

UptiLight™ HS HRP WB Substrate

Chemiluminescent substrate for blotting with peroxidase

Product Description

Luminol based chemiluminescent substrate solution for the detection of immobilized peroxidase.

Name :	UptiLight HRP WB chemiluminescent substrate (High Sensitivity)		
Catalog Numbers :	98490A , 200ml for 1 800cm ²	98490B , 500ml * for 4 500cm ²	98490C , 1L for 9 000cm ²
Product Components :	Uptilight Reagent A	100 ml	250ml
	Uptilight Reagent B	100 ml	250ml

Storage : +4°C, avoid direct light (L).
Stable for a minimum of 18 months when stored at +4°C.

* sufficient for 70-125 miniblots

*** For use in enzyme linked membrane based assays. ***

Introduction

The detection of immobilized peroxidase was popularized by immuno-assays: nitrocellulose, nylon or PVDF sheets (blots) or microplates (ELISA). Overcoming the performance (and first, the sensitivity) of classical insoluble chromogenic substrates (4-CN, AEC, TMB, DAB), the luminol was introduced as a convenient and effective chemiluminescent substrate. The principle is that the by products of the chemical reaction of peroxidase with H₂O₂ and luminol generates light . The use of luminescent substrates is most recommended for quantitative assays requiring extended dynamic range (wide range of detection) or qualitative assays requiring the best achievable detection limit (highest sensitivity). In Blotting applications, the emitted glow is then recorded by exposure to radiographic film (X-ray), or measured by CCD camera or a scanner.

Uptima provides HRP chemiluminescent substrate formulations optimized for Western-Blotting (and ELISA) applications. UptiLight™HS HRP WB #98490 is Highly Sensitive with low background and cost-effective, designed for Western Blotting standard applications. Other formulations are available for lower sensitivity and cheaper price (#UP99619), one component/spray (#BM694), as well for ultimate sensitivity (#58372).

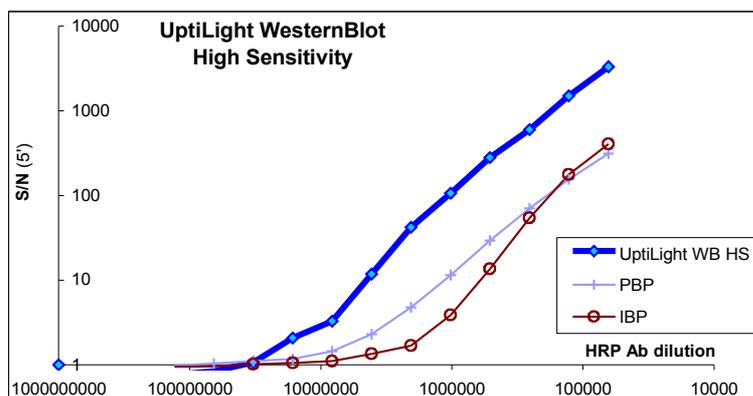
- **High sensitivity:** detect less than 1 pg of specific antigen, down to fg !
- **High resolution:** high contrast and signal
- **Wider dynamic range**
- **Rapid:** detection may be achieved in less than 1-10min
- **Long signal duration**
- **Cost-effective:** lowest price/ml for higher sensitivity and lower concentration of antibodies required

Directions for use

Handling and Storage

The reagents are stable for a minimum of 18months when stored at 2-8°C in the original container and protected from light.

Use only clear recipients: use disposable test tubes for small volumes. If recipients should be used again (beaker), wash them with suitable cleaning



FT-98490A

agent and rinse well with distilled water. Traces of metals or immunoreagents may affect results.

Guidelines for Western Blotting and ImmunoAssay with UptiLight detection

UptiLight HRP WB substrate is optimized for Western Blotting using Nitrocellulose or PVDF blotting membranes. Prepare the blot and immunoassay according to standard procedures. Great care must be taken to optimize the individual assay components (antibodies, conjugates, saturant, etc.) to minimize background associated with non-specific binding. Refer to the standard procedure in the following table and below for additional recommendations.

Preparation of the Blot	Perform the Blotting procedure as usual. Refer below for optimizations. Recommended membranes are Nitrocellulose and PVDF.
Saturation	5% BSA, or 5% fatty free milk, Tween20® 0.1%, or SeaBlock (#UP40301A)
Wash	3 times with 20ml PBS+Tween20® 0.01%
Probes	Incubate all probes successively 1H at +37°C, followed by a wash step <i>All diluted in PBS + Tween20® 0.01%</i> <i>Specific probe (Primary antibody, nucleic acid...)</i> <i>Peroxidase labeled secondary agent (or probe)</i>
Wash (final)	Rinse the blot briefly, then Wash 3 times with PBS+Tween20® 0.01% (5-10min, 20ml per blot) Finally wash 1 time 10min with PBS; drain off excess reagent
Uptilight Substrate prep.	Prepare the working solution by mixing 1 part reagent A with 1 part reagent B . Sufficient volume required to completely cover the blot is typically 0.111ml/m ² , i.e. 4ml/miniblot. Mix well and protect from light. Allow to reach room temperature.
Incubation	Add UptiLight working substrate onto the blot, homogenously. Incubate for 1 min without agitation, and drain off excess reagent.
Radiography	Expose the blot to a radiographic film for 1-30min (see below), or read the blot with a CCD camera or a light scanner.

