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simplifying research

NK / ADCC Target cell Visualization Assay (TVA™)

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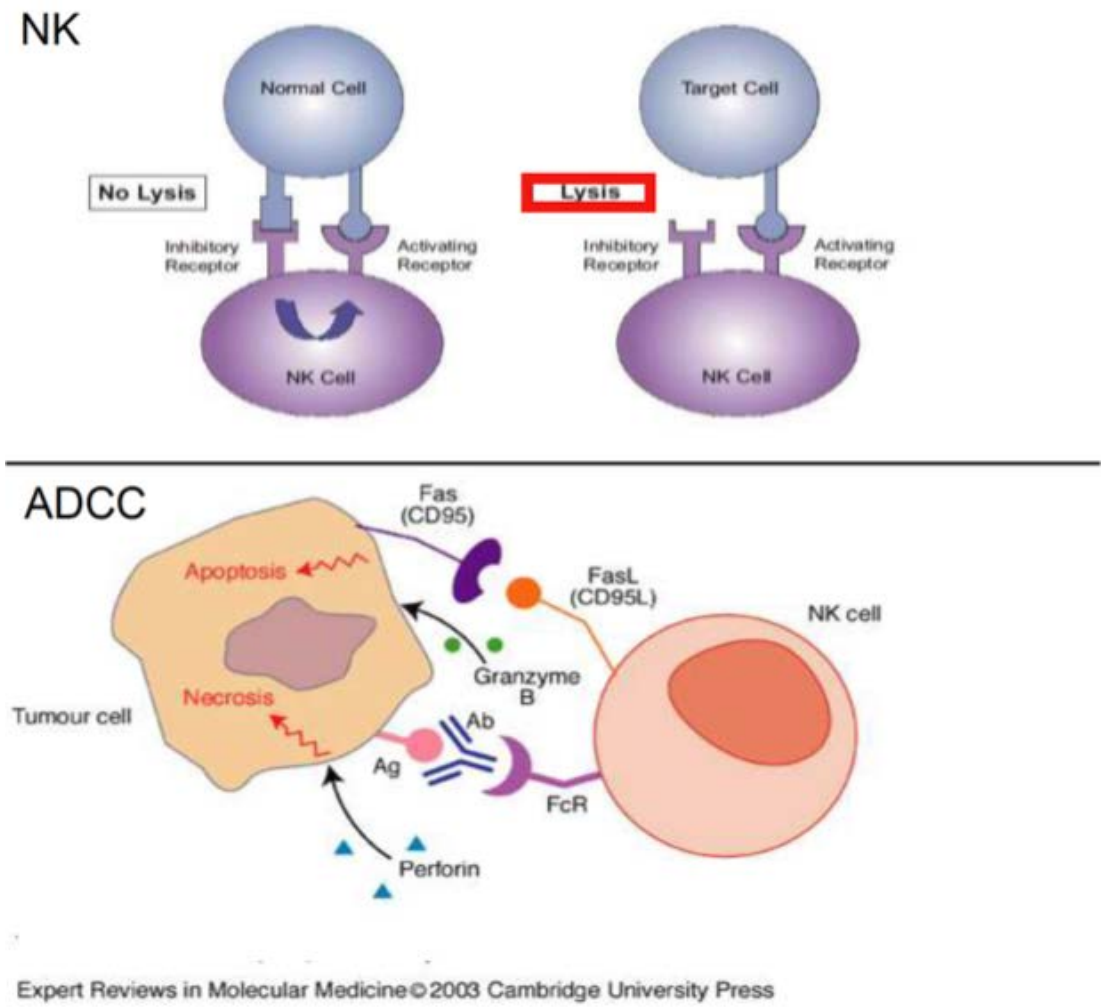

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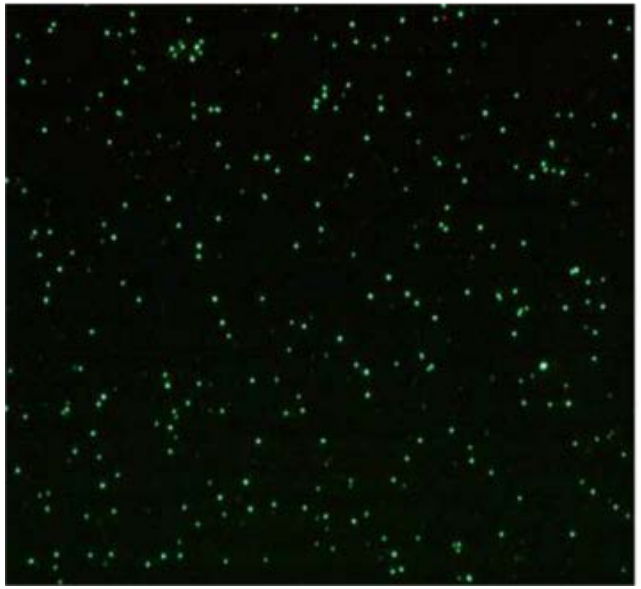
Foundation of NK-TVA™ Assay:

