Imaging systems, software, and accessories

# Amersham™ Typhoon™ Biomolecular Imager

Amersham Typhoon Biomolecular Imager (Fig 1) is a new generation of laser scanners that provide you with exceptional data quality through extremely sensitive detection, high image resolution, and a very broad linear dynamic range. These versatile imaging systems support multiple imaging modes, including phosphor imaging, red/green/blue (RGB) and near infrared fluorescence, as well as optical densitometry (OD) of proteins in stained gels. The Amersham Typhoon 5 model offers a five-laser configuration option with advanced photomultiplier tubes to cover all of these imaging modes. Two other Amersham Typhoon models are available—one for RGB fluorescence, OD measurement, and phosphor imaging, and one dedicated for phosphor imaging—so you can choose the best option based on the needs of the system users. Moreover, upgrade paths among different models are available at any time after the installation.

### Amersham Typhoon scanners deliver:

- **Versatility:** use one system to image multifluorescent-, radioisotope-labeled, and colorimetric samples on gels, membranes, multiwell plates, culture dishes, glass slides, and tissue sections. The IP model is for phosphor imaging only but can be upgraded
- **Accurate quantitation:** detect signals from as low as 3 pg of protein and differences across a dynamic range with greater than 5 orders of magnitude
- **High resolution:** resolve fine details in your sample with a pixel resolution of as low as 10 µm
- **High sample throughput:** large scanning area of 40 × 46 cm enables you to simultaneously image up to 20 gels or blots, measuring 10 × 8 cm in size. It is also possible to scan up to 9 multiwell plates in a single scan. This throughput facilitates comparisons among blots and plates, reduces workload, and decreases waiting time. The IP model has a scanning area of 35 x 43 cm, which fits GE's largest imaging plate

**Fig 1.** Amersham Typhoon Biomelecular Imagers are versatile, high-performance laser scanners for sensitive and quantitative measurements in a multiuser environment. The image shows the main instrument (right), the Amersham Eraser (top left), and the accessory cabinet (bottom left).

- **Flexibility:** modular design allows you to customize the imager for your users' needs. Systems can be adapted with stages, detectors, filters, and lasers. Several upgrade kits are available
- **Ease of use:** Amersham Typhoon 5 and RGB models have auto- and semi auto-scan functions, as well as automatic filter recognition

The Amersham Typhoon series of scanners provides you with versatile and flexible imaging to precisely quantitate proteins, nucleic acids, and other biomolecules. Amersham Typhoon 5 and Amersham Typhoon RGB are variable-mode laser scanners that allow users to easily add or change filters to create new laser and filter combinations (Fig 2).

**Fig 2.** Users can easily exchange the filters in Amersham Typhoon 5 and RGB models. If a new filter is inserted or a filter is changed, the instrument automatically recognizes the filter and updates the control software.

**Table 1.** Typhoon scanner series comprises three different configurations

| | Phosphor imaging | Densitometry (OD) | RGB fluorescence | Near-infrared fluorescence |
|---|---|---|---|---|
| Amersham Typhoon IP | x | o | o | o |
| Amersham Typhoon RGB | x | x | x | o |
| Amersham Typhoon 5 | x | x | x | x |

OD = optical density

Amersham Typhoon 5 and RGB are versatile laser scanners for precise quantitation of biomolecules in gels, blots, and other sample types. Amersham Typhoon 5 model has the same capabilities as the Amersham Typhoon RGB model, with the addition of near-infrared (NIR) functionality (Table 1).

### Amersham Typhoon 5 and RGB support the following imaging modes:

- Near-infrared fluorescent imaging for NIR fluorescent Western blotting and other applications (Amersham Typhoon 5 only, but RGB can be upgraded)
- Visible fluorescence imaging in red, green, blue (RGB) channels to support multiplex fluorescence imaging (e.g., 2D-DIGE)
- Imaging of multiplex RGB fluorescent Western blots, using ECL Plex™ and/or other fluorophore-labeled antibodies
- Phosphorimaging, in which samples containing $^{3}H$, $^{14}C$, $^{32}P$, $^{33}P$, $^{35}S$ (or other sources) are exposed to a storage phosphor screen (imaging plate)
- Optical densitometry for quantitation of colorimetrically-stained samples (e.g., Coomassie™ blue, silver stain)
- Chemiluminescence imaging that does not require maximum sensitivity (dark scan function); for detection of low abundance proteins we recommend the LAS500 or Amersham Imager 600

