Cell and Gene therapy is one of the fastest growing fields of cancer research. Our experiments demonstrate that the Cellaca® PLX can be of significant value to the Cell and Gene Therapy communities by providing novel image cytometry methods which may satisfy several criteria including high throughput capabilities with sensitivity and low maintenance.

**1. ABSTRACT**

Cell and Gene therapy is one of the fastest growing fields of cancer research. Our experiments demonstrate that the Cellaca® PLX can be of significant value to the Cell and Gene Therapy communities by providing novel image cytometry methods which may satisfy several criteria including high throughput capabilities with sensitivity and low maintenance.

**2. CELLACA PLX IMAGE CYTOMETER**

- Sample prep using provided protocols
- Stain using titrated validated reagents
- Image using a predefined assay
- Automallcularly export to data analysis software
- Analyze data using existing templates

**3. CD3/CD4/CD8 AND VIABILITY DYE**

**CYTOFLEX Flow Cytometer**

- PBMCs – CD3/CD4/CD8
- PBMCs – Isotype Control

**Cellaca® PLX Image Cytometer**

- Untreated
- Propidium Iodide
- RubyDead
- Treated
- RubyDead
- Annexin V-FITC
- Caspase 3/7

**4. FL PROTEIN ASSAY (GFP/RFP) + VIABILITY**

**CYTOFLEX Flow Cytometer**

- K562-GFP
- U2OS-RFP

**Cellaca® PLX Image Cytometer**

- Hoechst
- RubyDead
- Caspase-3
- Untreated
- Treated

**5. APOPTOSIS ASSAY (ANNEXIN V AND PI)**

**CYTOFLEX Flow Cytometer**

- Annexin V-FITC/PI

**Cellaca® PLX Image Cytometer**

- Annexin V-FITC/PI

**6. APOPTOSIS ASSAY (CAPSASE AND DEAD)**

**CYTOFLEX Flow Cytometer**

- Caspase/RubyDead

**Cellaca® PLX Image Cytometer**

- Caspase/RubyDead

**7. CONCLUSION**

We demonstrated assays for assessing critical quality attributes for identity, cell count, and cell viability.

- Using the Cellaca® PLX high-throughput image cytometer, we showed high-quality results for:
  - Immunophenotyping (CD3/CD4/CD8) with viability
  - GFP and RFP populations with viability
  - Apoptosis using Annexin V/PI or Caspase/RubyDead

The results were compared to the CytoFlex flow cytometer and are highly comparable, validating the methodologies and applications.