Fluorescently-stained target cells lose the dye after they die



Live Target Cells

Dead Target Cells

Tumor cells imagined before (left) and after (right) undergoing apoptosis

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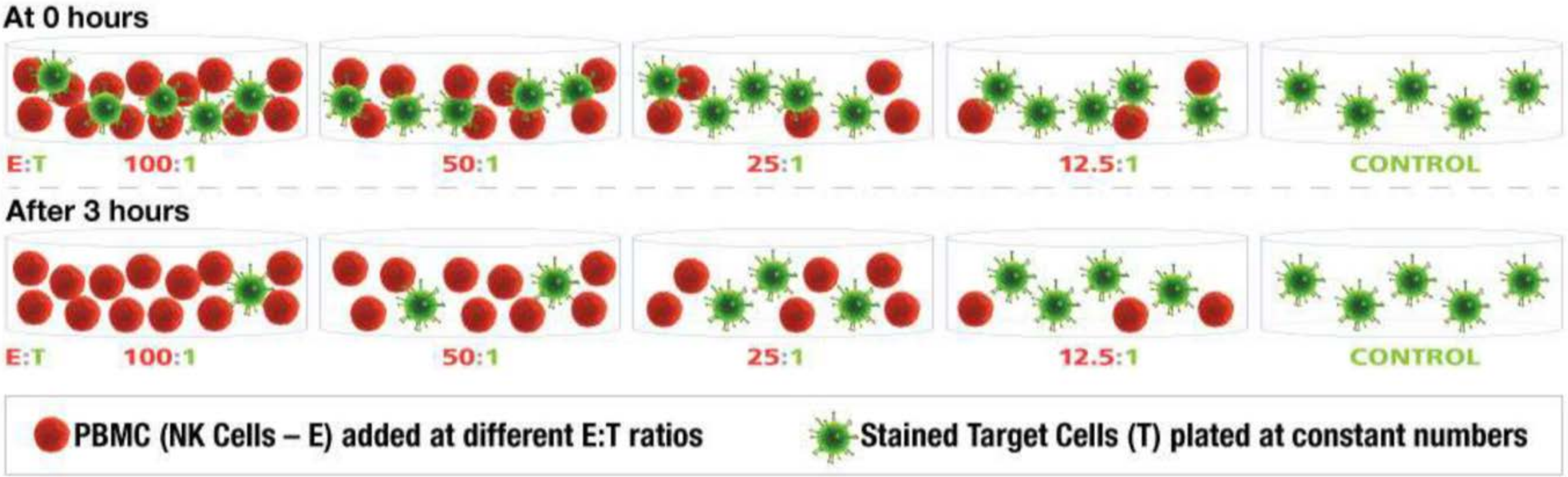
Measuring NK activity in vitro

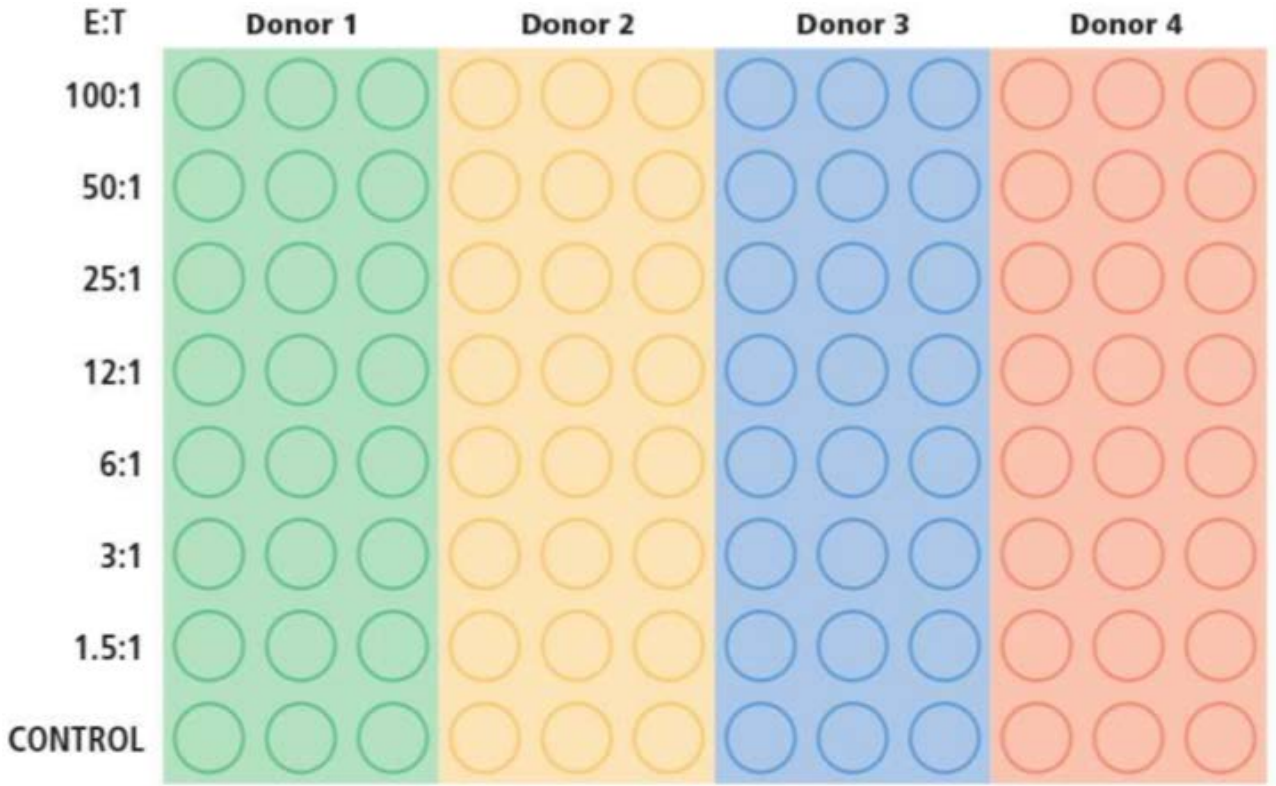
CTL NK Target cell Visualization Assay (TVA™)



