

LIGHTwave™ ECL SUBSTRATES FOR WESTERN BLOTTING

Introduction

LightWave is our product line of ECL HRP substrates for Western blotting. Our double enhancer proprietary technology allows for modulation of signal intensity and signal duration.

Each LightWave substrate is at the top of its respective market segment regarding performance/price ratio.

All LightWave substrates are:

- Compatible with all chemiluminescence imagers and X-ray film detection
- Optimized for attaining low background and high signal to noise ratio
- Stable for 1 year at RT

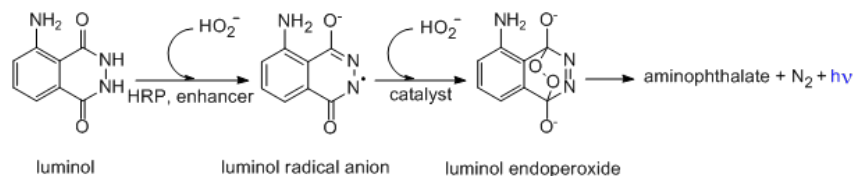
All GVS substrates are protected by **US7803573**, **EP1962095**, **US7855287**, **EP1950207**, **US2012009603 (A1)**,

CA2742025, **EP2405016**, foreign equivalents and pending patents.

LightWave™ detection reagents are non-isotopic, luminol-based chemiluminescence substrate, designed for the chemiluminescent detection of immobilized proteins and immobilized nucleic acids conjugated with horseradish peroxidase (HRP).

LightWave™ is intended for research use only, and shall not be used in any clinical procedures, or for diagnostic purposes.

Chemiluminescent substrates for horseradish (HRP) are two-component systems consisting of a stable peroxide solution and an enhanced luminol solution. To make a working solution, the equal volumes of the components are mixed together.



Storage/expiry

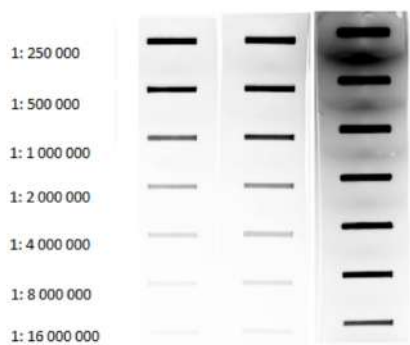
One year at room temperature (max. 25°C).

LightWave™ product line

Product	LightWave™	LightWave™ Plus	LightWave™ Max
Signal intensity	Medium	High	Ultra High
Signal duration	Medium	Extended	Short
Protein abundance	High	Medium	Ultra-low

Overview

HRP - Antibody dilutions



LightWave - Low picogram detection level

LightWave Plus - Mid femtogram detection level

LightWave Max - low femtogram detection level

Product	Suggested antibody dilutions	
LightWave™	Primary Ab	1:500 - 1:5,000
	Secondary Ab	1:20,000 - 1:100,000
LightWave™ Plus	Primary Ab	1:1000 - 1:15,000
	Secondary Ab	1:25,000 - 1:150,000
LightWave™ Max	Primary Ab	1:5000 - 1:100,000
	Secondary Ab	1:100,000 - 1:500,000

Product	Competitors
LIGHTwave™	PIERCETM ECL PLUS - THERMO SCIENTIFIC™
	IMMOBILION® CLASSICO - MILLIPORE™
	WESTERN LIGHTNING™ PLUS - PERKINELMER
	WESTERNBRIGHT™ ECL - ADVANSTA
LIGHTwave™ Plus	CLARITY™ - BIORAD
	SUPERSIGNAL™ WEST DURA - THERMO SCIENTIFIC™
	AMERSHAM™ ECL PRIME™ - GE HEALTHCARE
	SUPERSIGNAL™ WEST PICO PLUS - THERMO SCIENTIFIC™
LIGHTwave™ Max	IMMOBILION® CRESCENDO - MILLIPORE™
	WESTERNBRIGHT™ QUANTUM™ - ADVANSTA
	CLARITY MAX™ - BIORAD
	SUPERSIGNAL™ WEST FEMTO - THERMO SCIENTIFIC™
LIGHTwave™	AMERSHAM™ ECL SELECT™ - GE HEALTHCARE
	WESTERNBRIGHT™ SIRIUS™ - ADVANSTA
	WESTERN LIGHTNING™ ULTRA - PERKINELMER

GVS Lightwave



Lightwave



Competitor Pico



Competitor Classico



Competitor ECL

LIGHTwave™

Features

- Low picogram detection
- Ideal for routinary analysis
- Working solution stable for at least three days
- The best entry level ECL substrate on the market
- Signal duration 5 hours
- Stable for 1 year at RT

Quick start protocol

- Perform electrophoresis, membrane transfer and antibody incubation and washes
- Prepare Lightwave™ ECL substrate by mixing equal volumes of the two solutions
- Apply Lightwave™ chemiluminescent substrate to the membrane (1 mL per 10 cm² of the membrane), incubate 2 minutes with the substrate
- Expose the substrate-treated membrane using a chemiluminescence imager or X-ray film

