



Abstract Book of The International Seminar on Pharmacology and Clinical Pharmacy 2016

Current Trend of Molecular Pharmacology in The Drug Development and Clinical Use



**School of Pharmacy
Institut Teknologi Bandung**

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**PROCEEDINGS OF
THE INTERNATIONAL SEMINAR ON PHARMACOLOGY AND CLINICAL PHARMACY 2016
(ISPCP 2016)**

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GREETING FROM THE DEAN OF SCHOOL OF PHARMACY ITB



Assalamualaikum wr.wb

Dear ISPCP attendees.

First of all, I would like to express my sincere thanks to all of you for participating in this International Seminar on Pharmacology and Clinical Pharmacy (ISPCP ITB 2016) with the theme of *“Current trend of molecular pharmacology in the drug development and clinical use”* which is proudly organized by School of Pharmacy Institut Teknologi Bandung.

In recent years, an enormous progress has been made in drug development and uses. Molecular pharmacology is one of the pharmaceutical sciences which has progressed rapidly. It helps scientists to delineate the mechanism of action by which the drug works in the body. This knowledge will also help clinical pharmacists in rational use of drugs.

This seminar is the first International Seminar on Pharmacology and Clinical Pharmacy which is held by School of Pharmacy ITB. On behalf of the faculty, I would like to congratulate members of ISPCP's organizing committee to be able to organize this seminar. All of you have worked hard to make this conference a reality.

This seminar will truly serve as an international forum for researchers, students, practitioners and all parties interested in pharmacology and clinical pharmacy to embrace and share a diverse range of basic studies, techniques, and experiences.

Our School of Pharmacy ITB has a vision to be the leading institution in pharmacy education, research and social services, at regional and international level. Therefore, through this seminar, we want to be able to facilitate an event to share the latest knowledge and experience particularly in the fields of pharmacology and clinical pharmacy from around the world. So what we will get through this seminar can be applied for better community services, enhancing profession in pharmacy, and of course to stimulate increased innovative, competitive and continuous research in pharmaceutical fields. Through this event, we also can to create networking in pharmacy fields.

Finally, I wish a pleasant seminar to ISPCP ITB 2016 participant and I hope that this event will continue to be held every year.

Wassalamualaikum wr.wb.

Prof. Dr. Daryono Hadi Tjahjono, M.Sc

GREETING FROM THE CHAIRMAN OF ISPCP ITB 2016



On behalf of ISPCP ITB 2016 committee, I would like to gratitude and welcome to all invited speakers, committee, participants, guests, and all contributing sponsors, and all participants, to the International Seminar on Pharmacology and Clinical Pharmacy (ISPCP ITB 2016) today.

It is a great honor for me to welcome you all in our seminar. Welcome to our beloved city Bandung, and we hope you will enjoy your time here.

This seminar is the first International Seminar on Pharmacology and Clinical Pharmacy conducted by School of Pharmacy Institut Teknologi Bandung to facilitate expert meeting and sharing knowledge and latest development on the subjects among scientists, researchers, hospital and community pharmacists, regulatory officials, members of health professional organizations, representatives from pharmaceutical industries and individuals interested in the fields. Furthermore, the event can serve as a medium to establish networking with colleagues from hospital and industry sectors. International Seminar on Pharmacology and Clinical Pharmacy (ISPCP ITB 2016) will bring up the captivating theme : *"Current trend of molecular pharmacology in the drug development and clinical use"*, as a respond to the increasing attention for new pharmaceutical product.

As we know, drug has been an essential part in human life. It is an important element in the prevention, treatment, and management of illness and the preservation of mental and physical well-being. Pharmacology is undoubtedly one of the fundamental knowledge in the development of drug; and molecular pharmacology, in particular, helps scientists to delineate the mechanism of action by which the drug works in the body. Understanding the mechanism of action of drug contributes to the rational use of drug in clinical setting to achieve the intended therapeutic goals.

In this seminar, we are fortunate to have Prof. Dr. dr. Nila Djuwita F. Moeloek, SpM (K), the Health Minister of Republic of Indonesia, as a keynote speaker. We also invited 9 more experts in various field of pharmacology and clinical pharmacy both form Indonesia or overseas, who will give their inspiring lecturers. Here, among more than 167 participants, there are more than 100 presenter will present their recent research finding either as oral presenter or poster presenter, which are divided into two big topics: pharmacology and clinical pharmacy. Our high appreciation and sincere gratitude are delivered to all speakers and presenters who enthusiastically participate in our seminar.