NK activity monitored by measuring the number of viable target cells using high-throughput, single-cell imaging

TVA™ Assay:

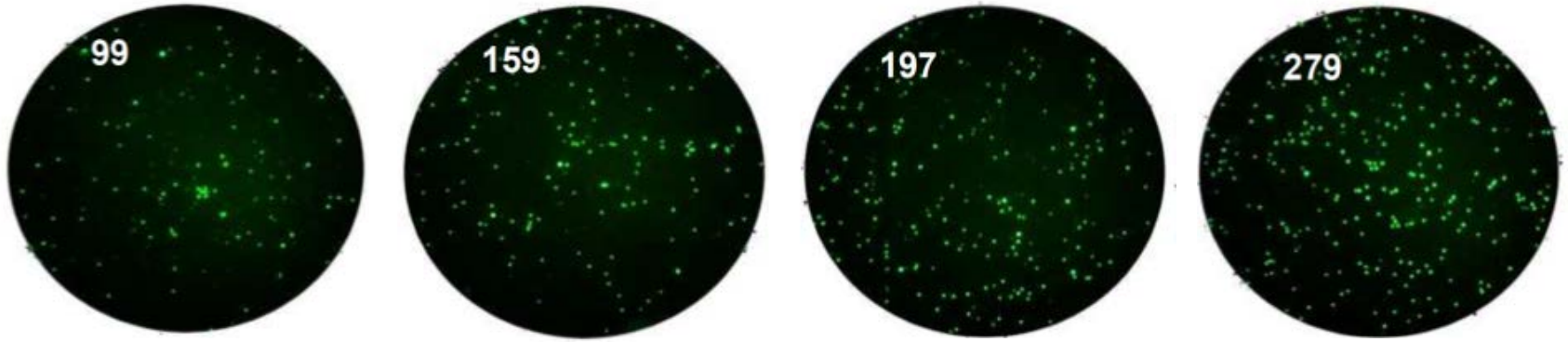
Plate Layout



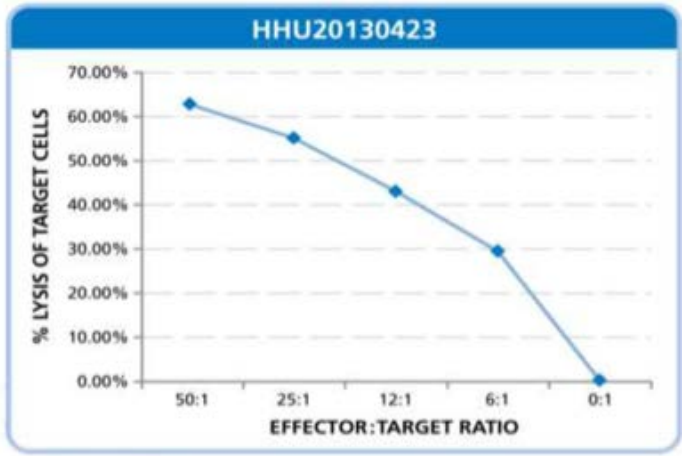
Imaging Plate $1.25x10^3$ K562(T) / well + PBMC(E).

NK-TVA™

Representative images, 96-well assay



50:1 (65% killing) 12:1 (43% killing) 6:1 (29% killing) 0:1



When NK cells are active in PBMC, increased numbers of target cells are lysed as the number of PBMC increase. the dose response curve on the left is automatically generated by the NK-TVA™ instrument.

