

รายการอ้างอิง

- [1] Horimoto T, Kawaoka Y. Influenza: lessons from past pandemics, warnings from current incidents. Nat Rev Microbiol. 2005 Aug; 3(8): 591-600.
- [2] Palese P. Influenza: old and new threats. Nat Med. 2004 Dec; 10: S82-7.
- [3] Nicholson KG, Wood JM, Zambon M. Influenza. Lancet. 2003 Nov 22; 362(9397): 1733-45.
- [4] Fouchier RA, Munster V, Wallensten A, Bestebroer TM, Herfst S, Smith D, Rimmelzwaan GF, Olsen B, Osterhaus AD. Characterization of a novel influenza A virus hemagglutinin subtype (H16) obtained from black-headed gulls. J Virol. 2005; 79: 2814-22.
- [5] Wong SS, Yuen KY. Avian influenza virus infections in humans. Chest. 2006 Jan; 129(1): 156-68.
- [6] Beigel JH, Farrar J, Han AM, Hayden FG, Hyer R, de Jong MD, Lochindarat S, Nguyen TK, Nguyen TH, Tran TH, Nicoll A, Touch S, Yuen KY; Writing Committee of the World Health Organization (WHO) Consultation on Human Influenza A/H5. Avian influenza A (H5N1) infection in humans. N Engl J Med. 2005 Sep 29; 353(13): 1374-85.
- [7] World Health Organization. Cumulative Number of Confirmed Human Cases of Avian Influenza A(H5N1) Reported to WHO. (cited date 20 April 2006). Available from: http://www.who.int/csr/disease/avian_influenza/country/cases_table_2007_04_11/en/index.html
- [8] Simmerman JM, Lertiendumrong J, Dowell SF, Uyeki T, Olsen SJ, Chittaganpitch M, Chunsutthiwat S, Tangcharoensathien V. The cost of influenza in Thailand. Vaccine. 2006 May 15; 24(20): 4417-26.
- [9] ศูนย์วิทยบริการ. สธ. เตือนภัย ไข้หวัดใหญ่ระบาด 4 จว. สำนักงานคณะกรรมการอาหารและยา กระทรวงสาธารณสุข (อ้างอิงเมื่อ 20 เมษายน 2550) Available from: http://elib.fda.moph.go.th/library/default.asp?page=news_detail&id=7347 [26 มกราคม 2550]

- [10] Payungporn S, Phakdeewirot P, Chutinimitkul S, Theamboonlers A, Keawcharoen J, Oraveerakul K, Amonsin A, Poovorawan Y. Single-step multiplex reverse transcription-polymerase chain reaction (RT-PCR) for influenza A virus subtype H5N1 detection. *Viral Immunol.* 2004; 17: 588-93.
- [11] V D Hoeven AM, Scholing M, Wever PC, Fijnheer R, Hermans M, Schneeberger PM. Lack of discriminating signs and symptoms in clinical diagnosis of influenza of patients admitted to the hospital. *Infection.* 2007 Apr; 35(2): 65-8.
- [12] Petric M, Comanor L, Petti CA. Role of the laboratory in diagnosis of influenza during seasonal epidemics and potential pandemics. *J Infect Dis.* 2006 Nov 1; 194 Suppl 2: S98-110.
- [13] Uyeki TM. Influenza diagnosis and treatment in children: a review of studies on clinically useful tests and antiviral treatment for influenza. *Pediatr Infect Dis J.* 2003 Feb; 22(2): 164-77.
- [14] Dwyer DE, Smith DW, Catton MG, Barr IG. Laboratory diagnosis of human seasonal and pandemic influenza virus infection. *Med J Aust.* 2006 Nov 20; 185(10 Suppl): S48-53.
- [15] Harris A, Heymann B, Steven A C. Influenza virus biology. *Influenza Virus Resource.* (cited date 20 April 2006). Available from: <http://www.ncbi.nlm.nih.gov/genomes/FLU/flubiology.html>
- [16] The National Institute of Allergy and Infectious Diseases. Scheme of Influenza A virus replication. *Influenza Virus Resource* (cited date 20 April 2006). Available from: http://www.ncbi.nlm.nih.gov/genomes/VIRUSES/virusreplication_scheme.html[June 8, 2006]
- [17] Puthavathana P, Auewarakul P, Charoenying PC, Sangsiriwut K, Pooruk P, Boonnak K, Khanyok R, Thawachsupa P, Kijphati R, Sawanpanyalert P. Molecular characterization of the complete genome of human influenza H5N1 virus isolates from Thailand. *J Gen Virol.* 2005; 86: 423-33.

