab—whether they are beginner, intermediate, or expert analyzers—and makes the process quicker, easier, and less risky.

Beginner	Intermediate	Expert
Signal Identification Software	**Signal Identification Software**	**Signal Identification Software**
18% CV 126 minutes	10% CV 93 minutes	8% CV 70 minutes
Empiria Studio Software (Data Integrity Software)	**Empiria Studio Software** (Data Integrity Software)	**Empiria Studio Software** (Data Integrity Software)
3% CV 35 minutes	3% CV 37 minutes	3% CV 38 minutes

LI-COR employees—categorized into Beginner, Intermediate, and Expert groups—analyzed identical Western blot data with Image Studio Software and Empiria Studio Software. On average, each group achieved a 7-15% lower % CV and completed the analysis 55-91 minutes faster with Empiria Studio than with the signal identification software.

Built in Collaboration with Top Journals

Empiria Studio is entirely unique in its design and foundation—every aspect was created in collaboration with top journals, so any researcher in academia or industry who uses Empiria Studio can check all publisher recommendation boxes with just one software.

- Demonstrate thorough validation and data replicability

- Validate and document critical procedural steps

- Save unused or backup information with project-based organization

- Share images, supporting data, and target analysis in a single file

- Give all supporting data to colleagues and journals upon submission

Systematic Workflows & Templates for Optimal Data

Empiria Studio has step-by-step workflows for six different types of experimental assays: Quantitative and qualitative Western blots, protein and nucleic acid gels, multi-well plates, and micro slides. These straightforward and systematic workflows in Empiria Studio automate the critical steps of your analysis. For example, Empiria Studio offers templates for In-Cell Western™, ELISA, and cell analysis assays to make setup quicker and easier. For In-Cell Western Assays in particular, there are six available templates:

- **Cell Stain Linearity:** Determine the range in which a normalization stain is proportional to cell number

- **Antibody Titration:** Determine the antibody concentration that provides optimal signal and lowest background

- **Blocker Evaluation:** Determine the best blocking buffer or blocking buffer and antibody combination for an experiment

- **Fixation and Permeabilization Evaluation:** Determine the optimal fixation and permeabilization conditions for an experiment

- **Z'-Factor Determination:** Test the quality and robustness of an assay

- **Target Analysis:** Quantify the effect of a treatment or condition on a target

For In-Cell Western Assays or any of the other five experimental assays, Empiria Studio removes the guesswork from quantification. Its workflows and templates assist with experimental design, data interpretation, and exportation with refined methods to graph, save, and share your best data. Without them, common analysis procedures may lead to data corruption and inconsistency.

Document and Share with Colleagues and Publishers

As the final steps of quantitative data analysis, Empiria Studio creates easy-to-share data files and reports. Quickly and easily export:

- PDF reports with images, data tables, graphs, and Adobe® Sign electronic signatures

- Raw data as a CSW file or Microsoft Excel spreadsheet

- Assay images and graphs

- Project contents—such as images, data, experimental details, and results—as a single file
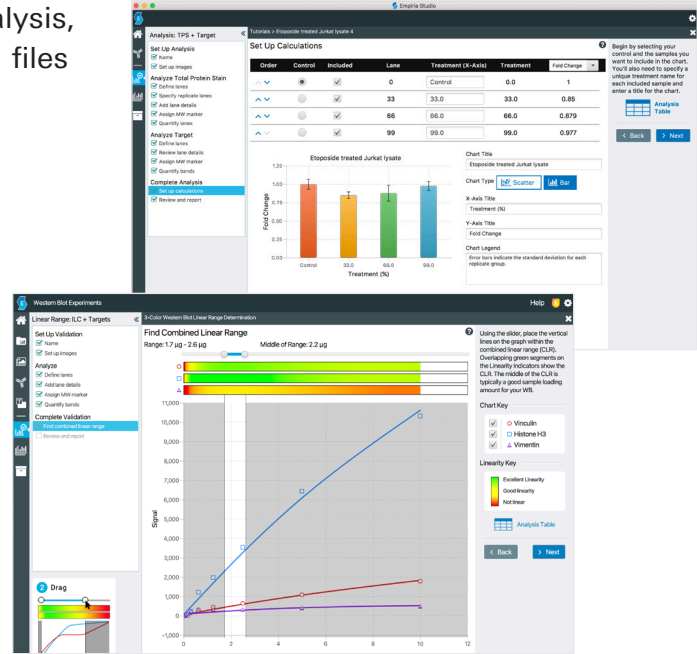
Empiria Studio Experiment Designer

The Empiria Studio Experiment Designer is a digital template that models and organizes your microplate layouts. With this integrated tool in Empiria Studio, you can plan ahead by charting exactly which wells contain what—from positive and negative controls to background and treatments—before you even begin an experiment. You can also place your plate over a template printout to easily load your wells.

This designer not only minimizes the risk of adding the wrong contents to wells but also makes experimental setup quicker and simpler than ever before.
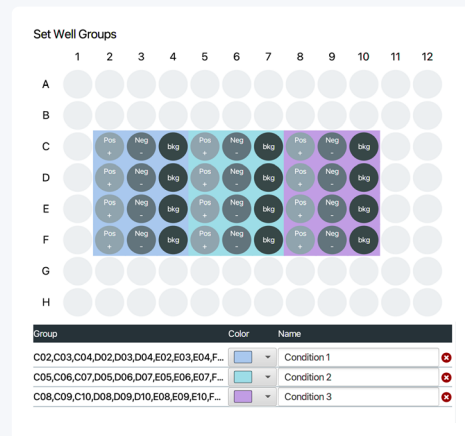
Get a free trial of Empiria Studio
licor.com/empiria

Comprehensive Learning

Lambda U™
Western Blot Education Portal

Lambda U is an online learning platform that offers modular courses on Western blotting—from introductory walkthroughs and laboratory techniques to step-by-step guides and best practices. These learning paths are designed for new lab students, seasoned professionals, and everyone in between.

The course design of Lambda U learning paths allows you to focus only on what you need to learn, such as Western blot foundations, advanced validation, and analytical techniques.

Learning Paths

Introduction to Western Blotting
📁 15 Courses

Meeting Western Blot Publication and Grant Funding Requirements
📁 7 Courses

JBC | JOURNAL OF BIOLOGICAL CHEMISTRY
Presentation: How to Best Present a Quantitative Western Blot for Publication
28 min

The Importance of Antibodies
📁 2 Courses

Protein Concentration
📁 2 Courses

Laboratory Techniques
📁 1 Course

Lambda U Advantage

- Quick and easy to sign-up
- Numerous free courses in diverse areas of study
- In-lab tutorials for proper techniques and procedures
- Adaptable to each lab member's experience level

Training and Support

In addition to online learning courses, advanced training is offered for every imager purchase and installation to ensure that your lab is prepared to maximize its potential and generate accurate, publishable imaging results. Also available are in-person and remote support and online resources—from product documentation and manuals to videos and frequently asked questions—to help answer your questions and get experiments back on track.

Accessible Expertise

Resources, Support, and Training

Webinars and Training Programs

Join industry expert scientists for interactive webinars on prominent topics in molecular imaging and related topics. Remote and onsite training programs for new users and consultation with traveling support scientists are available for all customers.

Support and Technical Literature

The comprehensive support library contains manuals, brochures, protocols, technical and application notes, and FAQs for all LI-COR imaging systems, reagents, and software products.

Your Personal Coach

Highly qualified LI-COR Solutions and Support Scientists are available for free consultation and instrument installation and remain on standby to provide ongoing support for the life of your LI-COR products.

References

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