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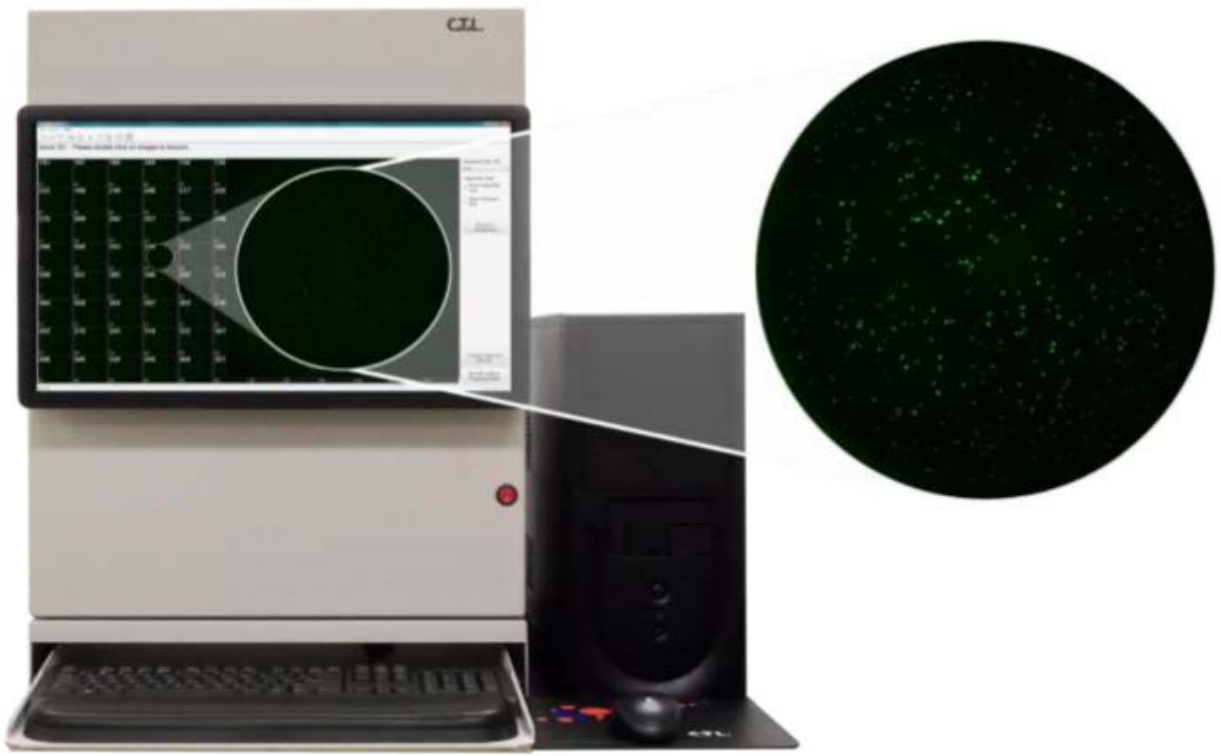
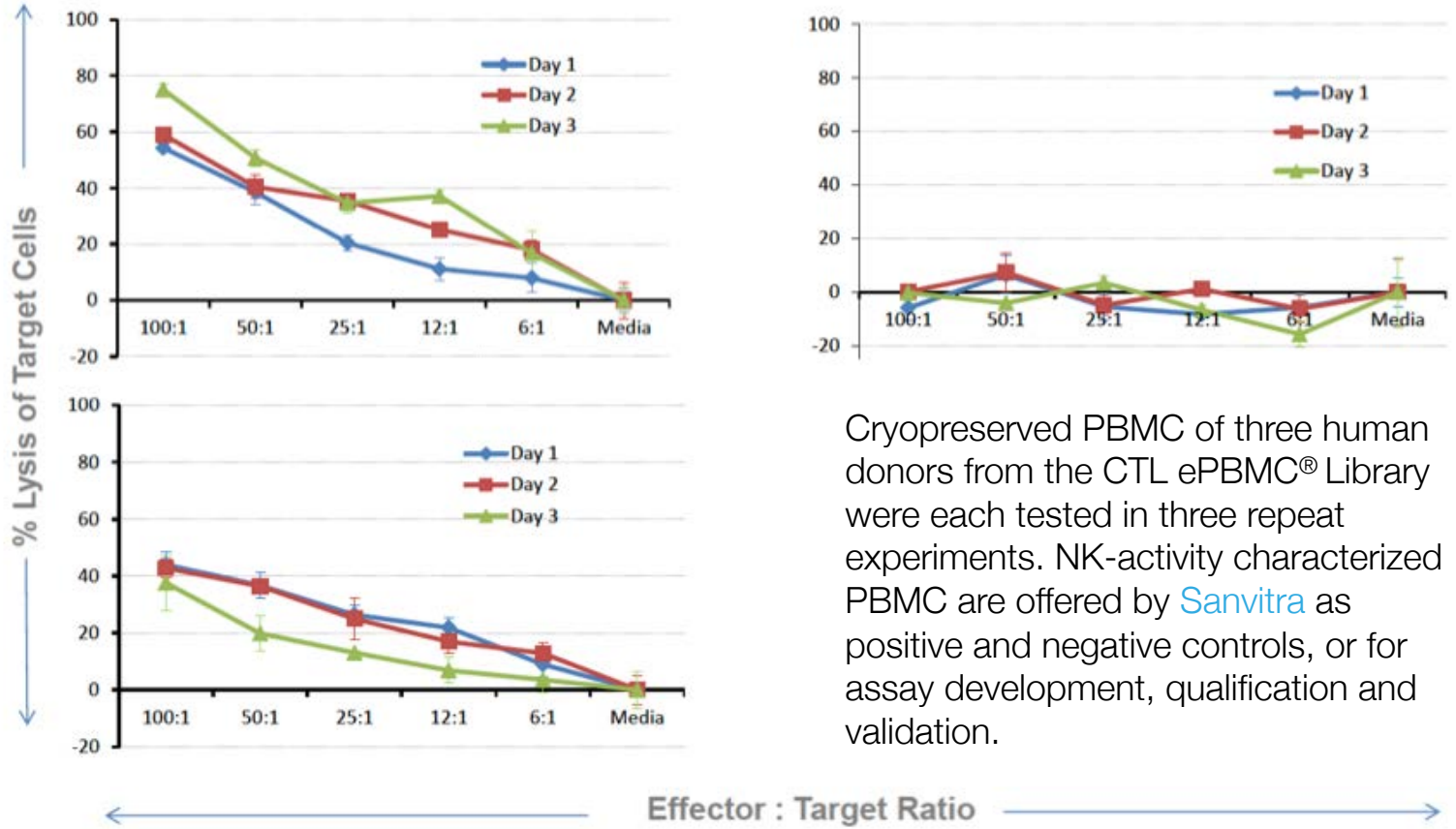
Single-Cell Imaging