Sample: Two-fold dilution series of Hela whole cell lysate (abcam®) from 5 µg to 0.078 µg of total protein
Primary antibody: Rabbit-anti Human HDAC-1 (abcam®) 1:2000

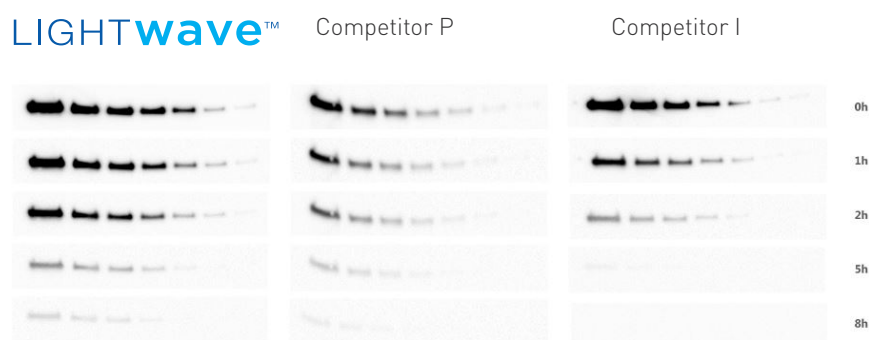
Secondary antibody: Goat anti-rabbit IgG HRP [2mg/mL] (abcam®) 1:20000

Imaging: ImageQuant™ LAS 4000 (GE Healthcare)

Exposure time: 180 seconds

GVS LightWave vs Competitor Signal duration

Comparison of signal intensities at time points up to 20 hours post substrate addition. Exposure time is 180 seconds for each time point (0-2-5-8 hours).

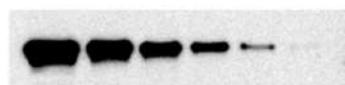


Ordering information

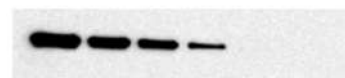
Product Code	Description
LW0001	LightWave™ Western blotting substrate 10 mL
LW0002	LightWave™ Western blotting substrate 250 mL

GVS Lightwave Plus

Plus
LIGHTwave™

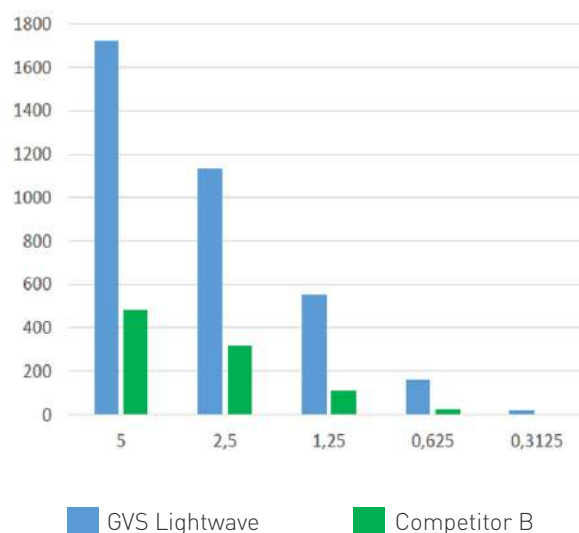


Lightwave Plus



Competitor

Signal to noise ratio



Western blotting detection of HDAC-1 on Hela cells

Hela cell lysate from 5 to 0,078 µg

Ab 1° Rabbit anti HDAC1 1:5000

Ab 2° Goat anti rabbit 1:50000

Exposure time: 3 minutes

Imager: LAS4000 (GEHC)