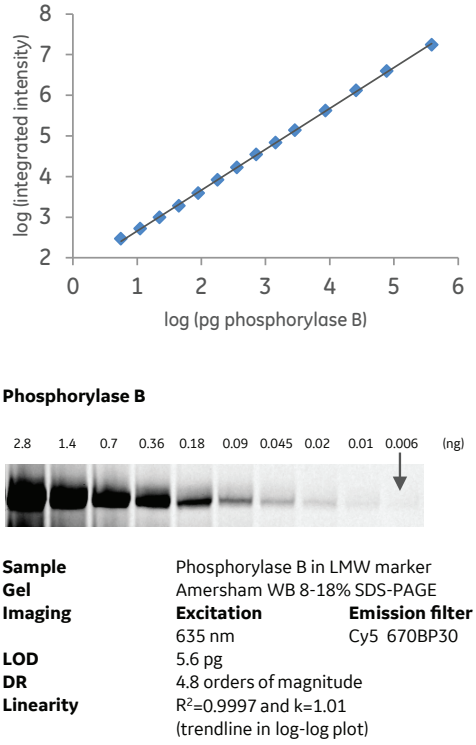



**Fig 3.** Phosphorylase B was labeled with CyDye™ DIGE fluor Cy5 minimal dye and separated using a precast gradient Amersham WB gel. The gel was imaged with Amersham Typhoon using normal scan speed. A selection of a dilution series is shown in the image; the arrow indicates the limit of detection (LOD). The detection limit was 5.6 pg, and the linear dynamic range (DR) was 4.8 orders of magnitude.

## Broad linear dynamic range

Amersham Typhoon scanners provide a broad linear dynamic range in all detection modes, for example when using Cy™5 labeled proteins (Fig 3).

## Technical features

### Optimal choice of filter, stage, laser and PMT

Amersham Typhoon scanners can house up to 8 filters with automatic filter recognition. To attain optimal imaging conditions, you can easily access and exchange emission filters without tools. This feature makes the instrument highly suitable for use in a multiuser environment. In addition to default high performance band-pass filters, there are 4 open filter positions in which users can put IR-filters, long-pass filters, or custom filters. This next generation of Typhoon scanners feature easier handling of custom filters and a new custom filter box for ease of use.

Stages (Fig 4) give the correct positioning and stability for optimal imaging of a range of sample types. Samples that can be scanned include agarose and polyacrylamide gels, membranes, DIGE gels, microplates, culture dishes, glass slides, and tissue sections. Also, radioisotope-labeled samples can be scanned using a phosphor imaging plate. The system can simultaneously scan two DIGE gels, each measuring up to 21.5 × 27.5 cm, with the multi-stage. The stages are easily removed from the system for cleaning.

For the detection of radioactivity and fluorescence, emitted light is collected and transformed to an electrical signal by a photomultiplier tube (PMT). The electrical signal is then converted into digital information by A/D conversion for image display and analysis. Amersham Typhoon comes equipped with new bi-alkali and multi-alkali PMTs. This combination provides excellent detection over a very broad spectrum. Each PMT is selected for optimal response to the detected emission wavelength. The bi-alkali PMT is used for phosphorimaging, whereas the multialkali PMT is used for all fluorescence and densitometry imaging modes.

## Imaging applications

**Fig 4.** (A)The IP stage, (B) Fluor stage, and (C) Multi stage are designed to accommodate a variety of sample formats and imaging modes.

Amersham Typhoon 5 and RGB enable users to image fluorescent, radiolabeled, and colorimetrically stained gels with a single system.

### Fluorescence detection – visible and near-infrared

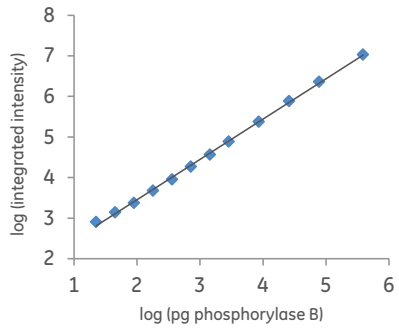
Upon excitation, light is emitted from a fluorescently labeled sample in proportion to the amount of labeled protein or DNA in the sample. The high sensitivity and broad dynamic range of Amersham Typhoon 5 and RGB scanners (Figs 3, 5–9) makes it possible to measure low and high abundant proteins in a single scan.