- [18] Van Riel D, Munster VJ, de Wit E, Rimmelzwaan GF, Fouchier RA, Osterhaus AD, Kuiken T. H5N1 Virus Attachment to Lower Respiratory Tract. Science. 2006; 312: 399.
- [19] Shinya K, Ebina M, Yamada S, Ono M, Kasai N, Kawaoka Y. Avian flu: influenza virus receptors in the human airway. Nature. 2006; 440: 435-6.
- [20] Kuiken T, Holmes EC, McCauley J, Rimmelzwaan GF, Williams CS, Grenfell BT. Host species barriers to influenza virus infections. Science. 2006; 312: 394-7.
- [21] กุลกัญญา โชคไพบูลย์กิจ. ลักษณะทางคลินิกในคน. ใน ภาวะพ่น้ำ ภัทรโกศล และประเลื้อฐ เอื้ออรกุล, บรรณาธิการ, ไข้หวัดใหญ่/ ไข้หวัดนก, หน้า 94-103. กรุงเทพมหานคร: สมาคมไวรัสวิทยา, 2549
- [22] Chotpitayasunondh T, Ungchusak K, Hanshaoworakul W, Chunsuthiwat S, Sawanpanyalert P, Kijphati R, Lochindarat S, Srisan P, Suwan P, Osotthanakorn Y, Anantasetagoon T, Kanjanawasri S, Tanupattarachai S, Weerakul J, Chaiwirattana R, Maneerattanaporn M, Poolsavathitikool R, Chokephaibulkit K, Apisarnthanarak A, Dowell SF. Human disease from influenza A (H5N1), Thailand, 2004. Emerg Infect Dis. 2005 Feb; 11(2): 201-9.
- [23] Minosse C, Selleri M, Zaniratti MS, Lauria FN, Puro V, Carletti F, Cappiello G, Gualano G, Bevilacqua N, Capobianchi MR. Improved detection of human influenza A and B viruses in respiratory tract specimens by hemi-nested PCR. J Virol Methods. 2007 May; 141(2): 225-8.
- [24] Phipps LP, Essen SC, Brown IH. Genetic subtyping of influenza A viruses using RT-PCR with a single set of primers based on conserved sequences within the HA2 coding region. J Virol Methods. 2004 Dec 1; 122(1): 119-22.
- [25] Yea C, Adachi D, Johnson G, Nagy E, Gharabaghi F, Petric M, Richardson SE, Tellier R. Design of a single tube RT-PCR assay for the diagnosis of human infection with highly pathogenic influenza A(H5) viruses. J Virol Methods. 2007 Feb; 139(2): 220-6.
- [26] Freymuth F, Vabret A, Cuvillon-Nimal D, Simon S, Dina J, Legrand L, Gouarin S, Petitjean J, Eckart P, Brouard J. Comparison of multiplex PCR assays and conventional techniques for the diagnostic of respiratory virus infections in

