TVA®

Non-Radioactive NK/ADCC Activity Assessment

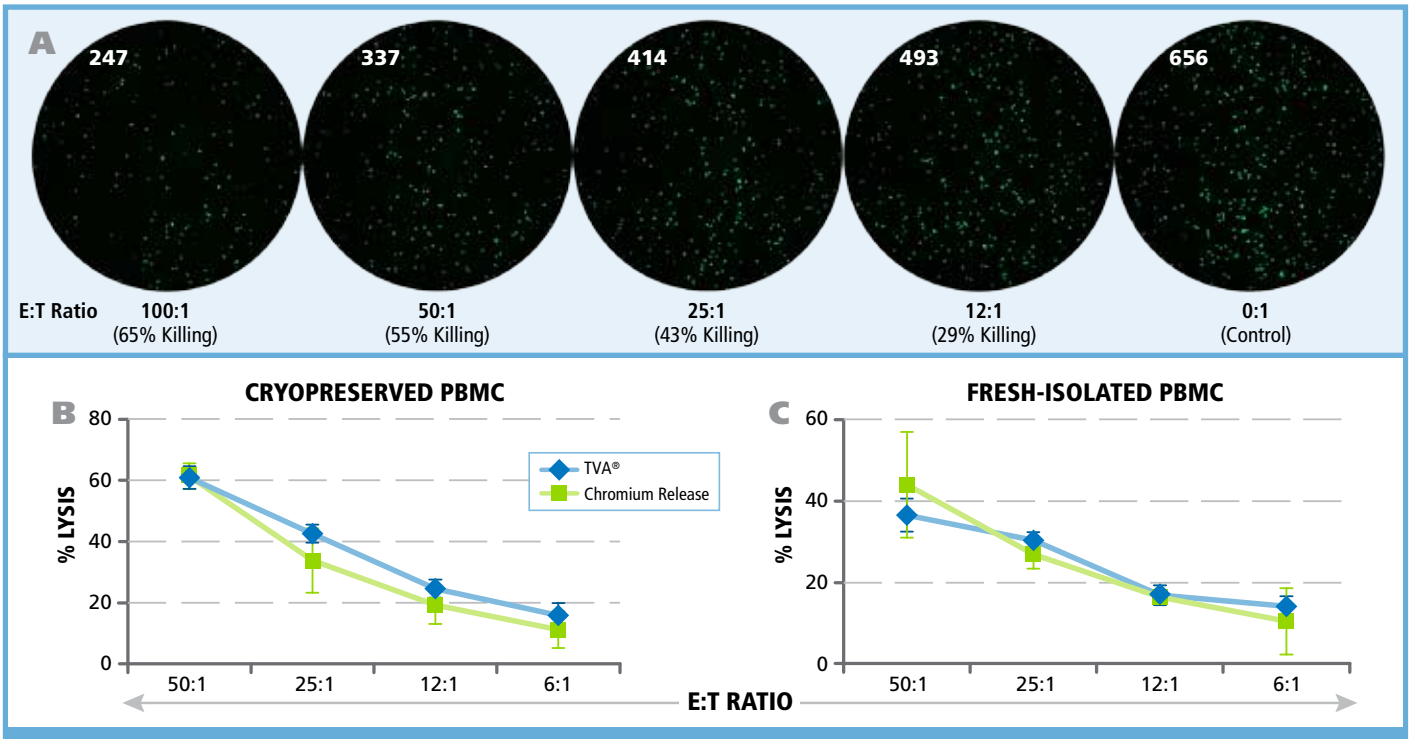
For decades, the Chromium Release Assay (CRA) has been the gold standard for measuring Natural Killer (NK) cell-mediated lysis of tumor cells, or of antibody coated target cells (ADCC). Until now, CRA has been unparalleled in sensitivity. No longer! CTL's non-radioactive Target cell Visualization Assay (TVA®) not only has the same sensitivity as CRA, but can also measure the lysis of up to three different target cells simultaneously, and be performed in Terasaki plate format, thereby reducing the number of effector cells needed by 30-fold. The TVA® Platform is based on direct, single-cell imaging, is less laborious than the CRA, and has fully-automated analysis and data reporting. Streamlined quality control and tamper-proof audit trails facilitate the work flow in laboratories that work under GLP.

Assay Principle

The TVA® utilizes direct imaging of fluorescence-labeled target cells. Labeled tumor cells are co-incubated at various ratios with Peripheral Blood Mononuclear Cell (PBMC) populations, or other NK cell-containing isolates. Following NK-mediated lysis, target cells lose their fluorescent signal. The direct visualization of remaining viable target cells at the end of the assay determines the percentage of cytotoxicity for each effector to target (E:T) ratio. Up to three differently labeled target cells can be tested simulataneously.

