

Technical Data Sheet (TDS)

Product Name: ViaBlue™ – Cell Viability & Proliferation Assay Reagent

Catalogue Number: BVVB100

BVVB50

BVVB25

1. Introduction:

ViaBlue™ is a **resazurin-based cell viability and proliferation assay reagent**. The assay's principle relies on the redox potential of metabolically active cells: the oxidized, blue, and non-fluorescent form of resazurin is irreversibly reduced to resorufin, a compound that produces a strong pink coloration and high fluorescence signal. This metabolic conversion directly indicates cell viability, proliferation, and overall metabolic activity.

ViaBlue™ provides a **non-toxic, add-and-read format** that enables continuous and kinetic monitoring of live cells without compromising cell health. This feature makes it particularly suitable for **longitudinal studies, high-throughput drug screening, cytotoxicity profiling, and microbial growth assessment**. The reagent demonstrates a broad dynamic range, detecting as few as 20–50 cells per well depending on the format, and provides highly reproducible results across multiple cell types.

By combining **global grade assay performance** with enhanced affordability, ViaBlue™ allows researchers to conduct robust viability assays with the same confidence as gold-standard reagents, while ensuring accessibility and scalability in both academic and industrial laboratories.

2. Product Description

ViaBlue™ (resazurin-based reagent) is a non-toxic, cell-permeable viability indicator dye. Metabolically active cells reduce the blue, non-fluorescent resazurin into pink/red resorufin, which is highly fluorescent and quantifiable compound.

- Mechanism of Action: Resazurin is converted to fluorescent resorufin

- **Applications:**

- Cell viability & proliferation assays
- Cytotoxicity studies
- Microbial growth assays
- Non-destructive monitoring of live cultures



Figure 1A. ViaBlue™ serves as a reliable cell viability and proliferation indicator by measuring the reduction of resazurin, a non-fluorescent dye, to resorufin, a highly red-fluorescent compound, through the metabolic activity of living cells, with the resulting fluorescence intensity being directly proportional to the number of viable cells.

Table 1.

Specifications	
Cell Type	Mammalian cells
Concentration	-
Detection method	Colorimetric, Fluorescence
Dye Type	Resazurin
Form	Liquid
Format	96 well plate, cuvettes, 384 well plates
Incubation time	1 to 4 hrs
Purity	Standard
Quantity	25 mL
Shipping Condition	Approved for shipment at Room Temperature.
Throughput	High Throughput Compatible
Color	Blue
Emission	590nm
Excitation	560nm
Application	Viability Assay
For use with equipment	Microplate Reader

Product line	ViaBlue
Product Type	Cell Viability Reagent
Unit Size	Vary

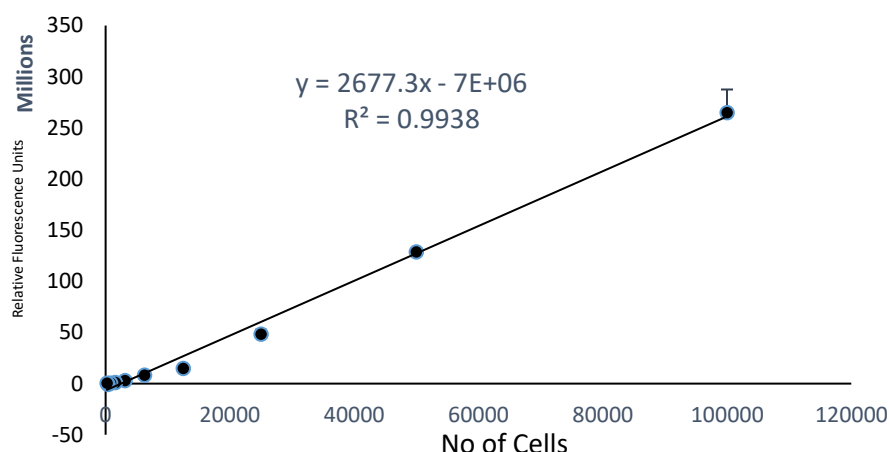


Figure 1. Linearity and sensitivity of ViaBlue™ reagent on HEK 293 Cells cells. A) ViaBlue™ reagent is linear over the range from ~200 to 100,000 cells after a 30-45 minutes incubation of cells with reagent. B) The same 96 well plate of cells was read after 3-hour incubation and shows the sensitivity of ViaBlue™ reagent. The inset graph shows ViaBlue™ to be linear over the range from 200 to 100,000 cells/well after 3-hour incubation of cells with reagent. Error bars are shown as $\pm$ SEM.