The organizing committee deeply acknowledge, The Rector of Institut Teknologi Bandung as well as to all of our sponsors for the invaluable supports to the seminar. As the chairman of the committee, I personally would like to express our high appreciation and gratitude to all team members who has put all the hard work, dedication, and extraordinary efforts for the success of the seminar.

Finally, while the event will serve as a means to showcase the recent development as well as findings in the area of pharmacology and clinical pharmacy, it is expected that results of the seminar will contribute significantly to public welfare. We also hope that all participants could gain benefit from this event and we wish you an enjoyable moment in Bandung.

Chairman
Dr. I Ketut Adnyana

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SCHEDULE

Day 1: Thursday (September 1, 2016)	
08.00 – 08.30	Registration
08.30 – 09.40	Opening Ceremony :
08.40 – 08.50	Welcome dance
08.50 – 09.00	Report of Chairman
09.00 – 09.15	Rector of Institut Teknologi Bandung
	Opening Speech by Health Minister, Republic of Indonesia
09.15 – 09.45	Keynote Speaker Health Minister of Republic of Indonesia
09.45 – 10.00	Coffee break (Pharmacoustic)
10.00 – 10.30	Plenary lecture 1 Prof. Ikuo Saiki, PhD (Toyama University, Japan)
10.30 – 11.00	Plenary lecture 2 Raymond Tjandrawinata, PhD (Dexa Medica, Indonesia)
11.00 – 11.30	Plenary lecture 3 Dr. Dan Gubler, Ph.D. (Unicity International, USA)
11.30 – 12.00	Discussion
12.00 – 13.00	Lunch
13.00 – 13.30	Plenary lecture 4 Prof. Dr. Gert Storm (Utrecht University, Netherlands)
13.30 – 14.00	Plenary lecture 5 Dra. Yulia Trisna, M.Pharm, Apt (Dr. Cipto Mangunkusumo National Hospital)
14.00 – 14.15	Discussion
14.15 – 15.15	Poster Presentation Session I
15.15 – 15.30	Coffee break
15.30 – 16.30	Oral Presentation Session I
	Gala Dinner (optional)

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Day 2 : Friday (September 2, 2016)	
08.00 – 08.30	Plenary lecture 1 Assoc. Prof. Kenichi Ogawara (Okayama University, Japan)
08.30 – 09.00	Plenary lecture 2 Dr. Neni Nurainy (PT. Bio Farma, Indonesia)
09.00 – 09.30	Discussion
09.30 – 09.45	Coffee break
09.45 – 10.15	Plenary lecture 3 Prof. Jeff Hughes (Curtin University, Australia)
10.15 – 10.45	Plenary lecture 4 Assoc. Prof. Maria Immaculata Iwo (ITB, Indonesia)
10.45 – 11.15	Discussion
11.15 – 13.00	Lunch
13.00 – 14.00	Oral Presentation Session II
14.00 – 15.00	Oral Presentation Session III
15.00 – 15.15	Coffee break
15.15 – 16.15	Oral Presentation Session IV
16.15 – 16.30	Closing Ceremony and Award Presentation

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12.	PO-PY-012	Acute Toxicity of Liman (Elephantopus scaber L.) Leaves Extract and Coriander (Coriandrum sativum L.) Seed Extract	Meti Widiya Lestari, Andreanus A Soemardji, Irda Fidrianny, Ayda T Yusuf
13.	PO-PY-013	Cytotoxic Activity of Detam Soybean and Jati Belanda (Guazuma ulmifolia) Extracts on SV40 MES 13 Cell	Meilinah Hidayat, Sijani Prahatusti, Andreanus A Soemardji, Dwi Davidson Rihibiha, Merry Afni, Ervi Afifah, Wahyu Widowati
14.	PO-PY-014	Anti-obesity effect Solanum betaceum Cav extract in mice	Dytha Andri Deswati, Sri Maryam, Erliana Fatmawati3
15.	PO-PY-015	Hepatoprotective Activity Of Water Extract Of Mexican Sunflower Against Paracetamol Induced Hepatotoxicity In Rats	Puspa Sari Dewi, Soraya Riyanti
16.	PO-PY-016	Effect Of Oral Administration Of Ethanol Extract Of Roselle Calyx (Hibiscus sabdariffa L) On Kidney And Liver Function On Wistar Rats	Wahyuningsih S, Sukandar EY, Sukrasno
17.	PO-PY-017	Acute Toxicity Studies on Combination of k-Carrageenan and Glucomannan as Soft Capsule Shell	Ni Nyoman Wiwik Sutrisni, Lucy Sasongko, I Ketut Adnyana, Sundani Nuroso Soewandhi