- children admitted to hospital with an acute respiratory illness. J Med Virol. 2006 Nov; 78(11): 1498-504.
- [27] Stockton J, Ellis JS, Saville M, Clewley JP, Zambon MC. Multiplex PCR for typing and subtyping influenza and respiratory syncytial viruses. J Clin Microbiol. 1998 Oct; 36(10): 2990-5.
- [28] Bellau-Pujol S, Vabret A, Legrand L, Dina J, Gouarin S, Petitjean-Lecherbonnier J, Pozzetto B, Ginevra C, Freymuth F. Development of three multiplex RT-PCR assays for the detection of 12 respiratory RNA viruses. J Virol Methods. 2005; 126: 53-63.
- [29] Xie Z, Pang YS, Liu J, Deng X, Tang X, Sun J, Khan MI. A multiplex RT-PCR for detection of type A influenza virus and differentiation of avian H5, H7, and H9 hemagglutinin subtypes. Mol Cell Probes. 2006 Jun Aug; 20(3-4): 245-9.
- [30] Chaharaein B, Omar AR, Aini I, Yusoff K, Hassan SS. Detection of H5, H7 and H9 subtypes of avian influenza viruses by multiplex reverse transcription-polymerase chain reaction. Microbiol Res. 2007 Feb 28
- [31] Daum LT, Canas LC, Schadler CA, Ujimori VA, Huff WB, Barnes WJ, Lohman KL. A rapid, single-step multiplex reverse transcription-PCR assay for the detection of human H1N1, H3N2, and B influenza viruses. J Clin Virol. 2002 Dec; 25(3): 345-50.
- [32] Poddar SK. Influenza virus types and subtypes detection by single step single tube multiplex reverse transcription-polymerase chain reaction (RT-PCR) and agarose gel electrophoresis. J Virol Methods. 2002; 99: 63-70.
- [33] Auewarakul P, Sangsiriwut K, Chaichoune K, Thititanyanont A, Wiriyarat W, Songserm T, Ponak-Nguen R, Prasertsopon J, Pooruk P, Sawanpanyalert P, Ratanakorn P, Puthavathana P. Surveillance for reassortant virus by multiplex RT-PCR specific for eight genomic segments of avian influenza A H5N1 viruses. J Clin Microbiol. 2007 Mar 21
- [34] Payungporn S, Chutinimitkul S, Chaisingh A, Damrongwantanapokin S, Buranathai C, Amonsin A, Theamboonlers A, Poovorawan Y. Single step multiplex real-time

RT-PCR for H5N1 influenza A virus detection. J Virol Methods. 2006; 131: 143-7.

[35] Henegariu O, Heerema NA, Dlouhy SR, Vance GH, Vogt PH. Multiplex PCR: critical parameters and step-by-step protocol. Biotechniques. 1997 Sep; 23(3): 504-11.

ภาคผนวก

ภาคผนวก ก
การเตรียมสารเคมี

1. Virus transportation media

veal infusion broth 10 g

bovine albumin fraction V 2 g

เติมน้ำกลั่นจนมีปริมาตร 400 ml.

จากนั้นเติม gentamicin sulfate solution (50 mg/ml) 0.8 ml

และ amphotericin B (250 g/ml) 3.2 ml

ทำให้ปราศจากเชื้อโดยการกรอง

2. DEPC water

DEPC 0.1 มิลลิลิตร

Water 100 ml

เขย่าแล้วนำไป incubate ที่ 37 °c นาน 12 ชั่วโมง แล้วนำไป autoclave

3. PBS

NaCl 8g

KCl 0.2g

Na₂HPO₄ 1.15g

KH₂PO₄ 0.2g

dH₂O QS to 1 liter

4. 2% (w/v) agarose gel

Agarose gel 4 กรัม

1 x TBE 200 มิลลิลิตร

เขย่าแล้วนำเข้าไมโครเวฟจนกว่า agarose gel จะละลายหมด

5. 10% Ethidium bromide

Ethidium bromide 30 ไมโครลิตร

น้ำกลั่น 300 มิลลิลิตร

6. Loading dye

0.25% Bromphenol blue

40% (w/v) sucrose in water

จากนั้นเติมน้ำกลั่นจนมีปริมาตร 50 มิลลิลิตร แล้วเก็บที่ 4 °c

6 3. 20 mg/ml Proteinase K

Proteinase K	2	ml
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Distilled water เป็น	1	ml
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ผสมสารละลายให้เข้ากันแล้วเก็บในตู้เย็นที่ -20 °C

7 5. 25:24:1 (v/v) Phenol/chloroform/isoamyl alcohol

Phenol	25	volume
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Chloroform	24	volume
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Isoamyl alcohol	1	volume
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ผสมสารละลายให้เข้ากันแล้วเก็บใส่ในขวดที่ฆ่าเชื้อแล้วในตู้เย็นที่ 4 °C

10. 20 ug/ml glycogen

Glycogen	4	g
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Distilled water	1	ml
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11. . 10X Tris borate buffer (10X TBE buffer)

Tris-base	100	g
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Boric acid	55	g
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0.5 M EDTA (pH8.0)	40	ml
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ปรับปริมาตรให้เป็น 1000 ml ด้วยน้ำกลั่นที่ฆ่าเชื้อแล้วจากนั้นผสมให้เข้ากันแล้วเก็บที่

