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APPENDICES

APPENDIX A

List of chemicals and instruments

All chemicals used in the experiments were analytical grade. Names and sources of chemicals are listed below.

1.1 Chemicals

Chemicals	**Sources**
Absolute ethanol (C_2H_5OH)	BDH Laboratory
Agarose	Vivantis
Biochemical	
Choloform	BDH Laboratory
Carboxy methyl cellulose	Sigma Chemical
Co	
Dimethyl sulfoxide (DMSO) ($(CH_3)_2SO$)	Amersco Inc.
Ethidium bromide ($C_{21}H_2ON_{36}Br$)	Sigma Chemical
Co.	
Ethylene diamine tetra acetic acid (EDTA)	Gibco
Formaaldehyde solution	LAB-SCAN
Hydrochloric acid (HCl)	Merck
Isopropanol	BDH Laboratory
Potassium cholide (KCl)	Merck
Potassium dihydrogen phosphate (KH_2PO_4)	Fluka chemika
Sodium chloride (NaCl)	BDH Laboratory
Sodium hydroxide (NaOH)	BDH Laboratory
Sodium hydrogen carbonate ($NaHCO_3$)	Fluka chemika
di-Sodium hydrogen phosphate anhydrous (Na_2HPO_4)	Corlo Erba

1.2 Instruments

Instruments	**Sources**
Autoclave	Kokusan
Autopipette 0.5-10 µL	Jencons
Autopipette 5-50 µL	Jencons
Autopipette 50-200 µL	Jencons

Autopipette 100-1000 µL	Jencons
CO_2 incubator	Scientific
Promotion	
Gene Amp PCR System 2400	Perkin-Elmer
Hot air oven	WT binder
Lamina flow	Gelaire
Laboratories	
LightCycler® 480 System	Roche
Inverted fluorescence microscope	Hollywood
International	
Microcentrifuge	New England
BioLabs	
Microwave	Turbora
Multichannel autopipette	BioHit proline
pH meter	Fisher Scientific
Pipette Aid	Drummond
Refrigerated centriuge	Beck man
Spectrophotometer	Ultraspec

APPENDIX B

Reagents for Cell Culture

I. Reagents for cell culture: LLC-MK2

1. **1X OMEM (Opti-MEM; Gibco-BRL,Gaithersburg,MD)**
2. **Fetal Bovine Serum (Gibco®; Invitrogen™, Carlsbad, CA)**
3. **Antibiotics stock**

3.1 Penicillin 200,000 units/mL (100,000 units/ aliquot)

Penicillin	1,000,000 units
Sterile water	5 mL

Aliquot 500 µL/tube and use 500 µL to media 1,000 mL
(working= 100 units/mL)

3.2 Streptomycin 200,000 µg/mL (1,000,000 µg/ aliquot)

Streptomycin	1 g
Sterile water	5 mL

Aliquot 500 µL /tube and use 500 µL to media 1,000 mL
(working= 100 µg/mL)

3.3 Gentamicin (40 mg/aliquot)

Gentamicin 80 mg/2 mL	1 ampule

Aliquot 1 mL/tube and use 1 tube to media 1,000 mL
(working= 40 mg/mL)

3.4 Fungizone 5,000 µg/mL (2,500 µg/ aliquot)

Fungizone (1 vial)	50 mg
Sterile water	10 mL

Aliquot 500 µL /tube and use 500µL to media 1,000 mL
(working= 2.5 µg/mL)
Don't forget protection of fungizone will be labile with cover tube

4. **Phosphate buffered saline (PBS) (1X) pH 7.5**

NaCl	8.00 g
KCl	0.20 g
KH_2PO_4	0.12 g
Na_2HPO_4 (anhydruos)	0.91 g
Deionized distilled water to	1,000 mL

Autoclave 121°C, 15 lb, 15 min and store at 4°C

5. **0.25 % Trypsin-EDTA 1:5,000**

Trypsin powder (1:300)	0.25 g
EDTA	0.02 g
PBS 1X pH 7.5	100 mL

The solution is passed through ash-free filter paper, then sterile by Millipore filtration and store at 4°C

6. **Opti-MEM (1X)**

Opti-MEM powder	
Deionized distilled water	1,000 mL
$NaHCO_3$	2 g

The solution is passed through filter paper, then sterile by Millipore filtration and store at 4°C

7. **2%FBS+OMEM(1X) 100 ml**

Opti-MEM medium solution	98 mL
Fetal bovine serum (FBS)	2 mL

II. Reagents for cell culture: C6/36 cell

1. **FBS (Gibco®; Invitrogen™, Carlsbad, CA)**
2. **HEPES buffer 1 M**

HEPES	23.53 g
Deionized distilled water	100.0 ml

Sterilize by Millipore filtration and store at 4°C

3. **1X Leibovitz (L-15) (Gibco; Invitrogen Co, Grand Island, New York, U.S.A)**

L-15 medium powder	
Deionized distilled water	1,000 mL
$NaHCO_3$	2 g
1 M HEPES	10 mL

