Agilent

Trusted Answers

Agilent xCELLigence Immunotherapy Kit

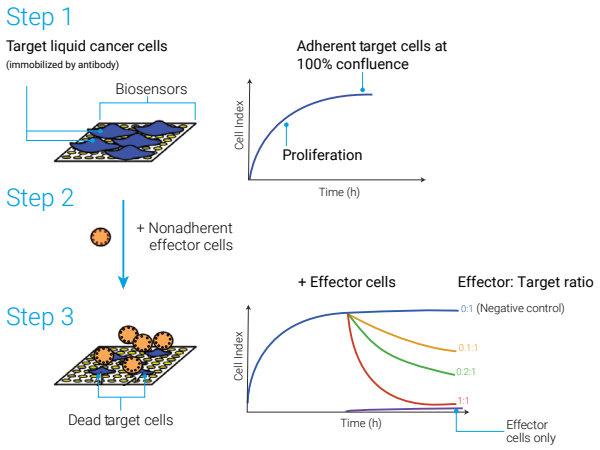
Monitor liquid tumor cell killing in real time


Agilent
MP Station
Power
Error

Monitor the efficacy of liquid cancer immunotherapies inside your incubator

Use Agilent xCELLigence immunotherapy kits with your real-time cell analysis (RTCA) system for a noninvasive solution to a broad range of applications. Improve reproducibility in your liquid cancer immunotherapy and suspension tumor cell killing applications, while maintaining cell health with continuous kinetic measurement.

- **Real time:** Quantitative monitoring of both fast (hours) and slow (days) killing
- **Simple workflow:** Reduce the number of sample handling steps
- **Improved sensitivity:** Physiologically relevant, low effector-to-target ratios
- **Automatic data plotting:** Eliminate subjective data



Step 1

The target liquid cancer cells are first seeded in the wells of an electronic microplate (E-Plate) that have been precoated with a tethering antibody. This biosensor signal, also known as Cell Index, increases as cells proliferate and then plateaus as cells approach 100% confluence.

Step 2

When added, nonadherent immune effector cells in suspension do not cause impedance changes (due to lack of adherence to the gold biosensors).

Step 3

If effector cells induce cell death of the target tumor cells, this cytolytic activity is precisely detected with high sensitivity. The continuous acquisition of impedance data for each well enables the generation of real-time killing curves for multiple conditions simultaneously.

Immune effector cells and liquid cancer target cells in use

Liquid Tumor Tethering Specificity	Effector Cells	Target Cells
anti-CD40	NK-92, CAR-T, primary CD8+ T cells	Daudi, Raji, Ramos, MEC2
anti-CD29	NK-92	K562, HEL 92.1.7
anti-CD19	NK-92, primary CD8+ T cells	Raji
anti-CD9	NK-92	NALM6, RS4;11, RPMI 8226
anti-CD71	NK-92	K562

Liquid tumor killing assay (anti-CD40) application data

The wells of an Agilent E-Plate are precoated with an anti-CD40 reagent, enabling liquid tumor targets to be immobilized on the plate bottom (Figure 1A). Immobilized target cells generate a robust impedance signal and proliferate to the point of confluence, resulting in a plateaued impedance signal. The growth of untethered target cells is essentially undetectable (Figure 1B). With or without tethering reagent coating the wells, the effector cells (NK-92 cells) produce minimal signal on their own (Figure 1B). The addition of effectors to the immobilized targets results in target cell death in a dose-dependent manner (Figure 1C).

Side-by-side, four-hour assays were performed for NK-92 cell mediated killing of Raji B cells that were immobilized (analyzed by Agilent xCELLigence) or in suspension (analyzed by flow cytometry). This assay was used to assess whether the physical immobilization of liquid tumor cells, via CD40 tethering, affects the efficiency with which they are killed. As shown in Figure 1D, the killing trends observed by these two methods correlate closely. The results were consistent with several previous publications, demonstrating that xCELLigence data reinforces data obtained by traditional assays.

Figure A.

Figure C.

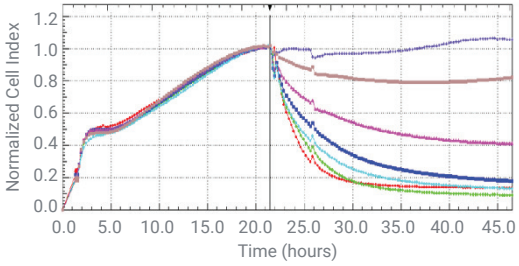


Figure B.