อุณหภูมิห้อง

12. SOB Medium

Tryptone	20	g
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Yeast extract	5	g
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NaCl	0.5	g
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250 mM KCl	10	ml
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Distilled water เป็น	1	L
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นำไปฆ่าเชื้อด้วย autoclave

13. SOC medium

SOB ที่มี 2 M $MgCl_2$ และ 2 M glucose

14. LB agar

NaCl	10	g
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Tryptone	10	g
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Yeast extract	5	g
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Agar	15	g
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Distilled water เป็น	1	L
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ปรับ pH ให้เป็น 7.0 ด้วย 5 N NaOH แล้วนำไปฆ่าเชื้อด้วย autoclave

15. LB broth

NaCl	10	g
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Tryptone	10	g
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Yeast extract	5	g
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Distilled water เป็น	1	L
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ปรับ pH ให้เป็น 7.0 ด้วย 5 N NaOH นำไปฆ่าเชื้อด้วย autoclave

16. Ampicillin stock solution (100 mg/ml)

Ampicillin sodium salt	5	g
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Deionized water	50	ml
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ใช้ Filter-sterilize เก็บไว้ที่ -20°C

17. IPTG stock solution (0.1 M)

Isopropyl-1-thio-B-D-galactopyranoside	1.2	g
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Deionized water	50	ml
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ใช้ Filter-sterilize เก็บไว้ที่ -20°C

18. 2M Mg²⁺ stock

20.33g MgCl₂ • 6H₂O

24.65g MgSO₄ • 7H₂O

จากนั้นเติมน้ำกลั่นจนมีปริมาตร 100 ml ทำให้ปราศจากเชื้อโดยการกรอง

19. 2M glucose stock

glucose 36 g.

เติมน้ำกลั่น 70 ml และเขย่าให้เข้ากัน

เติมน้ำกลั่นจนมีปริมาตรเป็น 100 ml.

ทำให้ปราศจากเชื้อโดยการกรอง

ภาคผนวก ข
การทดสอบความจำเพาะของไพรเมอร์

ด้วยโปรแกรม BLAST จาก www.ncbi.nlm.nih.gov/BLAST.cgi

1. GAPDHF85

Accession	Description
EF473075.1	Influenza A virus (A/goose/Cambodia/022b/2005(H5N1)) segment 4
EF473074.1	Influenza A virus (A/chicken/Cambodia/022LC3b/2005(H5N1)) segment 4
EF473073.1	Influenza A virus (A/chicken/Cambodia/013LC1b/2005(H5N1)) segment 4
EF473070.1	Influenza A virus (A/goose/Cambodia/28/2004(H5N1)) segment 4
EF473069.1	Influenza A virus (A/chicken/Cambodia/7/2004(H5N1)) segment 4
EF473068.1	Influenza A virus (A/chicken/Cambodia/1/2004(H5N1)) segment 4
EF473081.1	Influenza A virus (A/chicken/Indonesia/11/2003(H5N1)) segment 4
EF473080.1	Influenza A virus (A/chicken/Indonesia/7/2003(H5N1)) segment 4
EF467802.1	Influenza A virus (A/chicken/Thailand/2/04(H5N1)) segment 4
EF451059.1	Influenza A virus (A/Viet Nam/3212/2004(H5N1)) segment 4
AY553802.2	Influenza A virus (A/little grebe/Thailand/Phichit-01/2004(H5N1)) segment 4
EF456805.1	Influenza A virus (A/Cambodia/JP52a/2005(H5N1)) segment 4
EF456802.1	Influenza A virus (A/Viet Nam/JPHN30321/2005(H5N1)) segment 4
EF456799.1	Influenza A virus (A/Viet Nam/JP14/2005(H5N1)) segment 4
EF456798.1	Influenza A virus (A/Viet Nam/JP4207/2005(H5N1)) segment 4
EF456795.1	Influenza A virus (A/Viet Nam/JP178/2004(H5N1)) segment 4
EF208920.1	Influenza A Virus (A/chicken/West Java/Cjr3/2005(H5N1)) segment 4
EF208919.1	Influenza A Virus (A/chicken/Jakarta/DKI31/2005(H5N1)) segment 4
EF208917.1	Influenza A virus (A/chicken/West Java/Smihay1/2005(H5N1)) segment 4
EF208916.1	Influenza A virus (A/chicken/Jakarta/DKI3a/2005(H5N1)) segment 4
CY019432.1	Influenza A virus (A/Indonesia/CDC1047S/2007(H5N1)) segment 4
CY019424.1	Influenza A virus (A/Indonesia/CDC1047/2007(H5N1)) segment 4
CY019416.1	Influenza A virus (A/Indonesia/CDC1046T/2007(H5N1)) segment 4
CY019408.1	Influenza A virus (A/Indonesia/CDC1046/2007(H5N1)) segment 4
CY019400.1	Influenza A virus (A/Indonesia/CDC1032T/2007(H5N1)) segment 4
CY019392.1	Influenza A virus (A/Indonesia/CDC1032N/2007(H5N1)) segment 4
CY019384.1	Influenza A virus (A/Indonesia/CDC1032/2007(H5N1)) segment 4
CY019376.1	Influenza A virus (A/Indonesia/CDC1031RE2/2007(H5N1)) segment 4
CY019368.1	Influenza A virus (A/Indonesia/CDC1031T2/2007(H5N1)) segment 4
CY019360.1	Influenza A virus (A/Indonesia/CDC1031T/2007(H5N1)) segment 4
CY019352.1	Influenza A virus (A/Indonesia/CDC1031/2007(H5N1)) segment 4
EF051515.1	Synthetic construct hemagglutinin gene, complete cds
EF051514.1	Synthetic construct hemagglutinin gene, complete cds
EF057808.1	Synthetic construct hemagglutinin (HA) gene, complete cds
EF057807.1	Synthetic construct hemagglutinin (HA) gene, complete cds
DQ999880.1	Influenza A virus (A/chicken/Thailand/PC-168/2006(H5N1)) segment 4

