

ALLCELLS serves as a reliable supplier of more than 1200 biologically relevant products that span a wide range of hematopoietic cell types (normal and diseased), stem/progenitor cells (e.g. CD34<sup>+</sup>, CD133<sup>+</sup>), cell lysates, and associated DNA and RNA.

Our products are used by industrial, academic, and non-profit institutions worldwide in the areas of in-vitro cell biology research, drug discovery and screening, cell-based assay development, stem cell biology, cell therapy, and regenerative medicine research, biomarker discovery, gene expression, pathway profiling, and other applications.

Visit us at [www.allcells.com](http://www.allcells.com) for more information.



## CONTRACT ASSAY SERVICES

### Your Trusted Partner in Hematology Based Research & Development

*Fast, Accurate & Reliable Services to Support Your Scientific Needs*



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# In Vitro Assays

ALLCELLS Services draws upon the company's in-depth knowledge of hematopoiesis from basic research to preclinical development of therapeutics.

## Why ALLCELLS?

Since 1998, ALLCELLS has been the industry leader in providing high quality hematopoietic cell products and services to leading researchers in drug discovery, pharmacology, cell and tissue therapies, regenerative medicine, and other life science application areas. Our products and superior sourcing capabilities provide the best possible cell products to meet your project requirements, on time.

Our scientists have over 50 years of combined experience developing a wide range of hematopoietic assays including but not limited to stem cells assays, in-vitro expansion or differentiation, and in-vitro characterization. These assays allow you to elucidate mechanistic studies, hemotoxicity and facilitate early drug discovery.

### Contract Assay Services includes:

#### Hematopoietic Stem Cell Assays

- CFU-GM
- CFU-Mk
- LTC-IC

#### Flow-Cytometric Services

- Detailed FACS analysis, 11 colors
- Immunophenotyping
- Cytometric based assays

#### Cell Based Assays for Drug Discovery

- MTS/MTT
- Luminex multianalyte assays
- Retroviral/Lentiviral gene transduction

#### In vitro Expansion or Differentiation

- Generation of megakaryocytes
- Generation of dendritic cells

#### In vitro Characterization of Malignant Cells

- Leukemia (ALL, AML, CLL, CML)
- Myeloma
- Non-Hodgkin's Lymphoma
- Polycythemia Vera

## Drug Discovery Services

ALLCELLS also provides drug discovery services using a wide range of cell based assays to investigate the effects of novel compounds. Regardless if it's a single study or an ongoing project, we are happy and eager to accommodate your research.

## Case Study

### Background

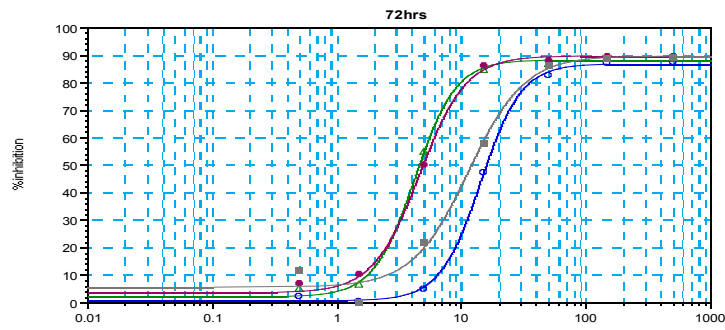
Triptolide has been shown to have activity on a variety of human cancers including AML. Mechanistically, triptolide has been shown to induce apoptosis in various leukemic cell lines. While immortalized cell lines are convenient models for research, they do not always represent the diversity of the subtypes of AML. ALLCELLS has a comprehensive catalog of primary AML samples representing many of the subtypes of the disease and the experience in culturing primary cells for drug screening.

In the study shown below we investigated the differential effects of triptolide on leukemic cell lines and primary AML MNCs. For this project we used a variety of end points including cell viability, Annexin V and clonogenic assays.