The TVA Analyzer is capable of single-cell imaging in microtiter plates

Precision – Repeatability on multiple days



Cryopreserved PBMC of three human donors from the CTL ePBMC® Library were each tested in three repeat experiments. NK-activity characterized PBMC are offered by Sanvitra as positive and negative controls, or for assay development, qualification and validation.

Mini TVA™

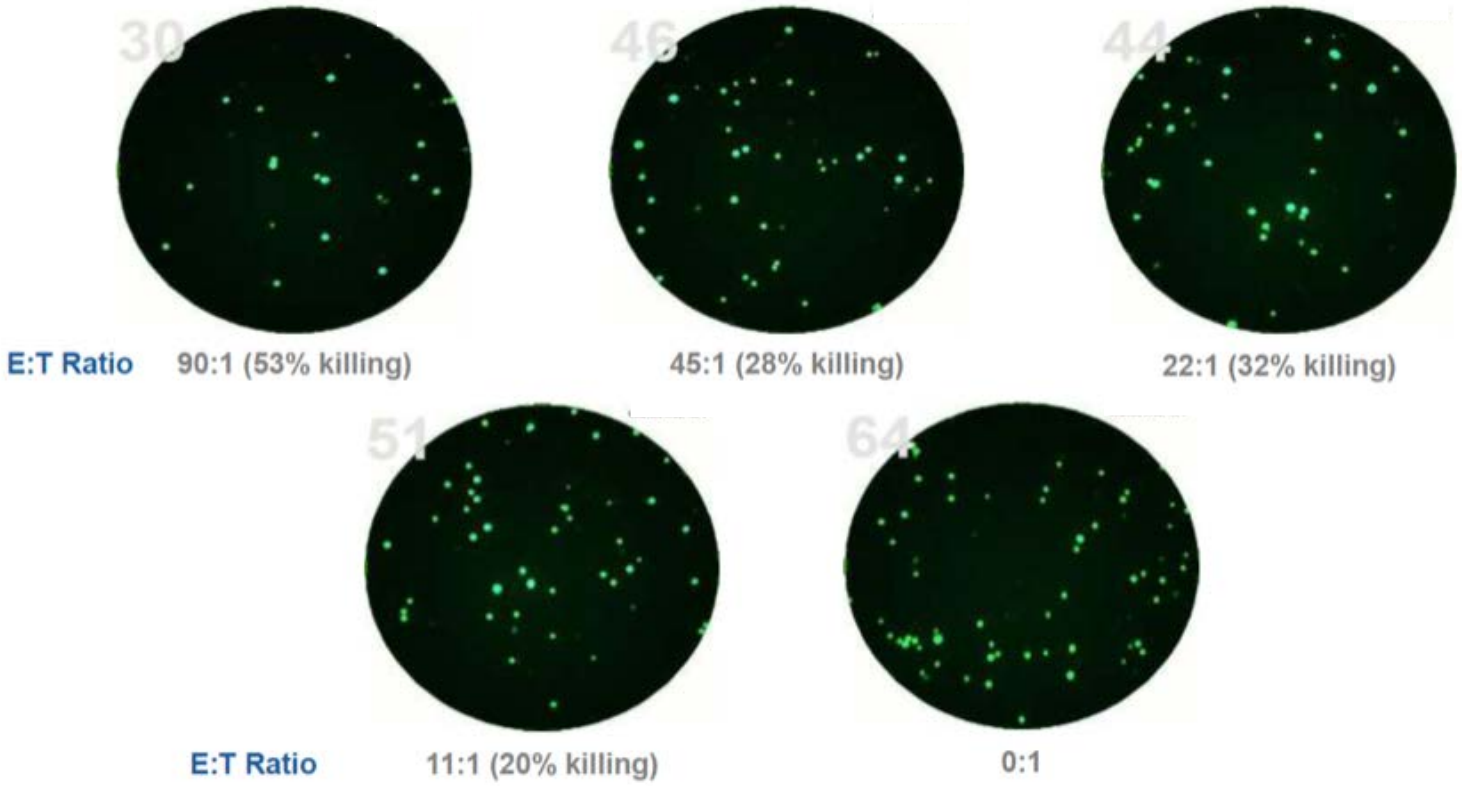
Terasaki plate-based counting permits 1:10 miniaturization vs. the 96-well TVA™