2. GAPDH-R191

Accession	Description
XM_001364697.1	PREDICTED: Monodelphis domestica glyceraldehyde-3-phosphate dehydrogenase
XM_001364387.1	PREDICTED: Monodelphis domestica similar to glyceraldehyde-3-phosphate dehydrogenase
XR_030380.1	PREDICTED: Monodelphis domestica similar to glyceraldehyde-3-phosphate dehydrogenase
XR_030294.1	PREDICTED: Monodelphis domestica similar to glyceraldehyde-3-phosphate dehydrogenase
XR_030154.1	PREDICTED: Monodelphis domestica similar to glyceraldehyde-3-phosphate dehydrogenase
AC192772.2	Pan troglodytes chromosome X clone PTB-129B1 map human ortholog
AB291587.1	<i>Solea senegalensis</i> GAPDH mRNA for glyceraldehyde-3-phosphate dehydrogenase
DQ894744.2	Synthetic construct clone IMAGE:100009204; FLH178033.01L; RZFD01
DQ891557.2	Synthetic construct clone IMAGE:100004187; FLH178037.01X; RZFD01
AC107864.11	<i>Mus musculus</i> chromosome 10, clone RP23-388A14, complete sequence
XR_027767.1	PREDICTED: <i>Bos taurus</i> similar to Glyceraldehyde-3-phosphate dehydrogenase
XM_001252511.1	PREDICTED: <i>Bos taurus</i> similar to Glyceraldehyde-3-phosphate dehydrogenase
XM_001252479.1	PREDICTED: <i>Bos taurus</i> similar to Glyceraldehyde-3-phosphate dehydrogenase
XR_027343.1	PREDICTED: <i>Bos taurus</i> similar to Glyceraldehyde-3-phosphate dehydrogenase
XR_027812.1	PREDICTED: <i>Bos taurus</i> similar to Glyceraldehyde-3-phosphate dehydrogenase
AC144771.3	<i>Mus musculus</i> BAC clone RP24-185D15 from chromosome 9, complete sequence
AC190113.3	<i>Canis Familiaris</i> chromosome 11, clone XX-440I7, complete sequence
DQ848904.1	<i>Scophthalmus maximus</i> clone kba786 glyceraldehyde-3-phosphate dehydrogenase
A1234838.1	<i>Sus scrofa</i> mRNA, clone:OVRM10021E07, expressed in ovary
XR_025415.1	PREDICTED: Pan troglodytes similar to glyceraldehyde-3-phosphate dehydrogenase
XR_019963.1	PREDICTED: Pan troglodytes similar to Glyceraldehyde-3-phosphate dehydrogenase
XR_024190.1	PREDICTED: Pan troglodytes similar to Glyceraldehyde-3-phosphate dehydrogenase
XR_021188.1	PREDICTED: Pan troglodytes similar to uracil DNA glycosylase (LOC701122)
XM_522649.2	PREDICTED: Pan troglodytes similar to Glyceraldehyde-3-phosphate dehydrogenase
XM_001162023.1	PREDICTED: Pan troglodytes glyceraldehyde-3-phosphate dehydrogenase
XM_001161823.1	PREDICTED: Pan troglodytes glyceraldehyde-3-phosphate dehydrogenase
XM_508955.2	PREDICTED: Pan troglodytes glyceraldehyde-3-phosphate dehydrogenase
XM_001162096.1	PREDICTED: Pan troglodytes glyceraldehyde-3-phosphate dehydrogenase
XM_001162057.1	PREDICTED: Pan troglodytes glyceraldehyde-3-phosphate dehydrogenase
XR_022687.1	PREDICTED: Pan troglodytes similar to Glyceraldehyde-3-phosphate dehydrogenase
XR_024635.1	PREDICTED: Pan troglodytes similar to aqinq-associated gene 9 protein
XR_021578.1	PREDICTED: Pan troglodytes similar to Glyceraldehyde-3-phosphate dehydrogenase