Cytotoxic Activity of Detam 1 Soybean and Jati Belanda (*Guazuma ulmifolia*) Extracts on SV40 MES 13 Cell

Meilinah Hidayat¹, Sijani Prahatusti¹, Andreanus A Soemardji², Dwi Davidson Rihibiha³,

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Background: The amount of Diabetes mellitus patients in Indonesia is predicted to be continually increasing. Lifestyle and pancreatic dysfunction in producing insulin, have been known as the main causes. Furthermore, diabetes mellitus type 1 and 2 can progressively develop, resulting in complication known as “diabetic glomerulosclerosis”. Diminished glomerular basement membrane causes failure in urine filtration, that causes presence of albumin in urine. Natural sources in Indonesia has been reported to contain bioactive compounds that possess medicinal properties. Jati Belanda (*Guazuma ulmifolia*) and Detam 1 soybean has been known to act as antiobesity and antidiabetes due to presence of its secondary metabolite. **Objectives:** This study aimed to determine cytotoxic activity of extract of Detam 1 soybean, Jati Belanda, and combination of extracts, toward SV40 MES 13 cell (Glomerular Mesangial Kidney, *Mus musculus*). **Methods:** Cytotoxic activity was measured with 3-(4,5-dimethylthiazol-2-yl)-5-(3-carboxymethoxyphenyl)-2-(4-sulfophenyl)-2H-tetrazolium(MTS) assay. Concentrations used were 3.125, 6.25, 12.5, 25, 50, and 100 µg/mL. **Results:** Both Jati Belanda and Detam 1 soybean extract at concentration of 3.125, 6.25, and 12.5 µg/mL showed no toxicity toward SV40 MES 13 cell, as indicated by >90% viable cells, whilst at concentration of 25, 50, and 100 µg/mL showed toxicity, as indicated by <90% viable cells. The combination of extracts showed no toxicity only at low concentration (3.125 µg/mL). **Conclusion:** Thus, Jati Belanda and Detam 1 soybean extract at concentration of 3.125, 6.25, 12.5 µg/mL and the combination of extracts at 3.125 µg/mL were considered safe toward SV40 MES 13 cell.

Keywords: Diabetic glomerulosclerosis, Jati Belanda, Detam 1 Soybean, SV40 MES 13 cell.

Background

Diabetes mellitus type 1 and 2 can later develop, resulting in complication known as "diabetic glomerulosclerosis". The kidney function becomes worsened if this condition are not well treated. Diminished glomerular basement membrane causes failure in urine filtration, that causes presence of albumin in urine. The previous study, subchronic toxicity test of combination extract of Detam 1 soybean and jati Belanda leaves, showed that after treatment the administration of combination of both extract s, the kidney function level (Blood Urea Nitrogen and creatinine level) of Wistar Rats are better (lower) than the negative control group. The best result of kidney function level was the high dose group (600 mg/kgBW).

Natural sources in Indonesia has been reported to contain bioactive compounds that possess medicinal properties. Jati Belanda (*Guazuma ulmifolia*) and Detam 1 soybean (*Glycine max*) has been known to act as antiobesity and antilipidemia due to presence of its secondary metabolite.

The aim of this study is to determine cytotoxic activity of extract of Detam 1 soybean, Jati Belanda, and combination of both extracts as a protective agent in SV40 MES 13 cell (Glomerular Mesangial Kidney, *Mus musculus*) induced kidney glucose as an in vitro diabetic glomerulosclerosis.

