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APPENDICES

APPENDICES A

List of chemicals and materials used in the study

Chemicals	Sources
Granulocyte colony stimulating factor (G-CSF)	Roche Thailand Ltd
Sucrose	Sigma
TES	Gibthai
EGTA	Sigma
Sodium bicinchoninate	Sigma
$Na_2CO_3.H_2O$	Sigma
Sodium tartrate (dihydrate)	Sigma
NaOH	Merck
$NaHCO_3$	Sigma
$CuSO_4.5H_2O$	Sigma
Potassium chloride (KCl)	Sigma

HEPES	Sigma
KH_2PO_4	Sigma
The dye 5,5′,6,6′-tetrachloro-1,1′,3,3′-	Sigma
Tetraethylbenzimidazolcarbocyanine iodide (JC-1)	Sigma
Dichlorohydro-fluorescein diacetate (DCFDA)	Sigma
Dimeththyl sulfoxide (DMSO)	Sigma
CsA	Sigma
4'-Cl-DZP	Sigma

APPENDICES B

List of instruments used in the study

Instruments	Company
Automatic pipette	Gibthai
Balance	Mettler-Toledo
Carbon dioxide incubator	SHEL LAB
Centrifuge	Sigma
Deionized-water manufacturing machine promotion	Scientific
Light microscope	Gibthai
Transmission electron microscope	Gibthai
Fluorescent microplate reader	Biotex
Pasteur pipette	Pyrex
PH meter	Gibthai
Spectrofluorometer	Shimadzu
Sterile tube (15 and 50 ml)	NEPTUNE
Vortex mixture	Wisemix

Water bath	Gibthai
Homogenizer	BECTHAI
96-well plate	Nunclon

APPENDIX C

Preparation of some chemicals and buffers

1. **G-CSF**

Trade name: Neupogen

Other names: G-CSF, granulocyte-colony stimulating factor

G-CSF is used to stimulate the production of granulocytes (a type of white blood cell) in patients undergoing therapy that will cause low white blood cell counts. This medication is used to prevent infection and neutropenic (low white blood cells) fevers caused by chemotherapy.

How G-CSF is given:

- G-CSF may be given by subcutaneous (the layer between the skin and muscle) injection or infused into a vein (intravenous, IV).

- G-CSF is generally given on a daily basis. The number of days you receive filgrastim will be prescribed by your doctor.

Side effect:

1. Most people do not experience all of the side effects listed.

2. Side effects are often predictable in terms of their onset and duration.

3. Side effects are almost always reversible and will go away after treatment is complete.

4. There are many options to help minimize or prevent side effects.

5. There is no relationship between the presence or severity of side effects and the effectiveness of the medication.

2. DCFDA

Reactive oxygen species (ROS) were detected with the dichlorohydro-fluorescein diacetate (DCFDA). DCFDA, a redox-sensitive fluorescent probe, was purchased from (Sigma). DCFDA passes through cell membranes where it is cleaved by esterases to DCF and becomes activated by oxidation. Fluorescence of the samples was measured using a fluorescent microplate reader.

3. Dye 5,5′,6,6′-tetrachloro-1,1′,3,3′-tetraethylbenzimidazolcarbocyanine iodide (JC-1)

JC-1, a redox-sensitive fluorescent probe, was purchased from (Sigma) for study protocol. JC-1 was dissolved in dimethyl sulphoxide (DMSO), fractionated in small aliquots and stored at -20°C. This fluorescent dye was equipped with two separate photomultipliers for collecting simultaneously fluorescence emitted at two different wavelengths during study.

4. Isolated buffer

Isolated buffer contains sucrose 300 mM, TES 5 mM and EGTA 0.2 mM (pH 7.2) (4°C).

5. Respiration buffer

Respiration buffer (containing 100 mM KCl, 50 mM sucrose, 10 mM HEPES, and 5 mM KH_2PO_4 (pH 7.4) (37°C).

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