3. M F5

Accession	Description
CY021590.1	Influenza A virus (A/mallard/Maryland/899/2002(Mixed)) segment 7.
CY021582.1	Influenza A virus (A/mallard/Ohio/656/2002(Mixed)) segment 7, complete sequence
CY021566.1	Influenza A virus (A/mallard/Ohio/184/1986(Mixed)) segment 7, complete sequence
EF541460.1	Influenza A virus (A/chicken/Korea/es/2003(H5N1)) segment 7 matrix protein
EF541455.1	Influenza A virus (A/chicken/Viet Nam/Ncvd8/2003(H5N1)) segment 7 matrix protein
EF541454.1	Influenza A virus (A/duck/Viet Nam/Ncvd1/2002(H5N1)) segment 7 matrix protein
EF541453.1	Influenza A virus (A/Viet Nam/1203/2004(H5N1)) segment 7 matrix protein
EF541452.1	Influenza A virus (A/Viet Nam/1194/2004(H5N1)) segment 7 matrix protein
EF541450.1	Influenza A virus (A/chicken/Laos/7191/2004(H5N1)) segment 7 matrix protein
EF541449.1	Influenza A virus (A/chicken/Viet Nam/1/2004(H5N1)) segment 7 matrix protein
EF541448.1	Influenza A virus (A/Thailand/16/2004(H5N1)) segment 7 matrix protein
EF541447.1	Influenza A virus (A/Thailand/Chaivaphum/622/2004(H5N1)) segment 7 matrix protein
EF541446.1	Influenza A virus (A/Thailand/Kan353/2004(H5N1)) segment 7 matrix protein
EF541445.1	Influenza A virus (A/Thailand/SP83/2004(H5N1)) segment 7 matrix protein
EF541444.1	Influenza A virus (A/Thailand/Prachinburi/6231/2004(H5N1)) segment 7 matrix protein
CY021846.1	Influenza A virus (A/Albany/10/1968(H3N2)) segment 7, complete sequence
CY021838.1	Influenza A virus (A/Albany/4/1969(H3N2)) segment 7, complete sequence
CY021830.1	Influenza A virus (A/Albany/15/1976(H3N2)) segment 7, complete sequence
CY021822.1	Influenza A virus (A/Albany/12/1951(H1N1)) segment 7, complete sequence
CY021814.1	Influenza A virus (A/Albany/1/1958(H2N2)) segment 7, complete sequence
CY021806.1	Influenza A virus (A/Albany/22/1957(H2N2)) segment 7, complete sequence
CY021798.1	Influenza A virus (A/Albany/20/1978(H1N1)) segment 7, complete sequence
CY021790.1	Influenza A virus (A/Albany/24/1958(H2N2)) segment 7, complete sequence
CY021782.1	Influenza A virus (A/South Australia/81/2000(H3N2)) segment 7, complete sequence
CY021774.1	Influenza A virus (A/South Australia/72/2000(H3N2)) segment 7, complete sequence
CY021766.1	Influenza A virus (A/South Australia/53/2005(H3N2)) segment 7, complete sequence
CY021758.1	Influenza A virus (A/South Australia/51/2005(H1N1)) segment 7, complete sequence
CY021750.1	Influenza A virus (A/South Australia/44/2000(H1N1)) segment 7, complete sequence
CY021742.1	Influenza A virus (A/South Australia/11/2000(H3N2)) segment 7, complete sequence
CY021734.1	Influenza A virus (A/New York/2924-1/1986(H1N1)) segment 7, complete sequence
CY021726.1	Influenza A virus (A/Memphis/1/1984(H1N1)) segment 7, complete sequence
CY021718.1	Influenza A virus (A/California/10/1978(H1N1)) segment 7, complete sequence
CY021710.1	Influenza A virus (A/AA/Huston/1945(H1N1)) segment 7, complete sequence