Methodology

Cytotoxic Activity of ethano extrcat of Detam 1 soybean (EEDS) and ethanol extract of Jati Belanda leaves (EEJB) toward SV40 MES 13 cell (Glomerular Mesangial Kidney, *Mus musculus*) using MTS test.

The principal of MTS test

MTS indirectly measures on products of coloured compound produced by the interaction of reagen and viable cells. MTS is a tetrazolium component [3-(4,5 - dimetiltiazol - 2 - yl) -5- (3 - karboksimtoksifenil) - 2 - (sulfophenyl) - 2 H - tetrzolium, saltform, MTS]. MTS tetrazolium component is rduced by forming cells formazen colored product soluble in the culture medium. Total formazen colored product is measured by spectrophotometer from absorbance at wavelength Of 490 nm, whereby absorption product is equivalent to the number of viable cells in the culture.

Step 1. SV40 MES 13 cells culture

Sample:

Growth Medium: DMEM : F-12K Mix Nutrient +14Mm HEPES (1:3), 5% FBS, 1% PenStrep

Tools:

Centrifuge Tube, CentriStar Cap 15 ml, TC Flask 25 cm Vent Cap, Blue tip (100-1000 μ L), Yellow tip (10-100 μ L), White tip (2-10 μ L), Serological Pippet 10 mL, Serological Pippet 5 mL, Refrigerated Centrifuge, Microscope Inverted

Procedures:

Macrophage murine cell SV40 MES 13 were grown in DMEM supplemented with 20% FBS, 100U/ml penicillin, 100 μ g/ml streptomycin. Cells were maintained at 37°C humidified atmosphere incubator with 5% CO₂ until the cells were confluent. Cells were washed and harvested using Trypsin-EDTA. Cells centrifuged at 2500rpm for 4 minutes. Dispose supernatant and resuspend the pellet then added to new T flask containing fresh medium (Kang *et.al.* 201; Yoon *et.al.*, 2009).

Step 2. Cytotoxic Activity

Sample:

Sel SV40 MES 13 (ATCC® CRL1927™) Aretha Medika Utama BBRC, DMEM (Gibco), F-12 K Mix Nutrient (Gibco), 14 Mm HEPES (Sigma), 5% FBS (Gibco), 1% PenStrep (BioWest), Cell Titer 96 Aqueous One Solution Cell Proliferation Assay (MTS: 3-(4,5-dimethylthiazol-2-yl)-5-(3-carboxymethoxyphenyl)-2-(4-sulfophenyl)-2H-tetrazolium) assay (Promega, G3581)

Tools:

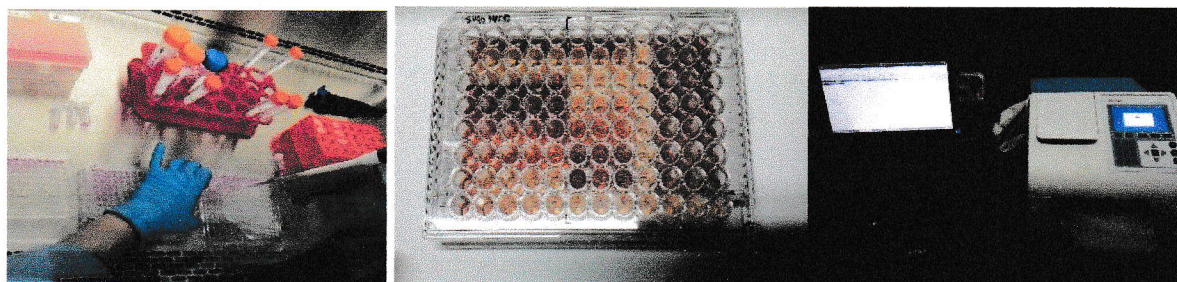
Centrifuge Tube, CentriStar Cap, 15 ml, TC Flask 25 cm Vent Cap, Blue tip (100-1000 μ L), Yellow tip (10-100 μ L), White tip (2-10 μ L), 96 well plate, Refrigerated Centrifuge, Microscope Inverted

Concentration test

- a. working solution : 1000; 500; 250; 125; 62,5; 31,25 (ug/ml)
- b. final concentration : 100; 50; 25; 12,5; 6,25; 3,125 (ug/ml)
- c. kombinasi ekstrak Jati Belanda dan Kedelai Detam (2:1)