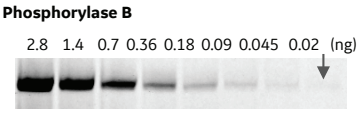
Multiple fluorescent wavelengths can be detected with minimal cross-talk for comparative expression experiments. See Table 2 for emission filters.

**Table 2.** Emission filters

| Filter* | Wavelength range (nm) | Detection examples |
|---|---|---|
| IP | BP390 | Phosphorimaging |
| Cy2 525BP20 | 515 to 535 | Cy2, GFP |
| Cy3 570BP20 | 560 to 580 | Cy3 |
| Cy5 670BP30 | 655 to 685 | Cy5 |
| | | ECL Plex Cy5 |
| IRshort 720BP20 | 710 to 730 | Alexa Fluor 700, Cy5.5, IRDye™ 680 |
| IRlong 825BP30 | 810 to 840 | Alexa Fluor 790, IRDye 800 |

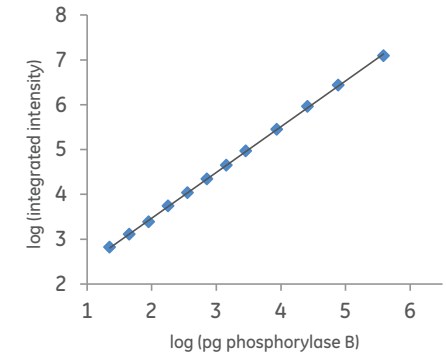
* Long pass filters LPB515, LPG550 and LPR660 are available as optional filters.

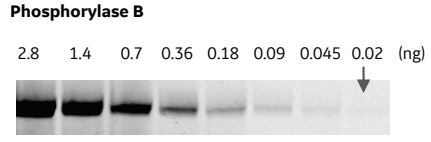



| | | |
|---|---|---|
| **Sample** | Phosphorylase B in LMW marker | |
| **Gel** | Amersham WB 8-18% SDS-PAGE | |
| **Imaging** | **Excitation** | **Emission filter** |
| | 488 nm | Cy2 525BP20 |
| **LOD** | 22 pg | |
| **DR** | 4.2 orders of magnitude | |
| **Linearity** | $R^2$=0.9989 and k=0.99 (trendline in log-log plot) | |

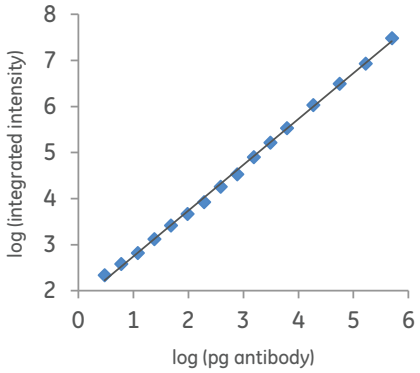
**Fig 5.** Phosphorylase B was labeled with CyDye DIGE fluor Cy2 minimal dye and separated using an Amersham WB electrophoresis gel. The gel was imaged with Amersham Typhoon using normal scan speed. A selection of a dilution series is shown in the image; the arrow indicates the limit of detection (LOD). The detection limit was 22 pg, and the linear dynamic range (DR) was 4.2 orders of magnitude.




| | | |
|---|---|---|
| **Sample** | Phosphorylase B in LMW marker | |
| **Gel** | Amersham WB 8-18% SDS-PAGE | |
| **Imaging** | **Excitation** | **Emission filter** |
| | 532 nm | Cy3 570BP20 |
| **LOD** | 22 pg | |
| **DR** | 4.2 orders of magnitude | |
| **Linearity** | $R^2$=0.9998 and k=1.02 (trendline in log-log plot) | |

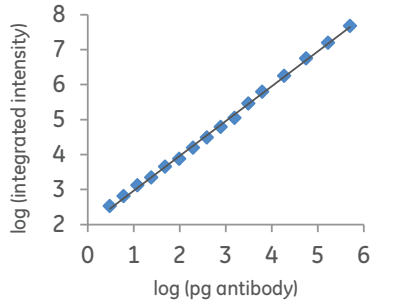
**Fig 6.** Phosphorylase B was labeled with CyDye DIGE fluor Cy3 minimal dye and separated using an Amersham WB electrophoresis gel. The gel was imaged with Amersham Typhoon using normal scan speed. A selection of a dilution series is shown in the image; the arrow indicates the limit of detection (LOD). The detection limit was 22 pg, and the linear dynamic range (DR) was 4.2 orders of magnitude.

