

# Product Information

## Yeast Vitality Staining Kit

**Catalog Number:** 31062

**Unit Size:** 1000 assays

### Kit contents

Component	Size
29068: ViaVac™ Red/Green, 10 mM in DMSO (10,000X)	100 uL
31062A: Calcofluor White, 5 mM in water (200X)	500 uL

### Storage and Handling

Store at -20°C, protected from light. Product is stable for at least 12 months from date of receipt when stored as recommended.

### Spectral Properties

ViaVac Ex/Em: ~485/530 nm (green); ~485/620 nm (red)

Calcofluor White Ex/Em: 360/430 nm

### Product Description

ViaVac™ Red/Green is a fluorescent vital dye for yeast, identical in structure to the dye FUN® 1. ViaVac passively diffuses into cells, showing green cytoplasmic staining. In many species of yeast and fungi, metabolically active cells actively transport the dye into the vacuole, resulting in red fluorescent staining of tubular intravacuolar structures.

Calcofluor White is a blue fluorescent dye that binds to cellulose and chitin, which can be found in the cell walls of fungi, algae, and plants. In budding yeast Calcofluor White stains bud scars more strongly than the rest of the cell wall, because they have a higher concentration of chitin.

When the two dyes are used together to stain a population of yeast cells, both living and dead cells will have green cytoplasmic staining and blue cell wall staining, but only living, metabolically active cells will also have red intravacuolar tubules (Figure 1).

### Protocol for staining cells in liquid culture

This staining protocol was optimized using *Saccharomyces cerevisiae* yeast in pure culture. The optimal dye concentration may need to be determined experimentally for other organisms.

Note: ViaVac and Calcofluor White co-staining must be done sequentially; if the dyes are introduced at the same time, ViaVac will not efficiently enter the cells.

1. Culture cells in the appropriate growth medium. Spin down and resuspend in a clear buffer suitable for imaging, such as PBS or HBSS.

Note: ViaVac staining does not work well in media such as YPD or SC.

2. Prepare a working solution of 100X ViaVac by diluting the stock 1:100 in DMSO. Add 1 uL to 100 uL cells in buffer, for a final concentration of 1 uM. The recommended staining concentration range is 1-10 uM.
3. Incubate for 20 minutes at room temperature or 30°C, rocking, protected from light.
4. Add 0.5 uL Calcofluor White, and incubate a further 10 minutes. Optional: wash once before imaging.
5. Image on a fluorescence microscope using a DAPI emission filter to visualize Calcofluor White, a Texas Red® or similar emission filter to visualize the red intravacuolar tubules, and a FITC emission filter to visualize green cytoplasmic staining.

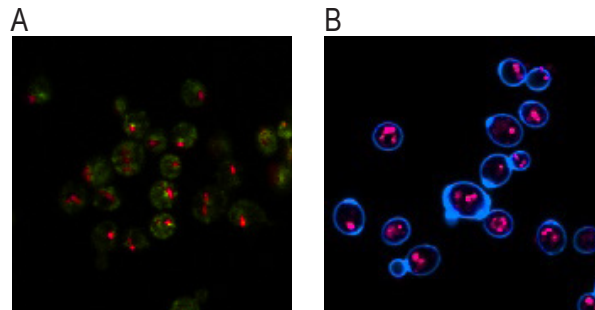


Figure 1. A) *Saccharomyces cerevisiae* stained with 10 uM ViaVac™ Red/Green in HBSS, then imaged using FITC and Texas Red® imaging settings. B) *Saccharomyces cerevisiae* stained sequentially with 1 uM ViaVac™ Red/Green and 25 uM Calcofluor White in PBS, then imaged using DAPI and Texas Red® imaging settings.

### Related Products

Catalog number	Product	Function
29067	Calcofluor White, 5 mM in water	Cell wall/bud scar stain
29068	ViaVac™ Red/Green, 10 mM in DMSO	Yeast vital dye
40077	Thiazole Orange, 10 mM in DMSO	Live cell fixable cytoplasmic stain
31063	Yeast Viability Staining Kit	ConA to stain cell walls, Live-or-Dye™ to stain dead cells
31064	Yeast Live-or-Dye™ Fixable Live/Dead Staining Kit	Thiazole Orange to stain all cells, Live-or-Dye™ to stain dead cells
29015-29020; 29058	CF™ Dye Concanavalin A (Con A)	Cell wall stain in a variety of dye conjugates
29021-29029; 29059; 29064	CF™ Dye Wheat Germ Agglutinin (WGA)	Cell wall bud scar stain in a variety of dye conjugates
32002-32009	Live-or-Dye™ Fixable Viability Staining Kits	Dead-cell-specific viability stains in a variety of dye colors
23001	EverBrite™ Mounting Medium	Wet set mounting medium for microscopy

Please visit our website at [www.biotium.com](http://www.biotium.com) for information on our life science research products, including fluorescent CF™ dye antibody conjugates and reactive dyes, apoptosis reagents, fluorescent probes, and kits for cell biology research.

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