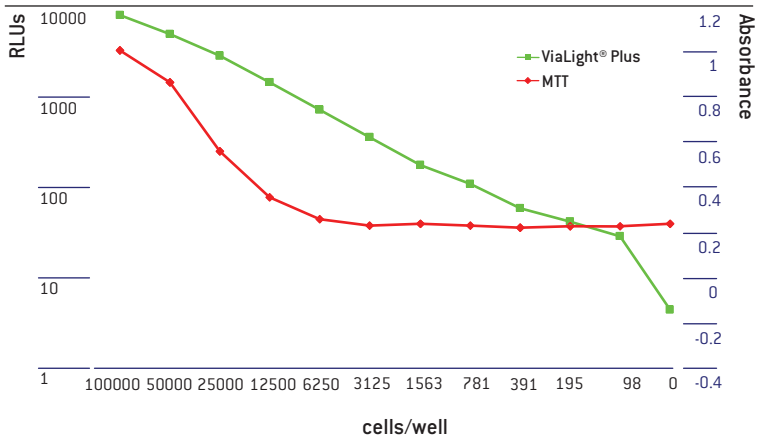
Lonza

# ViaLight® Plus Cell Proliferation Assay vs. MTT


**ViaLight® Plus Cell Proliferation and Cytotoxicity BioAssay Kits are faster, more sensitive, and exhibit minimal interference from background or compounds compared to MTT**

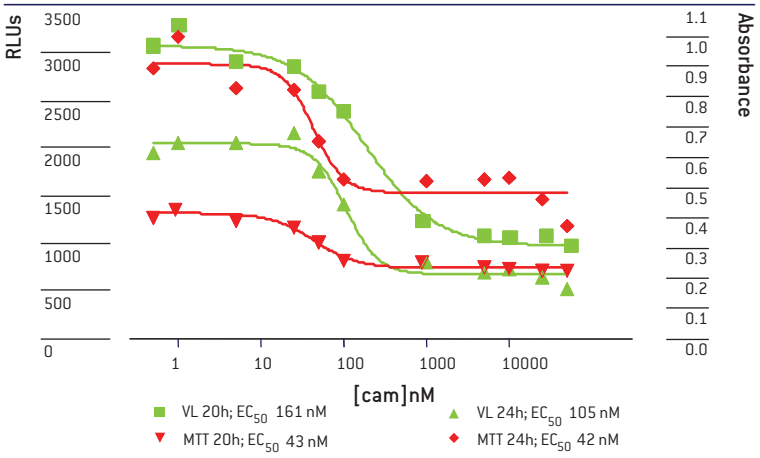
| | ViaLight® BioAssay Kit | Formazan dyes (MTT, MTS, XTT, CellTiter96®) |
|---|---|---|
| **Assay time:** | <20 minutes | >1.5 hours to 24 hours |
| **Sensitivity:** | 10 cells/well | 1000 cells/well (2 hour minimum incubation) |
| **Background:** | Negligible | High |
| **Sensitivity affected by cells metabolic rate:** | No | Yes |
| **Compound interference:** | Minimal | Extensive, including cell culture media, DTT, reducing compounds, light, epirubicine, paclitaxel, doetaxel, cisplatin, dopamine, catecholamines, etc. |

## ViaLight® Kit is more sensitive



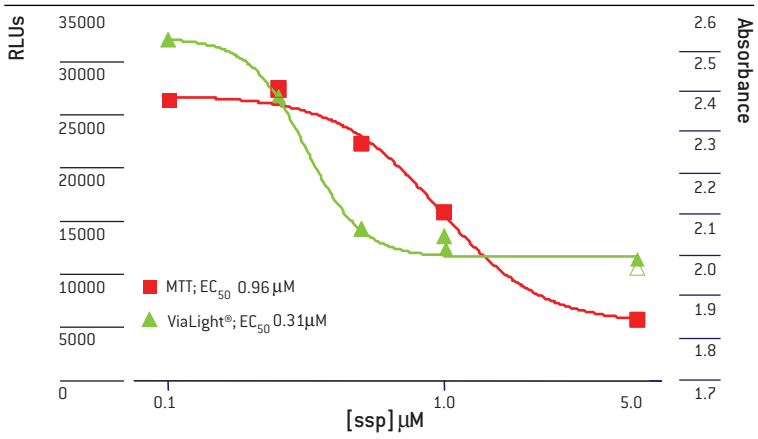

U937 cells were serially diluted in complete RPMI Medium to produce the cell numbers shown. The cells were assayed using CellTiter 96® (Promega; MTS assay) and ViaLight® Plus Kit (n=4.). As the cell number decreases, the MTS Assay loses sensitivity and only detects >5,000 cells/well. The linearity of this MTS Assay seems to be between 5000-50,000 cells/well in this model. ViaLight® Plus shows linear detection up to 100,000 cells/well and a sensitivity <100 cells/well.

## MTT over-estimates compound toxicity




U937 cells were dosed with camptothecin for 19 hours prior to measuring them with ViaLight® Plus and an MTS Assay. The cells were assayed 1 hour and 4 hours after the addition of MTS (20 and 24 hour respectively). Due to the lack of sensitivity of the MTS Assay, a proportion of the cells which are still viable remain undetected. This implies that the compound applied is more toxic when measured with MTS shown by the lower $EC_{50}$ as the baseline is artificially high. (This is further indicated by the change in the $EC_{50}$ indicated by the ViaLight® Kit in the 24 hour sample).

## MTT performs poorly with rapidly metabolizing cells




A similar experiment was conducted using A549 cells dosed with staurosporine for 48 hours. These are very metabolically active human lung carcinoma cells. These cells metabolized the formazan dye in the MTS Assay very efficiently. This gave the appearance of more viable cells present in the assay and shifted the $EC_{50}$ in the other direction making it higher than the one generated using ViaLight® Plus Kit.

## Ordering Information

| Cat. No. | Size |
|---|---|
| **ViaLight® Plus Cell Proliferation and Cytotoxicity BioAssay Kit** | |
| LT07-221 | 500 tests |
| LT07-121 | 1,000 tests |
| LT07-321 | 10,000 tests |
| **ViaLight® HS Cell Proliferation and Cytotoxicity BioAssay Kit** | |
| LT07-211 | 500 tests |
| LT07-111 | 1,000 tests |
| LT07-311 | 10,000 tests |
| **ViaLight® MDA Plus Microbial Proliferation and Cytotoxicity Kit** | |
| LT07-122 | 1,000 tests |
| LT07-322 | 10,000 tests |

## Contact Information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P53-0806-X-2 04/09


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