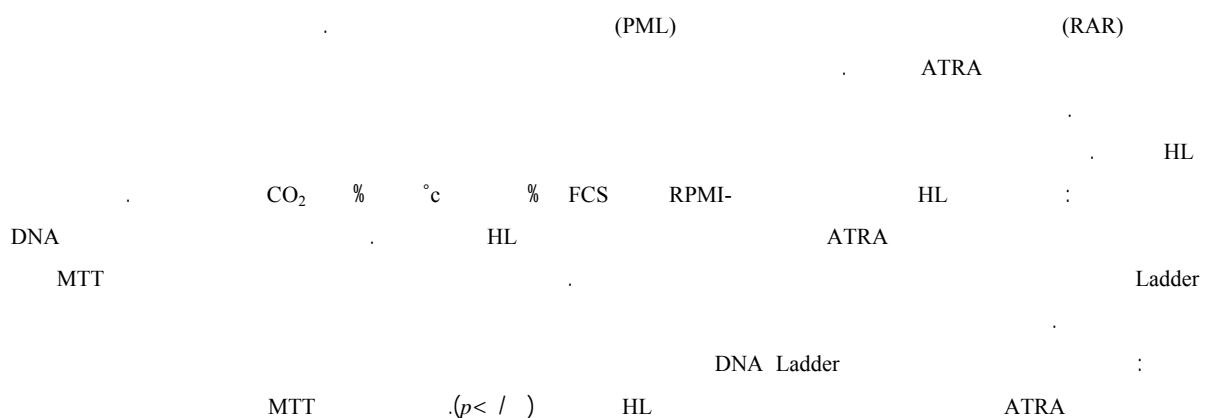


HL

ATRA

تاریخ دریافت ۸۴/۰۷/۲۰۰۷، تاریخ پذیرش ۸۴/۰۸/۰۷



E-mail: saadatian@umsu.ac.ir

( )

( )

<sup>5</sup> Acute Promyelocytic Leukemia (APL)

<sup>6</sup> Disseminated Intravascular Coagulation (DIC)

<sup>7</sup> Retinoic Acid Receptor (RAR)

<sup>8</sup> Promyelocytic Leukemia (PML)

# Archive of SID

( )

DNA

ATRA<sup>1</sup>

PBS

K

( )

DNA

rpm

DNA

bp

DNA

( )

TE

DNA

/

P

FAS

( )

PBS

ATRA

(

) HL

X X

RPMI-

( )

/

L

%

°C

Annexin v

( )

PI

( Upjohn )

Pharmacia & Upjohn )

(S.P.A

(Pharmacia & Upjohn S.P.A

( ) ATRA

HL

Ladder DNA

<sup>2</sup> Phosphate-buffered saline

<sup>3</sup> Boehringer Manheim

<sup>4</sup> Methyl Thiote Trazole

<sup>1</sup> All Trans Retinoic Acid (ATRA)

/ ± /      / ± /      / ± /      ATRA      MTT

/ ± /  
/ ± /  
/ ± /

(p< / )      ( )

**ATRA**

## Annexin V

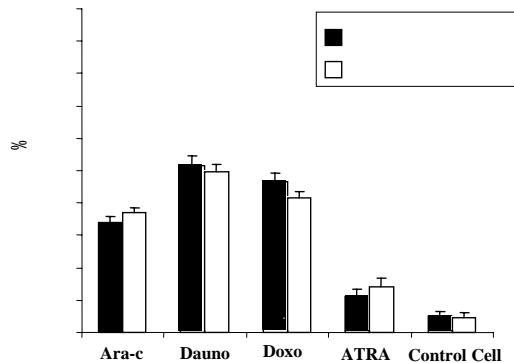
HL	DNA Ladder	ATRA
		DNA
± /      / ± /      ± /      ATRA / ± /      / / ± /		
(p< / )	DNA	ATRA
MTT Assay	HL	HL
MTT	DNA	
HL		

## ELISA Reader

				ATRA
				DNA
/	/	/	/	ATRA
				DNA
				HL
				HL
				HL

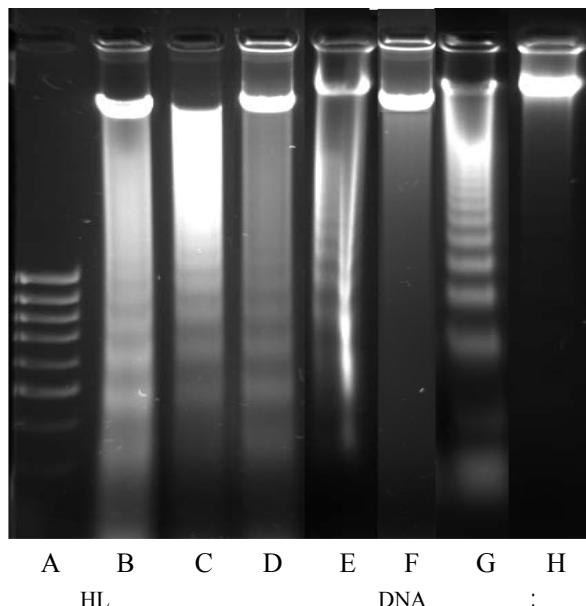
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<sup>1</sup> Blank