- Assay is carried out in Terasaki plates (20µl/well)
- Counting is performed using ImmunoSpot®TVA™ Software

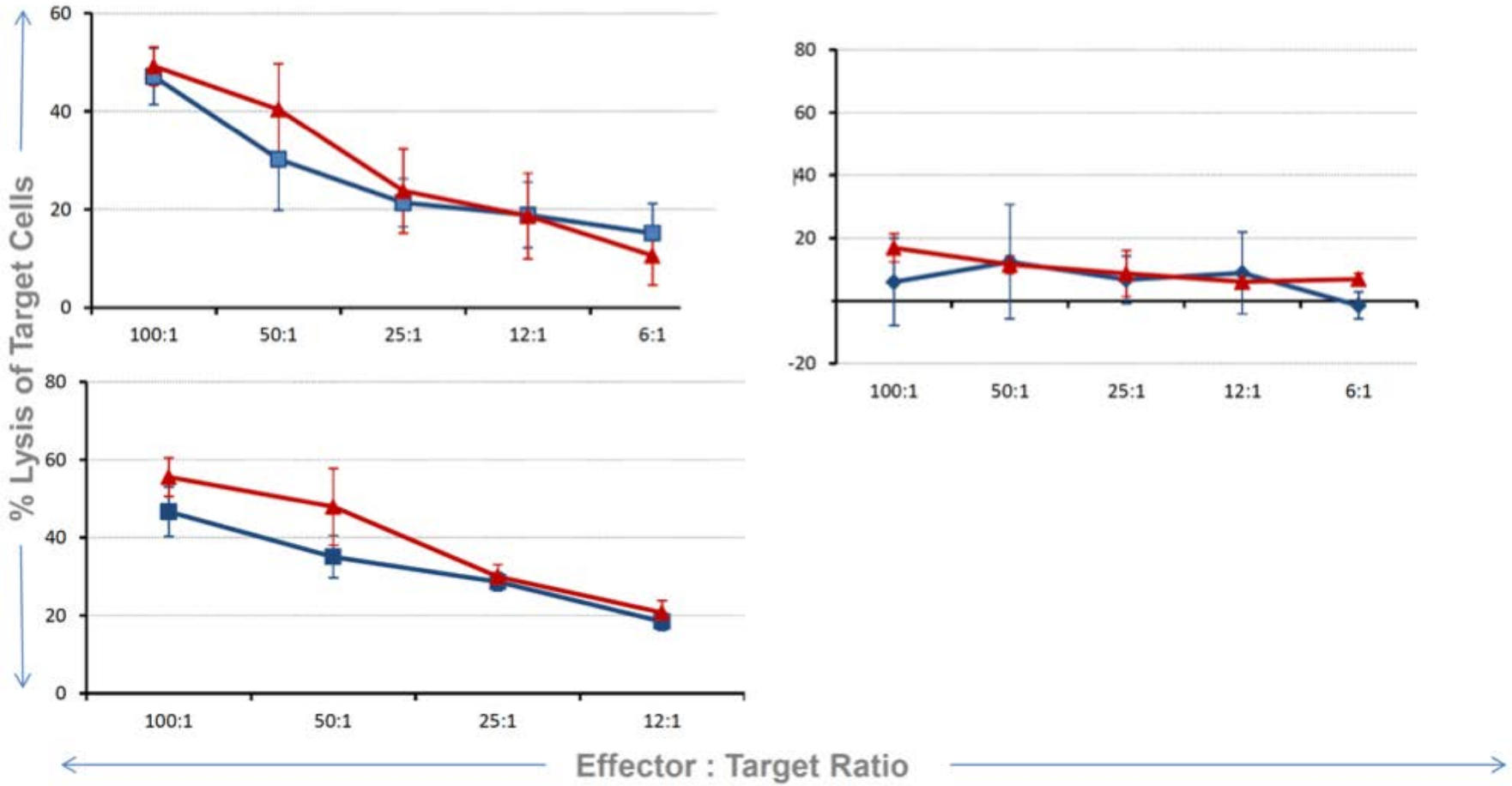
Mini TVA™is Ideal when limited numbers of PBMC are available, e.g., pediatric or oncologic samples, HIV, etc.