Assay Sensitivity

When performed in parallel, the TVA® and CRA exhibited similar killing percentages irrespective of whether cryopreserved PBMC or freshly-isolated PBMC were used as effectors with labeled K562 as target cells. Both assays were equally sensitive in a 96-well plate assay, however, the TVA® Platform is far less labor-intensive and requires a fraction of the investigator's time. The TVA® has no background noise, has high inter-assay reproducibility, and provides audit trails.



Representative images from the TVA® are shown (A). Comparison to CRA using cryopreserved (B) and freshly-isolated (C) PBMC exhibit equivalent results.

C.T.L. TVA®: Non-Radioactive NK/ADCC Assessment

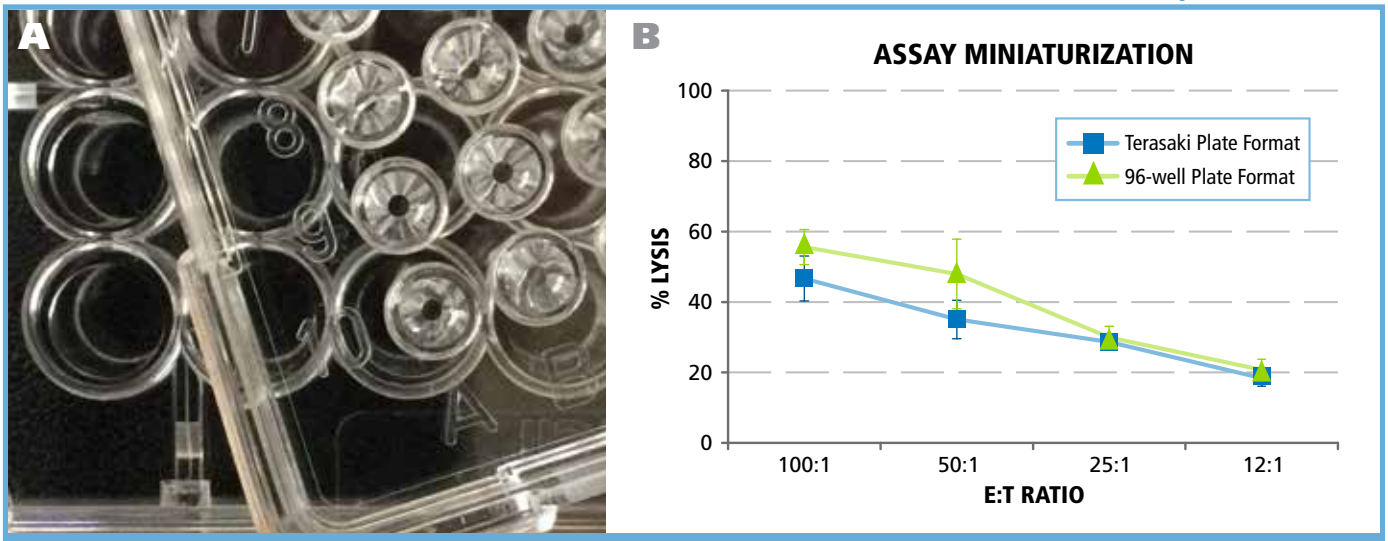
TVA® vs. Chromium Release Assay (CRA)		
Features and Benefits	**TVA®**	**CRA**
Non-radioactive	✔	✖
Direct visualization of results	✔	✖
Number of cells required	10^6 cells (for 96-well plates and $1x10^5$ (for Terasaki plates)	$2x10^6$ cells
Background noise	✖	✔
Labor intensive	✖	✔
Ability to transfer multiple wells during plate transfers	✔	✖
Isolation of NK cells	✖	Preferred
Automated analysis and evaluation	✔	✖
Audit trails	✔	✖
Reference effector controls (PBMC) available	✔	✖
Assay kit available	✔	✖
Assay consultation available	✔	✖

Assay Miniaturization

A major drawback of traditional cytotoxicity assays is that they require large numbers of effector cells to detect cytotoxic effects. The TVA® can be performed in a miniaturized format, requiring only $1x10^5$ PBMC for assessment of seven E:T ratios in Terasaki plates run in triplicate. The measured per-centage of lytic activity is similar to that observed with 96-well plate formats.

Detection of Natural Killer-mediated Cell Cytotoxicity does not have to be compli-cated. Join the community of researchers using the TVA®.

Contact us today for a demo!



Terasaki plates are shown overlaid on 96-well plates (A). The TVA® provides reproducible results when performed in either of the plate formats (B), allowing the miniaturization of the assay, thereby using only 1/10th of the effector cells.

Detection of natural killer-mediated cell cytotoxicity has never been faster, simpler, and more precise, involving less effector cells. Join the community of researchers using the TVA®.

Contact us today for more information!

C.T.L.

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