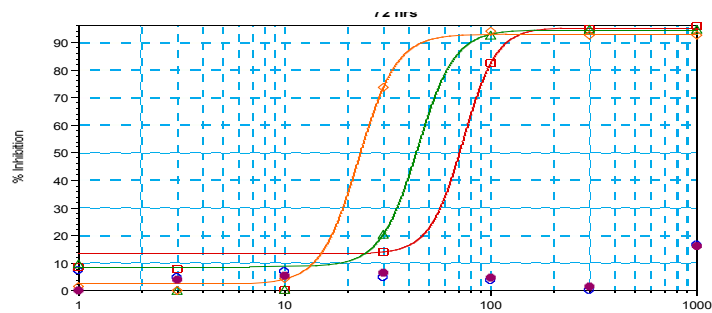
Cell Line	IC50 (nM)
KG1a	4.21
OCI-AML3	14.2
MOLM-13	4.59
U937	11.4

Cell Type	IC50 (nM)
Normal BMMNC1	ND
Normal BMMNC2	ND
AML (M1)	22.7
AML (M2)	44
AML (M3)	73



Conc	A	B	C	D	R <sup>2</sup>
△ KG1a (KG1a: Concentration vs % inhibition)	2.06	2.63	4.21	88.2	0.999
○ OCI-AML3 (OCI-AML3: Concentration vs % inhibition)	0.619	2.66	14.2	86.8	0.999
■ MOLM13 (MOLM13: Conc vs % inhibition)	3.52	2.33	4.59	89.7	0.998
□ U937 (U937: Concentration vs % Inhibition)	5.57	1.93	11.4	89.6	0.992



Conc (nM)	A	B	C	D	R <sup>2</sup>
○ Normal BMMNC#1 (BMMNC1: Concentration vs % Inhi...)	13.2	5.4	73	95.2	0.936
□ AML1 (AML1: Concentration vs % Inhibition)	8.55	4.82	44	94.4	0.971
△ AML2 (AML2: Concentration vs % Inhibition)	2.18	4.7	22.7	92.8	0.999
● Normal BMMNC#2 (BMMNC2: Concentration vs % Inhi...)					



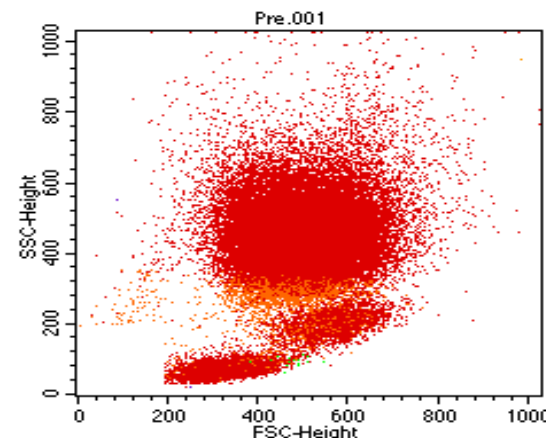
# ISHAGE

Flow-cytometric enumeration of CD34<sup>+</sup> hematopoietic stem and progenitor cells (HSCs) is widely used for evaluation of graft adequacy of peripheral blood and bone marrow stem cell grafts<sup>1</sup>

Shown below are representative FACS plots for analysis of a leukapheresis product from a G-CSF (Neupogen) mobilized healthy donor. Absolute enumeration of viable CD34<sup>+</sup> cells are obtained for a sample prior to the leukapheresis procedure and on the leukapheresis product.

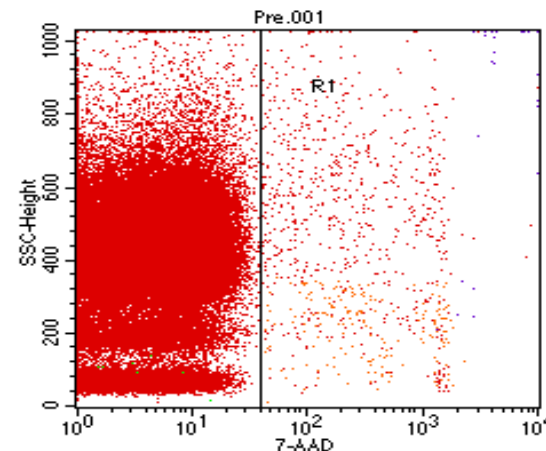
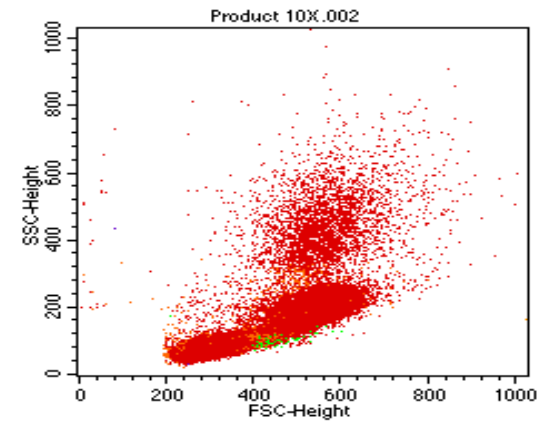
We provide G-CSF (Neupogen) mobilized leukapheresis products and use the ISHAGE platform to characterize and quantify the CD34<sup>+</sup> population from these products. ALLCELLS can also perform this analysis on bone marrow aspirates or other hematopoietic tissues.