Procedures

Amount of confluent SV40 MES 13 cell: 5×10^3 cell /well were put with in 96 well plate which has contained EEJB and EEDS, DMEM+10%FBS, then plate are incubated at 37°C humidified atmosphere incubator with 5% CO₂. After that replaced the medium (free FBS). Incubating for 24 hours, after that the SV40 MES 13 cell were treated with EEJB and EEDS in 3.125, 6.25, 12.5, 25, 50, and 100 µg/mL. Incubating for 24 hours, and checked the cells viability using MTS, and measured the absorbance at 490 nm.

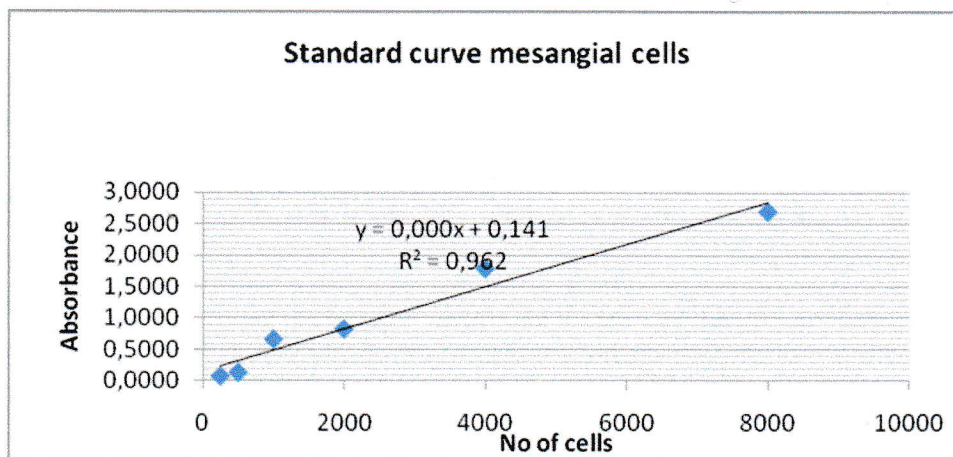


Results:

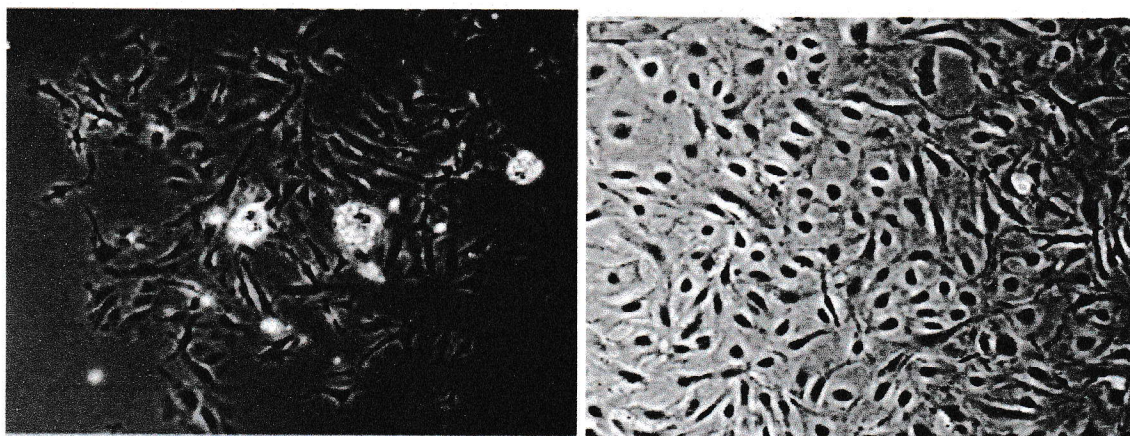
First we must make standard curve, which result is fulfill the requirement. The result R^2 is almost nearly 1.000 , that is 0.962.