Mini TVA™

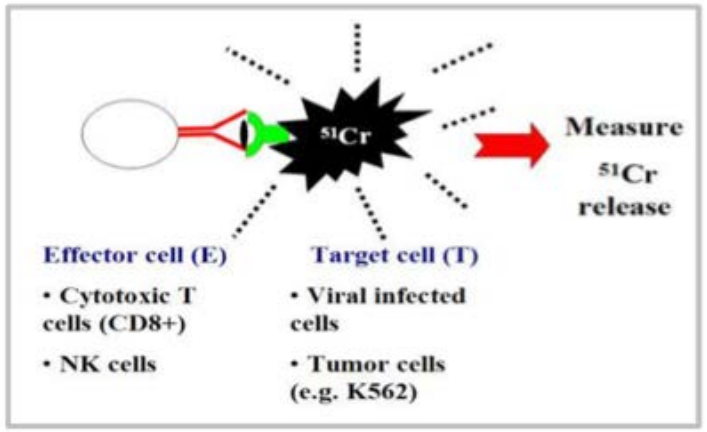
Target cells in Terasaki plates

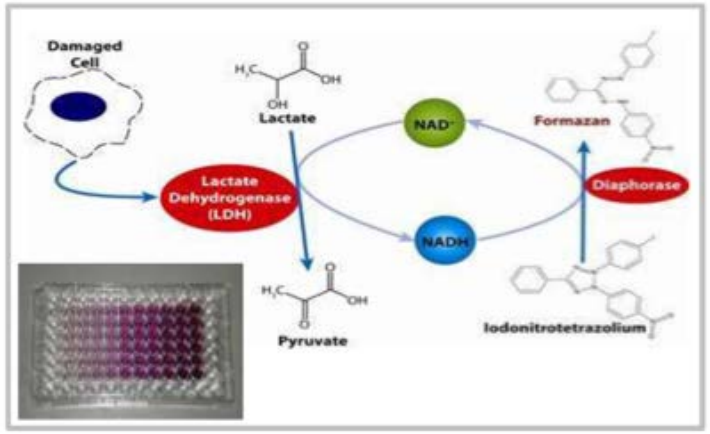


TVA™ in Terasaki vs. 96-well plates testing three different donors



TVA™ in Terasaki vs. 96-well plates testing three different donors





Chromium Release Assay

- Target cells are loaded with radioactive Chromium
- Measure of released radioactivity is correclated to % killing

- Both are indirect, semi-quantitative, and have low signal-to-noise performance
- Cr release involves radioactive components and waste

Lactate Dehydrogenase Assay

- Target cells, upon lysing, release enzymes: Lactate Dehydrogenase
- Enzymes react with Formazan to elicit a purple color
- Colorimetric measurements of Formazan is correlated to % killing

Conventional Approaches (#2)

Imaging-based vs. flow cytometry-based detection of target cell lysis

- High-throughput, much faster
- Fully-automated data analysis
- GLP, audit trails automatically provided
- Fewer effector cells (much fewer for Mini TVA™)
- Essentially maintenance-free instrument
- More cost-effective