### Pre apheresis

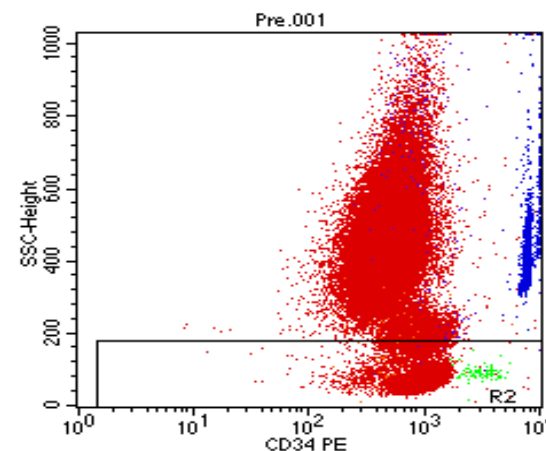
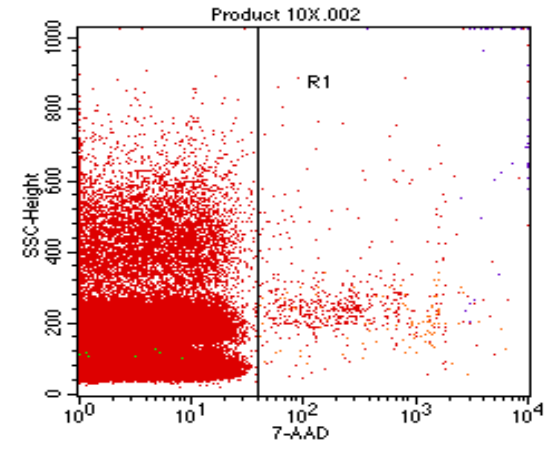


Forward and Side Scatter dot plots of the pre apheresis and apheresis product G-CSF mobilized samples

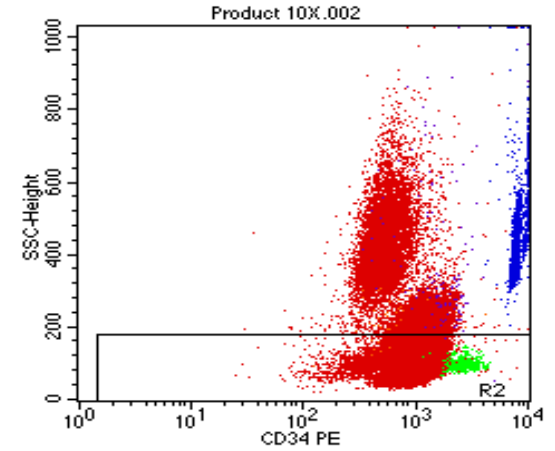
### Apheresis product



Viability of the samples was assessed by 7-AAD dye exclusion and determined to be 99.05% and 99.3% respectively



The CD34<sup>+</sup> population is represented in green and TruCount beads are shown in blue. Total viable CD34<sup>+</sup> was determined to be 3x10<sup>4</sup>/mL and 8.12x10<sup>5</sup>/mL respectively



<sup>1</sup> A. Gajkowska et al, "Flow cytometric enumeration of CD34<sup>+</sup> hematopoietic stem and progenitor cells in leukapheresis product and bone marrow for clinical transplantation: a comparison of three methods" FOLIA HISTOCHEMICA ET CYTOBIOLOGICA Vol. 44, No. 1, 2006 pp. 53-60

Total WBC content for pre apheresis was 3.2x10<sup>7</sup> /mL and 1.8x10<sup>9</sup>/mL apheresis product (data not shown)