The solution is passed through filter paper, then sterile by Millipore filtration and store at 4°C

4. 10% tryptose phosphate broth

Tryptose phosphate broth poeder	2.95 g
Deionized distilled water	100 mL

Autoclave 121°C, 15 lb, 15 min and store at 4°C

5. 10%FBS+10% TPB+L-15 medium (1X) 100 ml

L-15 medium solution	80 mL
Fetal bovine serum (FBS)	10 mL
Tryptose phosphate broth	10 mL

III. Reagents for cell culture: A549 cell

1. FBS (Gibco®; Invitrogen™, Carlsbad, CA)

2. 1X RPMI mediym 1640 (Gibco; Invitrogen Co, Grand Island, New York, U.S.A)

RPMI powder	
Deionized distilled water	1,000 mL
$NaHCO_3$	2 g
1 M HEPES	10 mL

The solution is passed through filter paper, then sterile by Millipore filtration and store at 4°C

3. 10%FBS+RPMI medium 1640 100 mL

RPMI medium 1640 solution	90 mL
Fetal bovine serum (FBS)	10 mL

APPENDIX C

Components and Reagents for RNA Extraction and Reverse transcriptase Polymerase Chain Reaction (RT-PCR)

I. Reagents for RNA extraction

Geneaid viral nucleic acid extraction kit II for DV2 strain 16681 RNA extraction

VB lysis buffer

VD buffer

W1 buffer

Absolute ethanol

RNase-free water

II. Reagents for PCR

SuperScript™III One-Steo RT-PCR System with Platinum® taq DNA polymerase

SuperScript™III RT/Platimum® Taq mix

2X Reaction mix buffer (0.4 mM dNTP, 3.2 mM $MgSO_4$)

10 μM of each primers for DV2

Sterile distilled water

APPENDIX D

Components and Reagents for Electrophoresis

I. Reagents for agarose gel electrophoresis

1. 1.5% Agarose gel preparation

Agarose	1.5 g
0.5X TAE	100 mL

2. Loading dye

Bromophenol blue	0.125 g
Glycerol	15 mL
10X TAE	30 mL

3. 10X TAE

Trisma base	48.4 g
Glacial acetic acid	11.4 mL
0.5 EDTA pH 8.0	20 mL

Add H_2O to a final volume of 1,000 mL

4. 0.5 M EDTA (pH 8.0) 100 ml

EDTA	13.6 gm
Distilled water	100 mL

Adjust to pH 8.0 with 1M NaOH and autoclave 121°C, 15 lb, 15 min store at room temperature

5. Ethidium bromide (10 mg/ml)

Ethidium bromide	1 g

Add H_2O to a final volume of 100 mL

APPENDIX E

Components and Reagents for RNA Extraction and Real Time Polymerase Chain Reaction (Real Time - PCR)

I. Reagents for RNA extraction

1. Preparation DEPC-treated water

DEPC 100 µL

Distilled water 100 mL

Shake vigorously to bring the DEPC into solution, incubate for 12 h at 37°C. Autoclave 121°C, 15 lb, 15 min to remove any trace of DEPC.

2. RNA extraction

TRIZOL® Reagent for total RNA extraction

TRIZOL® reagent

Ethanol

Chloroform

Isopropanol

75% Ethanol (in DEPC – treated water)

RNase – free water

II. Reagents for syntesis RNA to DNA

SuperScript™ III First-Strand Synthesis Sytem for synthesie first-strand cDNA

Random hexamer (primer)

10 mM dNTP mix

DEPC-treated water

10X RT-buffer

25 mM $MgCl_2$

0.1 M DTT

RNaseOUT™

SuperScript™ III RT

RNase H

III. Reagents for Real Time PCR (RT-PCR)

cybr green; LightCycler® 480 SYBR Green I Master (Roche; California, USA.)

10 µM Primer

distilled water

10X SYBR Green mix buffer

RESEARCH PRESENTATION

Sujittrapron Sittiso, Tipaya Ekalaksananan[1], Chamsai Pientong[1], Santi Sakdarat[2], Nicha Charoensri[3] Bunkerd Kongyingyoes[4] (2010, October 12-15). Effects of compounds from *Clinacanthus nutans* on dengue virus type 2 infection. The 26th Medical Research Conference, Khon Kaen University 2010, Khon Kaen, Thailand. (Poster presentation).

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