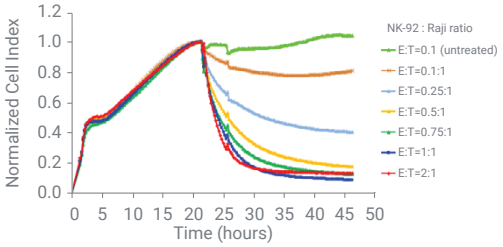
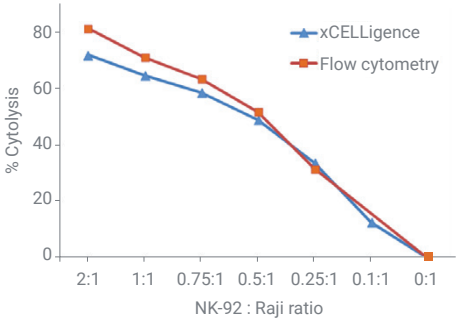


Figure D.



Agilent xCELLigence instruments for immunotherapy assays

Dual Purpose (DP)	Single Plate (SP)	Multiple Plates (MP)	High Throughput	Impedance and Imaging
3 × 16 wells	1 × 96 wells	6 × 96 wells	Up to 4 × 384 wells	Up to 5 × 96 wells

Liquid tumor killing assay (anti-CD40)

Tethering Kit (up to 6 × 96 well plates) Part Number 8100005	Sample Kit (up to 2 × 96 well plates) Part Number 8100006
125x Tethering reagent (anti-CD40) (250 µL)	125x Tethering reagent (anti-CD40) (90 µL)
10x tethering buffer (10 mL)	10x tethering buffer (10 mL)
Cytolysis reagent (1.5 mL)	Cytolysis reagent (1.5 mL)

Liquid tumor killing assay (anti-CD29)

Tethering Kit (up to 6 × 96 well plates) Part Number 8100008	Sample Kit (up to 2 × 96 well plates) Part Number 8100009
250x Tethering reagent (anti-CD29) (125 µL)	250x Tethering reagent (anti-CD29) (45 µL)
10x tethering buffer (10 mL)	10x tethering buffer (10 mL)
Cytolysis reagent (1.5 mL)	Cytolysis reagent (1.5 mL)

Liquid tumor killing assay (anti-CD19)

Tethering Kit (up to 6 × 96 well plates) Part Number 8100011
125x Tethering reagent (anti-CD19) (250 µL)
10x tethering buffer (10 mL)
Cytolysis reagent (1.5 mL)

Sample Kit (up to 2 × 96 well plates) Part Number 8100012
125x Tethering reagent (anti-CD19) (90 µL)
10x tethering buffer (10 mL)
Cytolysis reagent (1.5 mL)

Liquid tumor killing assay (anti-CD9)

Tethering Kit (up to 6 × 96 well plates) Part Number 8100014
125x Tethering reagent (anti-CD9) (250 µL)
10x tethering buffer (10 mL)
Cytolysis reagent (1.5 mL)

Sample Kit (up to 2 × 96 well plates) Part Number 8100015
125x Tethering reagent (anti-CD9) (90 µL)
10x tethering buffer (10 mL)
Cytolysis reagent (1.5 mL)

Liquid tumor killing assay (anti-CD71)

Tethering Kit (up to 6 × 96 well plates) Part Number 8100017
125x Tethering reagent (anti-CD71) (250 µL)
10x tethering buffer (10 mL)
Cytolysis reagent (1.5 mL)

Sample Kit (up to 2 × 96 well plates) Part Number 8100018
125x Tethering reagent (anti-CD71) (90 µL)
10x tethering buffer (10 mL)
Cytolysis reagent (1.5 mL)

Related products

Part Number	Part
300600890	E-Plate 16 PET (6 plates)
300600880	E-Plate 16 PET (36 plates)
5469830001	E-Plate 16 (6 plates)
5469813001	E-Plate 16 (36 plates)
300601140	E-Plate VIEW 16 (6 plates)
300601150	E-Plate VIEW 16 (36 plates)
300600910	E-Plate 96 PET (6 plates)
300600900	E-Plate 96 PET (36 plates)
5232368001	E-Plate 96 (6 plates)
5232376001	E-Plate 96 (36 plates)
300601020	E-Plate View 96 (6 plates)
300601030	E-Plate View 96 (36 plates)
5867681001	E-Plate 384 (10 plates)
5867673001	E-Plate 384 (40 plates)

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