3. Key Technical Features

- Simple 'add-and-read' format (no washing/lysis required)
- Dual detection: fluorescence & absorbance modes
- Non-toxic, allows continuous monitoring of the same culture
- Detects as few as 20–50 cells per well (depending on format)

4. Kit Components

Table 2.

Component Name	Volume / Quantity	Storage Condition	Notes
ViaBlue™ Reagent (Standard / HS)	25mL	2–8 °C, protect from light	Ready-to-use

5. Procedure

Before you begin

Materials Required but Not Provided

- ViaBlue™ reagent
- Sterile culture medium
- Cultured cells (adherent or suspension)
- 96-well culture plate (or another suitable format)
- Plate reader with fluorescence and/or absorbance detection

Preparing Cells Mammalian Cells—Adherent: Plate mammalian cells in a cell culture flask or dish, and allow them to adhere and grow for approximately 4–24 hours at 37°C and 5% CO₂ before proceeding with the assay.

Mammalian Cells—Suspension: Plate mammalian cells in a cell culture flask or dish, and use cells immediately for the assay or allow cells to grow for up to 24 hours at 37°C and 5% CO₂ before proceeding with the assay.

ViaBlue® Cell Viability

Protocol Optional: Treat cells with the test compound 24–72 hours before performing the ViaBlue™ cytotoxicity assay.

- Add 1/10th volume of ViaBlue™ reagent directly to cells in the culture medium as described in table 3.

Table 3. Assay volumes

Format	Volume of cells + medium	Volume of ViaBlue™ to add
Cuvette	1 mL	100 µL

96-well plate	100 μ L	10 μ L
384-well plate	40 μ l	4 μ L

- Incubate for 1 to 4 hours at 37°C in a cell culture incubator, **protected from direct light**.
Note: Sensitivity of detection increases with longer incubation times. For samples with fewer cells, use longer incubation times of up to 24 hours to increase sensitivity.
- Record results using fluorescence or absorbance as follows:
- **Fluorescence:** Read fluorescence using a excitation wavelength of 560 nm (peak excitation is 570 nm). Read fluorescence emission at 590 nm (peak emission is 585 nm).
- **Absorbance:** Monitor the absorbance of ViaBlue™ at 570 nm, using 600 nm as a reference wavelength (normalized to the 600 nm value).
Note: Fluorescence mode measurements are more sensitive. When fluorescence instrumentation is unavailable, monitor the absorbance of ViaBlue™ reagent. Assay plates or tubes can be wrapped in foil, stored at 4°C, and read within 1–3 days without affecting the fluorescence or absorbance values.

Data Processing:

Fluorescence

- Plot fluorescence intensity versus the concentration of the test compound.
- Optional: Subtract the average fluorescence values of the cell culture medium (background) from the fluorescence values of experimental wells.

Absorbance

- Subtract the average 600 nm absorbance values of the cell culture medium alone (background) from the 570 nm absorbance values of experimental wells.
- Plot background subtracted 570 nm absorbance versus concentration of the test compound.