HL : ;  
 ( ± ) ATRA

MTT	ATRA	( nm) OD	
/ ± /	/ ± /	/	
/ ± /	/ ± /	/	
/ ± /	/ ± /	/	
/ ± /	/ ± /	/	
			ATRA



A) DNA Size Marker

D) Doxorubicin 2 µMol/lit

G) Positive Control of Thymocyte Cell with Dexamethasone

B) Ara-C 10 µMol/lit

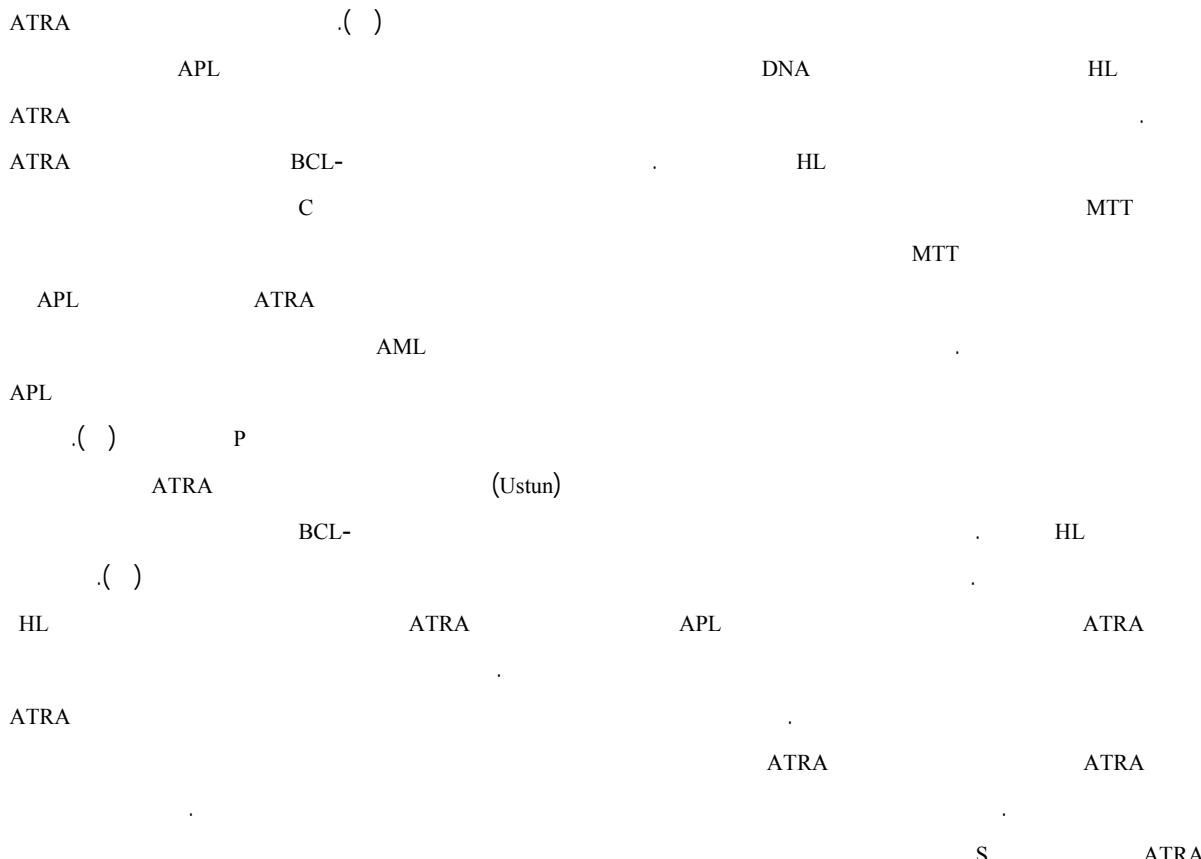
E) ATRA 10 µMol/lit

C) Daunarubicin 2 µMol/lit

F) Negative Control of Cell Line

H) Negative Control of Tymocyte Cell





## References:

1. Randolph T. Acute promyelocytic Leukemia (AML-M3) - part 1. Pathophysiology, Clinical diagnosis, and differentiation therapy. Clin Lab Sci, 2000, 13(2): 98-105.
2. Mchenzie SL .Text book of hematology. 2nd Ed, Bultimore, Williams and wilkins, 1996: 385-387.
3. Lavau C, Dejean A. The t (15;17) translocation acute promyelocytic leukemia. Leukemia, 1994, 8(10): 1615-1621.
4. Borrow J, Goddard AD, Sheer D. Moleculor analysis of acute promyelocytic Leukemia break Point cluster region on chromosome17. Science, 1990, 249(4976): 1577-1580.
5. Wyllie AH, Kerr JF, Currie AR. Cell death. The significance of apoptosis. Int Rev cytol, 1980, 68: 251-306.
6. Majno G, Joris J. Apoptosis, Oncosis, and necrosis. An overview of cell death. Am J pathol, 1995, 146(1): 3-15.
7. Friesen C, Herr I, Krammer PH, Debatin KM. Involvement of the CD59 (APO-1/Fas) receptor/ligand system in drug-induced apoptosis in leukemia cells. Nat Med, 1996, 2(5):574-577.
8. Zimber A, Chedeville A, Abita JP, Barbu V, Gespach C. Functional interactions between bile acids, all-trans retinoic acid, and 1,25-dihydroxy-vitamin D3 on monocytic differentiation and myeloblastin gene down-regulation in HL and THP-1 human leukemia cells. Cancer Res, 2000, 60(3): 672-678.
9. Nakamura S, Takeshima M, Nakamura Y, Ohtake S, Matsuda T. Induction of apoptosis in HL leukemia cells by anticancer drugs combination with Anti-Fas monoclonal antibody. Anticancer Res, 1997, 17: 173-179.
10. Binaschi M, Capranico G, Dal-Bo L, Zunino F. Relationship bitween lethal effects and Topoisomerase II-mediated

- double-stranded DNA breaks produced by Anthracyclines with different sequence specificity. Molecular Pathology, 1997, 15: 1053-1059.
11. Postiglione L. Expression of GM-CSF receptor and "In Vitro" effects of GM-CSF on human fibroblasts. Life Sciences, 1998, 63(5): 327-336.
  12. Paul D, Allen & Adrian C. Newland, Electrophoretic DNA analysis for the detection of apoptosis. Molecular Biotechnology, 1998, 9: 274-250.
  13. Caligan JE, Kruisbeek AM, Margulies DH, Shevach EM. Current Protocols in Immunology. John Wiley & Sons, 1998: 3.17.1-3.17.39
  14. Freshney RI. Culture of Animal Cells. John Wiley & Sons, 2000: Chapter 19.