Abs	1	2	3	4	5	6	7	8
A	1,4998	1,7074	1,5779	0,1830	2,1926	2,0870	2,1952	0,0640
B	1,6530	2,1597	2,0054	0,1830				
C	1,9998	1,9412	2,0724	0,1952				
D	2,0534	2,0117	2,0208	0,2479				
E	2,0352	2,0603	2,0786	0,2164				
F	2,0636	2,1842	2,1452	0,1931				
G	2,2194	2,2352	2,3972	0,1886				

Jumlah sel	Ulangan					Blank	Corrected					Average
	1	2	3	4	5		1	2	3	4	5	
8000	3,0578	3,0876	3,0329	3,0672	3,0017	0,3552	2,7026	2,7324	2,6777	2,7120	2,6465	2,6942
4000	2,1011	2,1655	2,1245	2,1686	2,1482	0,3552	1,7459	1,8103	1,7693	1,8134	1,7930	1,7864
2000	1,1809	1,1497	1,2053	1,1918	1,1774	0,3552	0,8257	0,7945	0,8501	0,8366	0,8222	0,8258
1000	0,9625	1,0020	1,0245	1,0929	1,0069	0,3552	0,6073	0,6468	0,6693	0,7377	0,6517	0,6626
500	0,5626	0,5134	0,5985	0,3978	0,3769	0,3552	0,2074	0,1582	0,2433	0,0426	0,0217	0,1346
250	0,4112	0,4292	0,4075	0,4589	0,4520	0,3552	0,0560	0,0740	0,0523	0,1037	0,0968	0,0766



Morphology SV40 MES 13



Sakairi, et al., 2010

Tabel 1. Cytotoxic activity of ethanol extract of Detam 1 soybean (EEDS) toward SV40 MES 13 cell

Samples	No. of cells	Viability cells (%)
Control	10579±1065	100,00±11,93
EEDS 100 µg/mL	9098±351	83,24±3,94
EEDS 50 µg/mL	9522±246	87,22±2,76
EEDS 25 µg/mL	9641±121	89,56±1,35
EEDS 12,5 µg/mL	9670±259	90,23±2,90
EEDS 6,25 µg/mL	10045±43	94,38±0,48
EEDS 3,125 µg/mL	10318±136	97,25±1,53

Tabel 2. Cytotoxic activity of ethanol extract of Jati Belanda leaves (EEJB) toward SV40 MES 13 cell

Samples	No. of cells	Viability cells (%)
Control	10579±1065	100,00±11,93
EEJB 100 µg/mL	6666±186	55,93±2,08
EEJB 50 µg/mL	7784±305	67,76±3,41
EEJB 25 µg/mL	9394±538	86,66±6,03
EEJB 12,5 µg/mL	9708±470	90,68±5,27
EEJB 6,25 µg/mL	9962±157	93,24±1,76
EEJB 3,125 µg/mL	10152±74	94,82±0,82

In concentration of 3.125, 6.25, and 12.5 µg/mL showed no toxicity toward SV40 MES 13 cell, (>90% viable cells). In concentration of 25, 50, and 100 µg/mL showed toxicity (<90% viable cells).

Table 3. Cytotoxic activity of combination ethanol extract of Detam 1 soybean (EEDS) and ethanol extract of Jati Belanda leaves (EEJB) toward SV40 MES 13 cell

Samples	No. of cells	Viability Cells (%)
Control	7457±328	100,00±4,40
Kontrol DMSO	7038±206	94,38±2,76
JBDS 100 µg/ml	5161±350	69,21±4,69
JBDS 50 µg/ml	6309±866	84,60±11,61
JBKDS 25 µg/ml	6526±219	87,51±2,94
JBDS 12,5 µg/ml	6606±73	88,59±0,98
JBDS 6,25 µg/ml	6704±73	89,90±0,97
JBDS 3,125 µg/ml	6947±205	93,17±2,75

Combination ethanol extract of Detam 1 soybean (EEDS) and ethanol extract of Jati Belanda leaves (EEJB) In concentration of 3.125 µg/mL showed no toxicity toward SV40 MES 13 cell, (>90% viable cells).

Conclusion:

- Ethanol extract of Detam 1 soybean (EEDS), ethanol extract of Jati Belanda leaves (EEJB) in concentration of 3.125, 6.25, and 12.5 µg/mL and
- Combination of both extracts in concentration of 3.125 µg/mL were considered safe toward SV40 MES 13 cell.

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