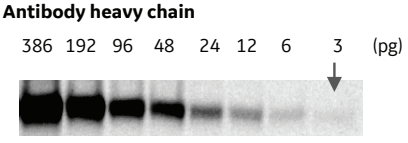




| | | |
|---|---|---|
| **Sample** | IRDye® 680 goat anti-rabbit antibody | |
| **Gel** | Amersham WB 13.5% SDS-PAGE | |
| **Imaging** | **Excitation** | **Emission filter** |
| | 685 nm | 720BP20 (IRshort) |
| **LOD** | 3 pg | |
| **DR** | 5.2 orders of magnitude | |
| **Linearity** | $R^2$=0.9988 and k=1.00 (trendline in log-log plot) | |

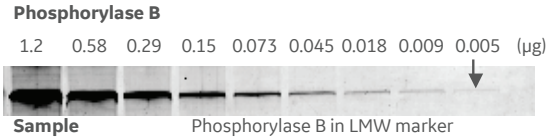
**Fig 7.** Antibody conjugated with IRDye 680 was separated using an Amersham WB electrophoresis gel. To reduce noise, the gel was imaged with Amersham Typhoon using slow scan speed. A selection of a dilution series is shown in the image; the arrow indicates the limit of detection (LOD). The detection limit was 3 pg, and the linear dynamic range (DR) was 5.2 orders of magnitude




| | | |
|---|---|---|
| **Sample** | IRDye 800 goat anti - rabbit antibody | |
| **Gel** | Amersham WB 13.5% SDS-PAGE | |
| **Imaging** | **Excitation** | **Emission filter** |
| | 785 nm | 825BP30 (IRlong) |
| **LOD** | 3 pg | |
| **DR** | 5.2 orders of magnitude | |
| **Linearity** | $R^2$=0.9988 and k=1.00 (trendline in log-log plot) | |

**Fig 8.** Antibody conjugated with IRDye 800 was separated using an Amersham WB electrophoresis gel. To reduce noise, the gel was imaged with Amersham Typhoon using slow scan speed. A selection of a dilution series is shown in the image; the arrow indicates the limit of detection (LOD). The detection limit was 3 pg, and the linear dynamic range (DR) was 5.2 orders of magnitude.

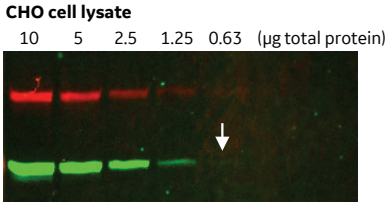



| | | |
|---|---|---|
| **Sample** | Phosphorylase B in LMW marker | |
| **Gel** | ExcelGel™ SDS Gradient 8-18 (GE) | |
| **Imaging** | **Excitation** | **Emission filter** |
| | 488 nm | Cy3 LPG |
| **LOD** | 5 ng | |
| **DR** | 2.4 orders of magnitude | |
| **Linearity** | $R^2$=0.989 | |

**Fig 9.** A mixture of proteins (LMW Marker, GE Healthcare) was separated by SDS-PAGE followed by staining with SYPRO™ Ruby Protein Gel Stain. The gel was imaged with Amersham Typhoon using normal scan speed. A selection of a dilution series of Phosphorylase B is shown in the image; the arrow indicates the limit of detection (LOD). The detection limit was 5 ng, and the linear dynamic range (DR) was 2.4 orders of magnitude.

## Sensitive multiplex detection of Western blots

The versatile Amersham Typhoon 5 and RGB scanners are well suited for imaging of fluorescent Western blot membranes. This method is very sensitive, and the signal is proportional to protein quantity. Moreover, it is possible to detect more than one protein at the same time by means of secondary antibodies labeled with different fluorophores. Amersham Typhoon provides high sensitivity and a broad linear dynamic range, supporting its use for quantitative Western blotting (Fig 10).