  15. Kamesaki H. Mechanisms involved in chemotherapy-induced apoptosis and their implications in cancer chemotherapy. International Journal of Hematology, 1998, 68: 29-43.
  16. Bhalla K, Tang C, Lbrado AM, Grant S, Tourkina E. Granulocyte – Macrophage colony – stimulating factor / interleukin – 3 fusion protein (PIXY 321) enhances high – dose Ara-C-induced programmed cell death or apoptosis in human myeloid leukemia cells. Blood, 1992, 80(11): 2883-2890.
  17. Grant S, Jarvis WD, Swerdlow PS, Turner AJ, Traylor RS, Wallace HJ. Potentiation of the activity of 1-D-Arabino furanosylcytosine by the protein kinase C activator Bryostatin 1 in HL cells: association with enhanced fragmentation of mature DNA. Cancer Research, 1992, 52: 6270-6278.
  18. Hubcek I, Litvinova E, Peters GJ, Broekhuizen R, Haarman EG, Huismans DR. The effect of G-CSF on the in vitro cytotoxicity of Cytarabine and fludarabine in the FLAG combination in pediatric acute myeloid leukemia. Int J Oncol, 2004, 25: 1823-1829.
  19. Jones DT, Ganeshaguru K, Mitchell WA, Foroni L, Baker RJ, Prentice HG, Mehta AB, Wickremasinghe RG. Cytotoxic drugs enhance the ex vivo sensitivity of malignant cells from a subset of acute myeloid leukaemia patients to apoptosis induction by tumour necrosis factor receptor-related apoptosis-inducing ligand. Br J Haematol, 2003, 121(5): 713-720.
  20. Lewis NR, Pallis M, Russell NH. Fas receptor-Fas ligand system is independent of both CD34 status and chemosensitivity in acute myeloid leukemia. Exp Hematol, 2000, 28(5): 535-542.
  21. Lu Y, Tatsuka M, Takebe H, Yagi T. Involvement of cyclin-dependent kinases in doxorubicin-induced apoptosis in human tumor cells. Mol Carcinog, 2000, 29(1): 1-7.
  22. Jankovicova K, Krejsek J, Kopecky O, Voglova J, Skrabkova Z, Novosad J. The multidrug resistance and apoptosis evaluation in acute myeloid leukemia cells after the in vitro doxorubicin treatment. Acta Medica (Hradec Kralove), 2004, 47(3): 181-185.
  23. Cosenza M, Civallero M, Sacchi S, Marcheselli R, Pozzi S. Biological effects of Atra and Arsenic Trioxide on short term cultures of non-M3 leukemic blasts. Leuk Lymphoma, 2005, 46(2): 257-263.
  24. Zheng A. All-trans retinoic acid – induced apoptosis in acute myeloblastic leukemia cells with a special emphasis on p53, Bcl-2, and mitochondria. Oulu University Library, 2000.
  25. Ustun C, Beksac M, Dalva K, Koc H, Konuk N, Ilhan O, Ozcan M, Topcuoglu P, Sertkaya D, Hayran M. In vivo use of all-trans retinoic acid prior to induction chemotherapy improves complete remission rate and increases rhodamine 123 uptake in patients with de novo acute myeloid leukemia. Med Oncol, 2002, 19(1): 59-67.