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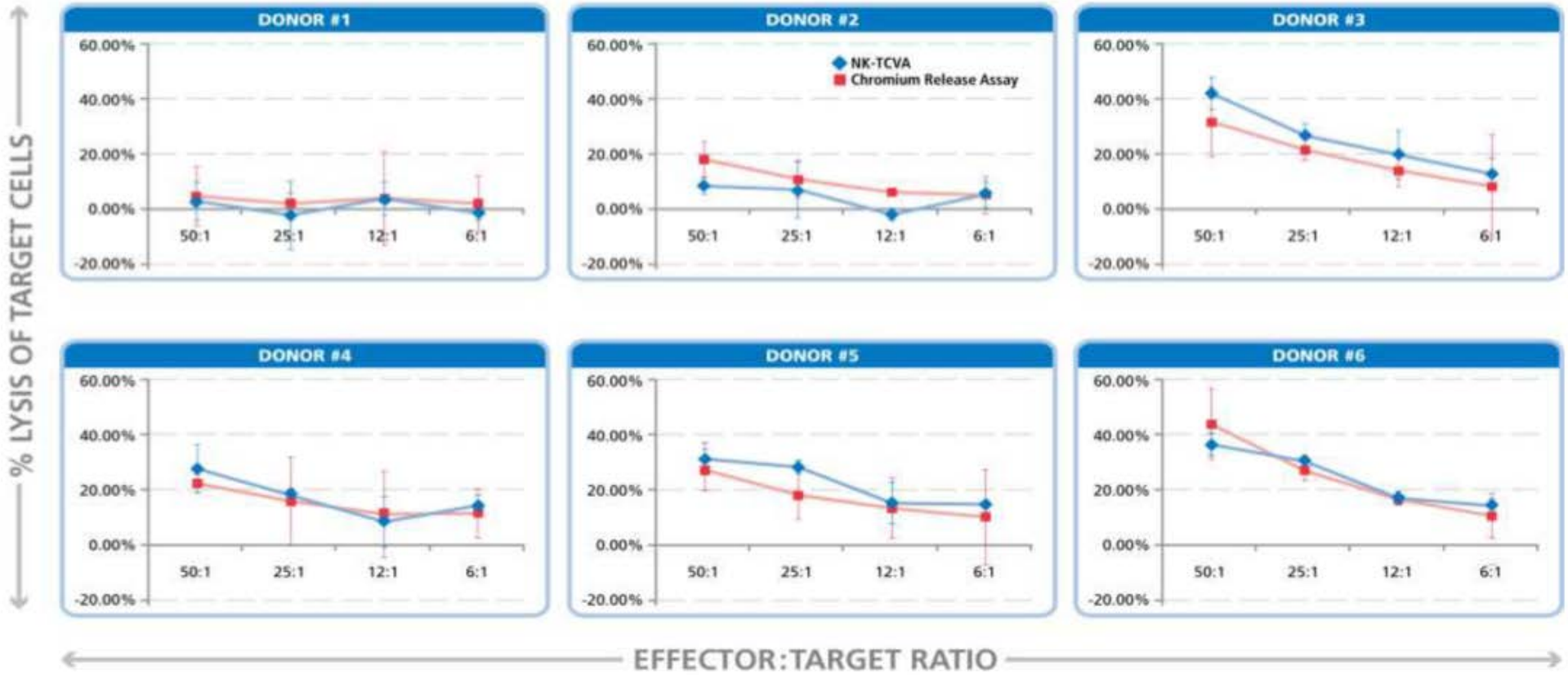
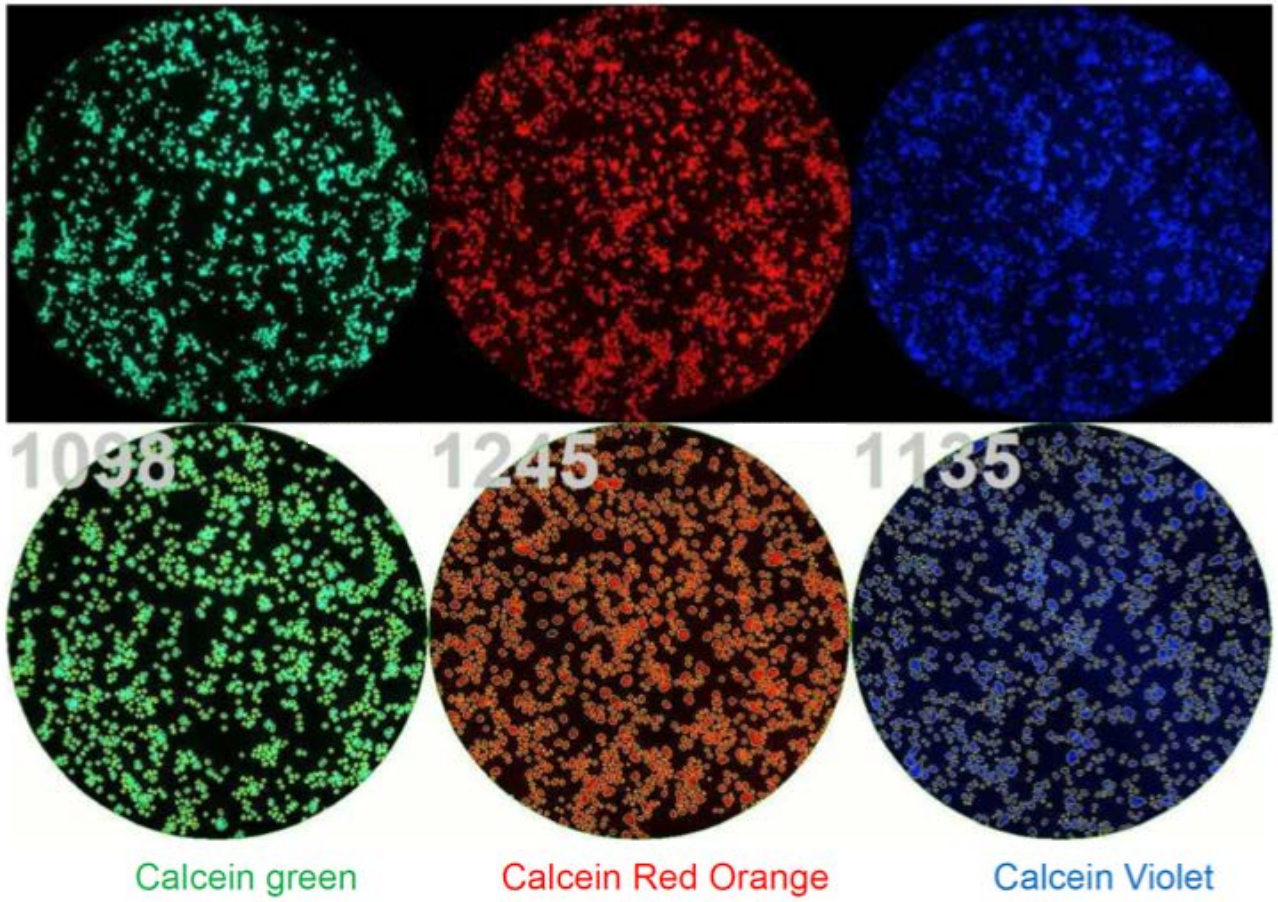
Advantages of TVA™ over Conventional NK Assays

- Non-radioactive
- Fewer effector cells needed
- Direct detection of target cells by imaging resulting in quantitative analysis
- Automated scanning, counting, and analysis

TVA™ vs. Chromium Release



Multicolor TVA™ mode



Contact us today
to learn more about
The NK Target cell
Visualization Assay
TVA™ by

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