Note: modification of substrate protocol (substrate incubation duration and T°, recording time,...) may be required for your specific application, other blots such as Dot-, Northern- and Southern- blots.. But most generally, optimization should be carried out at steps of blot preparation and detection.

Technical information

- UptiLight™HS HRP WB Substrate, produced according to strictly controlled procedures, gives highly sensitive and reproducible results. Inconsistent results may be caused by small changes in operating immunoassay reagents quality.
- A crucial point for optimal results relies on **keeping the right probe concentrations** with the lowest background. The dilutions of antigen, primary and secondary probes (for example antibodies) must often be 10-100fold higher than those used for conventional chromogenic detection systems (OPD, TMB), resulting in a saving of reagents, while increasing sensitivity.
- The **background** is very low, using immunology grade quality reagents. We recommend using standard buffers as outlined above. When a standard buffer is not providing satisfactory results, firstly check you have the correct immuno-reagents concentrations, then you may try to increase a saturating agent concentration, include different saturating agents, or a higher salt washing buffer (0.5M NaCl). I.e. 5% BSA for saturation can be replaced by other saturating materials. Also, 1/10-20th of saturant concentration can be included in reagent dilution buffer (i.e. PBS + Tween®20 0.01% + 0.1% BSA)... but there is no universal optimal buffer system:
Background may be caused by:
-Milk and BSA based saturating agents may contain traces of immunoglobulin that will generate a strong background with the anti IgG secondary antibody (even against non-bovine Igs, by crossreaction). To that point, we recommend our BSA Biotech grade #UPQ84170

Contact your local distributor

Uptima, powered by



Uptima@interchim.com

FT-98490A

(powder) or #UP900130 (solution 30%).

-Milk based saturating agents, may contain endogenous biotin, a natural vitamin, that can generate unspecific signal with (strept)avidin detection systems; We recommend our BioBlock agent # N13650.

-saturants and buffers prepared with metallic (ferricyanure, cobalt, copper) or other compounds (hematin, Ig materials), as well as contaminants, may catalyse or interfere with the chemiluminescent reaction. It is for example necessary to use Ig free BSA.

-bacterial contaminant may alter antigens or probes or saturating agents

- **Antigen masking** may occur with certain saturating agents. Again, there is no universal optimal saturant: one saturating agent may be excellent or good for antigens A, B and C, but hide a defined antigen X, while a second saturant will be found the best for antigen X, good for A, mediocre for B and bad for C. So the best buffer or saturating agent should ideally be determined depending on the antigen, antigen/probe affinity, detection system.
- The blot should be incubated with the correct **reagent volumes** (antibody, washes, UptiLight) under proper **agitation**. Uni-directional shaker, too slow or too quick agitation, insufficient volumes,... may cause uneven background, and lower signal.
- For **UptiLight reagent incubation**, agitation is not required and it is recommended to use 0.1ml of reagent per cm² of blot, or more, to cover the entire surface of the blot. Lower volumes may decrease sensitivity or affect the homogeneity of staining.
- **X-Ray film exposure**. The following steps should be performed in a dark room (red safe lights). ECL light emission occurs at 425-510nm rapidly, often visible by eye as a glow, reaching its maximum within 5 minutes. 1 minute incubation is sufficient. Drain off excess reagent by holding the membrane vertically and touching the edge of the membrane against an absorbing paper, and place it in a radiographic cassette. Wrap membrane blot in transparent plastic film (Saran® wrap) or alternative suitable pocket, in a radiographic cassette. Remove bubbles avoid applying pressure. Place an X-ray film over (it must not get wet!) and close the cassette for 1-30min. Do not move the film whilst it is being exposed. After the desired exposure time, again in dark room remove the X-Ray film to be developed,. Start with a short exposure time, i.e. 1min, to appreciate the staining level. The time of a new radiographic exposures can be adjusted, from the previous results, for best results and multiple copies.

Related products

See our [BioScience catalog](#) for:

UptiLight classic HRP WB Substrate #[UP996190](#) (standard applications, picogram range, economic)

UptiLightOne HRP WB Substrate, spray #[BM4961](#), Dropper #[BM4963](#) (more convenient/ready-to-use))

UptiLight US HRP WB Substrate #[58372A](#) (femto range detection)

UptiLight HRP ELISA Substrates #[36349A](#) (pico range detection) and #[996201](#) (femto range detection)

Protein MW markers for ECL #[UP344440](#) (incl. a blue marker for electrophoresis, and blotting-positive control/SAV-HRP)

Protein Membrane Reversible stain #[UP20078A](#)

SeaBlock agent #[UP40301A](#)

TBS with non fat milk #[GS4160](#) or TBS with Tween20 #[UPGS4200](#)

BSA Biotech grade #[UPQ84170](#) (powder) or #[UP900130](#) (solution 30%)

BioBlock Saturating agent for (W, N, S) blotting (in TBS) #[N13650](#)

Non fat milk powder #[768701](#)

ProTran 0.2µm NC membranes, 20x20cm, #[S31441](#)

Blotting paper 1mm thick, 460x570cm, #[BP2791](#)

Antibody Stripping Buffer, #[L7710A](#)

Other information

For any questions, please ask Uptima

Registered trademarks: Tween®, from ICI Americas; Saran® from Dow Chemical; UptiLight™ from Interchim

rev.:106E-103E-G07E

Contact your local distributor