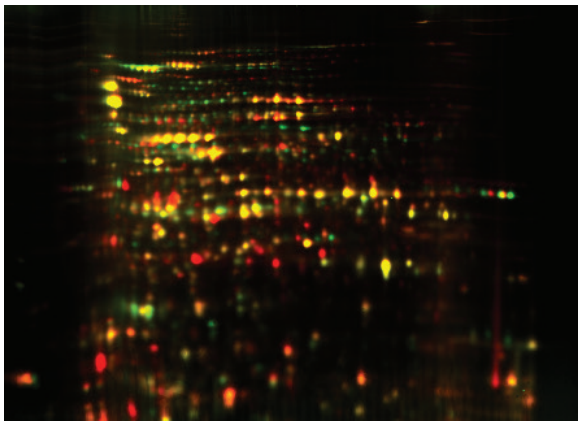



| | | |
|---|---|---|
| **Sample** | CHO cell lysate with transferrin | |
| **Membrane** | Amersham WB membrane card (PVDF) | |
| **Target proteins** | Transferrin and tubulin | |
| **Detection** | Primary antibodies: Rabbit anti-human transferrin, Mouse anti-Tubulin Secondary antibodies: Amersham WB Cy5 GAR, IRDye 800 GAM | |
| **Imaging** | **Excitation** | **Emission filter** |
| | 635 nm | Cy5 670BP30 |
| | 785 nm | 825BP30 (IRlong) |
| **LOD** | 0.63 µg | |

**Fig 10.** Multiplex detection of proteins by Western Blotting. Transferrin and endogenous tubulin were targeted in a dilution series of CHO cell lysate using Amersham anti-rabbit Cy5 (red) and anti-mouse IR Dye 800 (green) secondary antibodies. Imaging was performed with Amersham Typhoon scanner. The arrow indicates the limit of detection (LOD) for tubulin. The low background enables reliable quantitation of specific signals relative to a housekeeping protein.

## 2-D DIGE

Amersham Typhoon scanners are designed for use with analysis software such as Melanie™ 8 (Figs 11–13). The strengths of these imaging systems—high sensitivity and broad dynamic range for measuring low and high abundant proteins in one scan—make them highly suited for 2-D DIGE applications, enabling you to detect and accurately quantitate subtle changes in protein expression. By generating overlaid, multichannel images for each gel with minimal cross-talk, Typhoon 5 and Typhoon RGB exploit the multiplexing potential of CyDye DIGE fluors to remove experimental variation between gels. When images are analyzed using high-quality software such as Melanie 8, you will be able to accurately and confidently measure very small differences in protein abundance.



| | | |
|---|---|---|
| **Sample** | 1 - Cell lysate of *E-coli* | |
| | 2 - Cell lysate of *E-coli* treated with benzoic acid | |
| **IPG strips** | 3-10 NL, 24 cm | |
| **Gel** | Precast low-fluorescent DIGE gel | |
| **Imaging** | **Excitation** | **Emission filter** |
| | 488 nm | Cy2 525BP20 |
| | 532 nm | Cy3 570BP20 |
| | 635 nm | Cy5 670BP30 |

**Fig 11.** Overlay image of a two-dimensional difference gel electrophoresis (2-D DIGE) gel with control and treated samples, and internal standard. The control and treated samples were labeled with Cy3 and Cy5 DIGE Fluors minimal dye labeling protocol). The internal standard sample was labeled with Cy2 DIGE Fluor. The data sets were evaluated using the Melanie™ 8 (ver 8.0.1), see Fig 12 and 13).

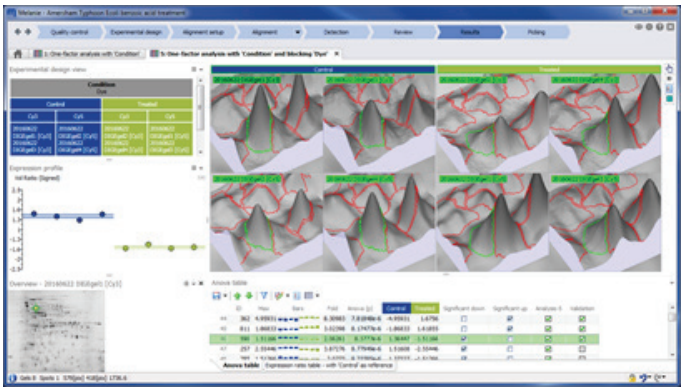


**Fig 12.** Example of a DIGE experiment analyzed with Melanie 8 (version 8.0.1) software. The effect of benzoic acid treatment on the *Escherichia coli* proteome was examined. Four replicates each were prepared for the control (blue) and benzoic acid-treated (green) samples, for a total of 8 different samples run on 4 gels. A pooled internal standard was included as a third sample on each gel. The experimental design view (top left) indicates that dye was used as a blocking factor in the statistical analysis. The dye-corrected estimates of the ANOVA p-values further improve the ability to detect subtle but true differences in protein expression, even for overlapping spots. This is shown by the 3-D views of the illustrated protein spot and the corresponding Expression profile (middle left).