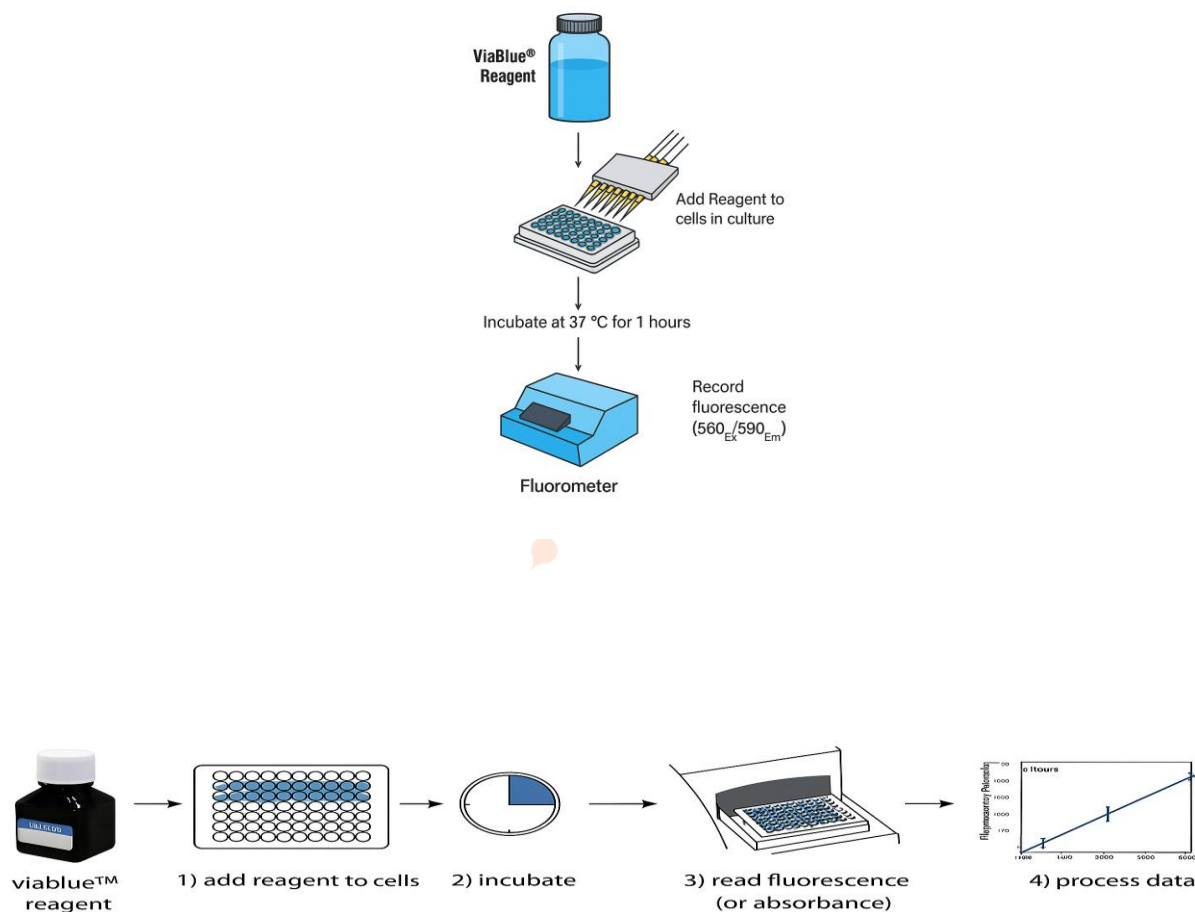


Figure 2. ViaBlue™ Cell Viability Assay Protocol: A 96-well plate containing cultured cells and test compounds is prepared using standard procedures, followed by the direct addition of ViaBlue™ reagent to each well. The plate is incubated at 37 °C to allow metabolically active cells to reduce resazurin into the fluorescent product resorufin, after which fluorescence or absorbance is measured to assess cell viability. Results are analyzed by plotting signal intensity against compound concentration to generate dose–response curves. Although the assay is described in a 96-well format, it can be readily adapted to other formats such as 384-well plates or tubes of various volumes, with samples from tubes transferred to a cuvette prior to spectrophotometric analysis.

6. Performance Characteristics

- Detection sensitivity: ~200 cells/well.
- Dynamic range: Broad, linear response with viable cell count.
- Reproducibility: CV <10% across replicates.
- Non-toxic: Cells remain viable for downstream assays.

7. Key Instructions:

- **Assay controls:** Always include appropriate controls. To reduce variability and experimental errors, perform measurements in at least 3-5 replicates for both experimental and no-cell control samples.
- **Optimization:** Depending on the cell type and experimental setup, you may **need to optimize** plating density and incubation time to ensure the assay operates within its linear range.
- **Long incubation:** For extended incubation periods (e.g., overnight), maintain strict sterile conditions during reagent addition and incubation. Microbial contamination can interfere with results, as **contaminants also** reduce the ViaBlue™ reagent.
- **Serum effects:** Fetal bovine serum (FBS) and fetal calf serum (FCS) may partially quench fluorescence. Use the same serum concentration in control and test samples to account for this effect. Other medium components, such as phenol red, generally do not interfere with the assay.

8. Safety & Handling

- Classification: Not hazardous under normal lab use
- PPE required: Gloves, lab coat, safety glasses
- Avoid ingestion, inhalation, or contact with skin/eyes
- Waste disposal: Follow institutional chemical waste procedures

9. Ordering Information

- Product Name: Via Blue™ Cell Viability Assay
- Catalogue No.: BVVB100, BVVB50, BVVB25
- Pack Sizes: 25mL, 50 mL, 100 mL
- Bulk or custom formats available upon request

10. Manufacturer / Supplier

Bio Varam



11. Contact Information

Bio Varam

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