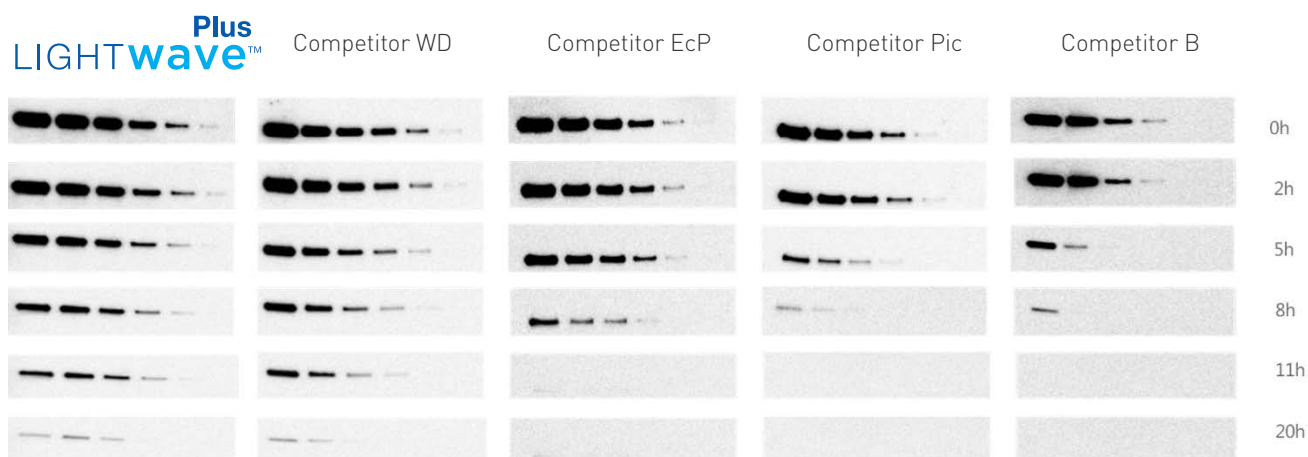
Features

- Mid femtogram detection
- Extended signal duration
- High range flexibility
- Working solution stable for at least three days
- The perfect ECL formulation combining great sensitivity and long signal duration
- Signal duration 25 hours
- Stable for 1 year at RT

GVS LightWave Plus vs Competitor Signal duration

Signal duration

LightWave™ Plus provides an extremely extended signal duration when compared to most mid-level range ECL substrates. The HDAC-1 signal intensity variation over time was analyzed using LightWave™ Plus and its competitors (Figure 3).

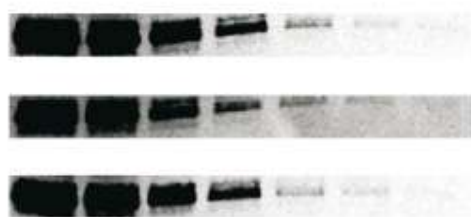


Ordering information

Product Code	Description
LW0003	LightWave™ Plus Western Blotting Substrate 10 ml
LW0004	LightWave™ Plus Western Blotting Substrate 250 ml

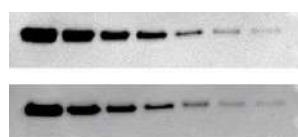
GVS Lightwave Max

Max
LIGHTwave™



Competitor F

Competitor E-S



Max
LIGHTwave™

Competitor F

Figure 2. Low background for high sensitive detection with LightWave™ Max.

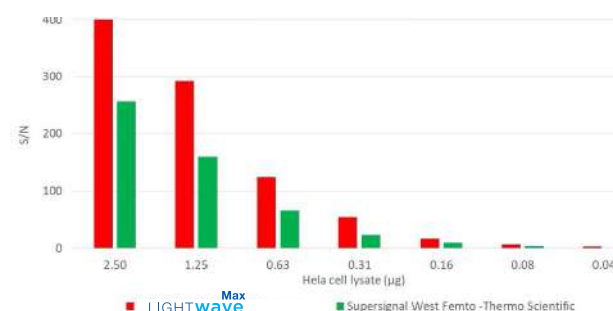
A) Western blotting detection of HDAC-1 on HeLa cell lysate with LightWave™ Max compared to Competitor F. Triplicate blots for each substrate containing 2-fold dilutions of HeLa whole cell lysate were incubated with primary antibody (Rabbit-anti Human HDAC-1) 1:15000 and secondary antibody (Goat anti Rabbit-HRP) 1: 300000 and were simultaneously imaged for 120 seconds with ImageQuant™ LAS 4000 (GE Healthcare).

B) Signal-to-noise ratio (S/N) analysis. LightWave™ Max displays the best combination of sensitivity and signal with low background.

Features

- ◆ Low femtogram detection
- ◆ Low antibody consumption to save your money
- ◆ Working solution stable for at least three days
- ◆ The ECL substrate with the highest signal on the market
- ◆ Signal duration 8 hours
- ◆ Stable for 1 year at RT

Signal to noise ratio



Signal duration

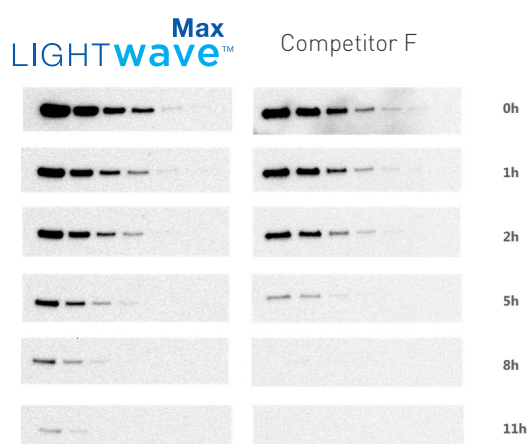


Figure 3. Signal duration of LightWave™ Max compared to Competitor F.

Quadruplicate blots for each substrate containing 2-fold dilutions of HeLa whole cell lysate were incubated with primary antibody (Rabbit-anti Human HDAC-1) 1:15000 and secondary antibody (Goat anti Rabbit-HRP) 1: 300000 and were simultaneously imaged with ImageQuant™ LAS 4000 (GE Healthcare) at time points up to 11 hours post substrate addition.

Ordering information

Product Code	Description
LW0005	LightWave™ Max Western Blotting High Sensitive Substrate 10 ml
LW0006	LightWave™ Max Western Blotting High Sensitive Substrate 100 ml