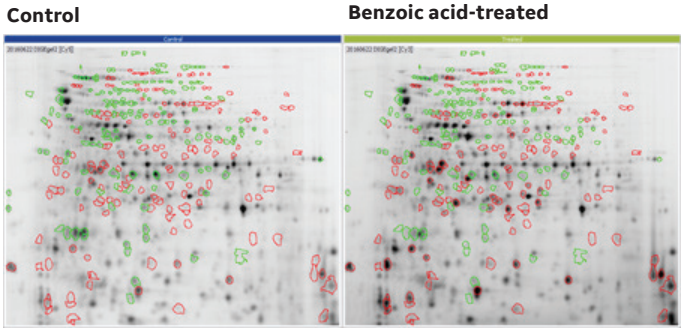
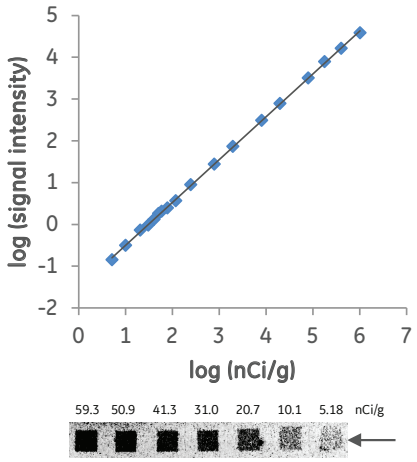



**Fig 13.** Representative Control (blue) and Treated (green) gel images of the experiment described in Fig 11 and Fig 12. Spots that are significantly upregulated (p values < 0.001) in the Treated group are shown in red; downregulated spots are shown in green.

## Detection of radioactivity

To detect radioactive signals using phosphor imaging, samples containing radioactive probes are exposed to a storage phosphor screen (imaging plate). Light is emitted from the screen in proportion to the amount of radioactivity in the sample upon laser-induced stimulation (Figs 14 and 15). All storage phosphor screens from GE are compatible with the Amersham Typhoon scanners.




| | | |
|---|---|---|
| **Sample** | $^{14}$C autoradiographic standard (CFQ12000)<br>3 hour exposure to BAS-SR Imaging Plate | |
| **Imaging** | **Excitation**<br>532 nm | **Emission filter**<br>IP BP390 |
| **LOD** | 0.00518 µCi/g | |
| **DR** | 5.3 orders of magnitude | |
| **Linearity** | $R^2$=0.9998 and k=1.03<br>(trendline in log-log plot) | |

**Fig 14.** Scanned image of a $^{14}$C autoradiographic standard using Amersham Typhoon. A selection of the standard is shown in the image; the arrow indicates the limit of detection (LOD). The linear dynamic range (DR) was 5.3 orders of magnitude

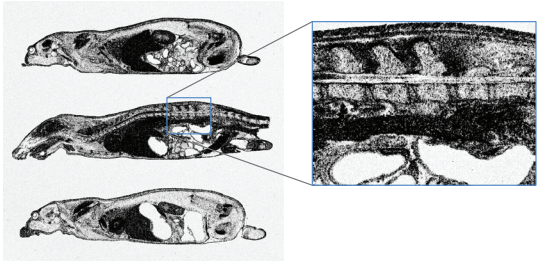
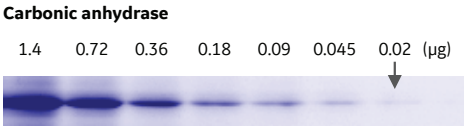


**Fig 15.** Autoradiography images of rat injected with $^{14}$C glucose. The magnified area shows part of the spine.

### Densitometry

When using Amersham Typhoon 5 and RGB, excitation light passes through the sample and excites a fluorescent plate. The emitted light from the plate passes through the sample again and is collected and converted to an electrical signal. The method is suitable for documentation of colorimetrically stained gels (Fig 16). The Amersham Typhoon scanners also have optical density measurements for quantitation purposes.




| | | |
|---|---|---|
| **Sample** | Carbonnic anhydrase in LMW marker | |
| **Gel** | Tris Glycine 8-16% SDS-PAGE (Novex) | |
| **Imaging mode** | Optical density | |
| **Imaging** | **Excitation**<br>532 nm | **Emission filter**<br>Cy3 570BP20 |
| **LOD** | 23 ng | |
| **DR** | 1.8 orders of magnitude | |
| **Linearity** | $R^2$=0.988 | |

**Fig 16.** A mixture of proteins (LMW Marker, GE Healthcare) was separated by SDS-PAGE followed by staining with Coomassie Brilliant Blue (G-350). The gel was imaged with Amersham Typhoon in optical density mode. A selection of a dilution series of Carbonic anhydrase is shown in the image; the arrow indicates the limit of detection (LOD). The detection limit was 23 ng and the linear dynamic range (DR) was 1.8 orders of magnitude.

## File formats

Data are stored either in linear 16-bit grayscale (.TIF file format), in square root encoded 16-bit (.GEL file format), or log encoded 16-bit (.IMG file format). The .GEL and .IMG formats provide the highest dynamic resolution for fluorescence and phosphor imaging.

## Image analysis

Designed for seamless data transfer and quantitative gel and blot analysis, GE provides image analysis software for use with Amersham Typhoon (Table 3).

**Table 3.** Image analysis software

| Software | Analysis |
|---|---|
| ImageQuant™ | 1-D gel electrophoresis, dot blots, arrays, colony counting, and user-defined gel analysis |
| Melanie 8 2D* | 2-D gels, including single stain and 2-D DIGE |

* Contact your GE representative for more information

## Validation support

A comprehensive suite of life cycle validation services is available for laboratory systems used in good practice environments, such as GLP, GMP, or GCP. The documentation is developed and approved by validation experts. Installation Qualification and Operation Qualification (IQ/OQ) are performed on-site by trained service engineers. Our engineers can also help with periodic re-qualification (RQ) and evaluate, verify, and document system changes and software upgrades with Change Control Protocols (CCP).

# Product specifications

| | Amersham Typhoon 5 | Amersham Typhoon RGB | Amersham Typhoon IP |
|---|---|---|---|
| Detection modes: | Fluorescence, phosphor imaging, densitometry, and chemiluminescence (Dark scan) | Fluorescence, phosphor imaging, densitometry, and chemiluminescence (Dark scan) | Phosphor imaging |
| Laser excitation wavelengths | LD488, SHG532, LD635, LD685, LD785 | LD488, SHG532, LD635 | LD635 |
| Optional excitation wavelengths: | | LD685, LD785 | LD488, SHG532, LD685, LD785 |
| Radioisotopes: | $^{3}$H, $^{11}$C, $^{14}$C, $^{125}$I, $^{18}$F, $^{32}$P, $^{33}$P, $^{35}$S, $^{99m}$Tc, and other sources of ionizing radiation | $^{3}$H, $^{11}$C, $^{14}$C, $^{125}$I, $^{18}$F, $^{32}$P, $^{33}$P, $^{35}$S, $^{99m}$Tc, and other sources of ionizing radiation | $^{3}$H, $^{11}$C, $^{14}$C, $^{125}$I, $^{18}$F, $^{32}$P, $^{33}$P, $^{35}$S, $^{99m}$Tc, and other sources of ionizing radiation |
| Measurable dynamic range: | > 5 orders of magnitude | > 5 orders of magnitude | > 5 orders of magnitude |
| Bit depth: | 16-bit | 16-bit | 16-bit |
| Scanning area: | 40 × 46 cm | 40 × 46 cm | 35 x 43 cm |
| Pixel sizes: | 10, 25, 50, 100, 200 µm, and prescan 1000 µm | 10, 25, 50, 100, 200 µm, and prescan 1000 µm | 10, 25, 50, 100, and 200 µm |
| Standard filters: | IP 390BP, Cy2 525BP20, Cy3 570BP20, Cy5 670BP30, IRshort 720BP20, IRlong 825BP30 | IP 390BP, Cy2 525BP20, Cy3 570BP20, Cy5 670BP30 | IP 390BP |
| Optional filters: | Cy2 LPB515, Cy3 LPG550, Cy5 LPR660 | Cy2 LPB515, Cy3 LPG550, Cy5 LPR660 | Cy2 LPB515, Cy3 LPG550, Cy5 LPR660 |
| Sample stages: | Fluor Stage, Multi Stage, and IP Stage | Fluor Stage, Multi Stage, and IP Stage | IP Stage |
| Dimensions (W × H × D): | 900 × 400 × 800 mm | 900 × 400 × 800 mm | 900 × 400 × 800 mm |
| Weight: | 94 kg | 93 kg | 92 kg |
| Line frequency: | 50/60 Hz | 50/60 Hz | 50/60 Hz |
| Temperature: | 18°C to 28°C | 18°C to 28°C | 18°C to 28°C |
| Humidity: | 20% to 70% (no condensation) | 20% to 70% (no condensation) | 20% to 70% (no condensation) |
| Supply voltage: | 100 - 240 VAC ± 10% | 100 - 240 VAC ± 10% | 100 - 240 VAC ± 10% |
| Power consumption: | Approx. 0.3 kVA | Approx. 0.3 kVA | Approx. 0.3 kVA |

# Ordering information

| System | Quantity | Product code |
|---|---|---|
| Amersham Typhoon 5 | 1 | 29187191 |
| Amersham Typhoon RGB | 1 | 29187193 |
| Amersham Typhoon IP | 1 | 29187194 |

One license of ImageQuant TL software is provided with each model of Amersham Typhoon scanners.

| Optional accessories | Quantity | Product code |
|---|---|---|
| Amersham Eraser | 1 | 29187190 |
| Accessory Cabinet AmTyphoon | 1 | 29191637 |
| SlideGlass holder Amersham Typhoon | 1 | 29191521 |
| 33 × 42 glass plate guide Amersham Typhoon | 1 | 29215514 |
| Custom filter boxes Amersham Typhoon | 1 | 29191540 |

Information on upgrade kits for additional lasers, filters, and other items can be obtained by contacting Customer Support.

| Phosphor screen (Imaging plate) | Quantity | Product code |
|---|---|---|
| BAS-IP MS 2040 E<br>*Phosphorimaging plate, 20 × 40 cm, multipurpose* | 1 | 28956474 |
| BAS-IP MS 2025 E<br>*Phosphorimaging plate, 20 × 25 cm, multipurpose* | 1 | 28956475 |
| BAS-IP MS 3543 E<br>*Phosphorimaging plate, 35 × 43 cm, multipurpose* | 1 | 28956476 |
| BAS-IP SR 2040 E<br>*Phosphorimaging plate, 20 × 40 cm, high resolution* | 1 | 28956477 |
| *BAS-IP SR 2025 E*<br>*Phosphorimaging plate, 20 × 25 cm, high resolution* | 1 | 28956478 |
| BAS-IP TR 2040 E<br>*Phosphorimaging plate, 20 × 40 cm, for Tritium detection* | 1 | 28956481 |
| BAS-IP TR 2025 E<br>*Phosphorimaging plate, 20 × 25 cm, for Tritium detection* | 1 | 28956482 |
| *BAS-IP ND 2040 E*<br>*Phosphorimaging plate, 20 × 40 cm, for Neutron detection* | 1 | 29017133 |
| BAS-IP ND 2025 E<br>*Phosphorimaging plate, 20 × 25 cm, for Neutron detection* | 1 | 29017139 |
| Exposure Cassette<br>*Unmounted Screen, 20 × 25 cm* | 1 | 63003544 |
| Exposure Cassette<br>*Unmounted Screen, 35 × 43 cm* | 1 | 63003545 |

The different screens are designed for general use (MS), high resolution suitable for morphological work such as autoradiography (SR), detection of the weak energy of the Tritium signal (TR), and detection of Neutron (ND).

Discontinued mounted and unmounted GP phosphor screens are compatible with Amersham Typhoon. These products can be scanned with a Fluor stage (unmounted) and Multi stage (mounted). The Fluor stage and Multi stage are optional accessories for Amersham Typhoon IP.

| Minimum computer requirement | |
|---|---|
| OS | Windows® 7 Professional (64-bit)<br>Windows 8.1 Pro (64-bit)<br>Windows 10 Pro (64-bit) |
| Internal memory | 8 GB |
| Processor | Intel® Core i5 processor |
| Hard disk | 80 GB |
| USB ports | USB 2.0 |
| Optical drive | DVD-ROM Drive |

Please contact your local sales representative for the latest recommended computer configuration

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