4. M-276R

Accession	Description
CY021582.1	Influenza A virus (A/mallard/Ohio/656/2002(Mixed)) segment 7, complete
CY021846.1	Influenza A virus (A/Albany/10/1968(H3N2)) segment 7, complete sequence
CY021838.1	Influenza A virus (A/Albany/4/1969(H3N2)) segment 7, complete sequence
CY021830.1	Influenza A virus (A/Albany/15/1976(H3N2)) segment 7, complete sequence
CY021822.1	Influenza A virus (A/Albany/12/1951(H1N1)) segment 7, complete sequence
CY021814.1	Influenza A virus (A/Albany/1/1958(H2N2)) segment 7, complete sequence
CY021806.1	Influenza A virus (A/Albany/22/1957(H2N2)) segment 7, complete sequence
CY021798.1	Influenza A virus (A/Albany/20/1978(H1N1)) segment 7, complete sequence
CY021790.1	Influenza A virus (A/Albany/24/1958(H2N2)) segment 7, complete sequence
CY021782.1	Influenza A virus (A/South Australia/81/2000(H3N2)) segment 7, complete
CY021774.1	Influenza A virus (A/South Australia/72/2000(H3N2)) segment 7, complete
CY021766.1	Influenza A virus (A/South Australia/53/2005(H3N2)) segment 7, complete
CY021758.1	Influenza A virus (A/South Australia/51/2005(H1N1)) segment 7, complete
CY021742.1	Influenza A virus (A/South Australia/11/2000(H3N2)) segment 7, complete
CY021734.1	Influenza A virus (A/New York/2924-1/1986(H1N1)) segment 7, complete
CY021726.1	Influenza A virus (A/Memphis/1/1984(H1N1)) segment 7, complete
CY021718.1	Influenza A virus (A/California/10/1978(H1N1)) segment 7, complete
CY021702.1	Influenza A virus (A/Albany/4836/1950(H1N1)) segment 7, complete
CY021694.1	Influenza A virus (A/Memphis/15/2000(H1N1)) segment 7, complete
CY021686.1	Influenza A virus (A/mallard/Missouri/MO32/2005(H11N9)) segment 7, complete
CY021654.1	Influenza A virus (A/black duck/Ohio/161/1999(H11N9)) segment 7, complete
CY021638.1	Influenza A virus (A/mallard/Delaware/418/2005(H7N3)) segment 7, complete
CY021630.1	Influenza A virus (A/Wellington/4/2000(H1N1)) segment 7, complete
CY021622.1	Influenza A virus (A/mallard/Ohio/421/1987(H7N8)) segment 7, complete
CY021614.1	Influenza A virus (A/black duck/Ohio/239/1986(H11N9)) segment 7, complete
CY021598.1	Influenza A virus (A/Memphis/3/1971(H3N2)) segment 7, complete
AB300234.1	Influenza A virus (A/swan/Hokkaido/51/1996(H5N3)) M1, M2 genes for matrix
AB300231.1	Influenza A virus (A/duck/Hokkaido/447/2000(H5N3)) M1, M2 genes for matrix
AB299831.1	Influenza A virus (A/duck/Monacalia/500/2001(H5N3)) M1, M2 genes for matrix
AB299824.1	Influenza A virus (A/duck/Monacalia/596/2001(H5N3)) M1 gene for matrix
AB300049.1	Influenza A virus (A/swan/Hokkaido/4/1996(H5N3)) M1 gene for matrix
AB300041.1	Influenza A virus (A/duck/Hokkaido/69/2000(H5N3)) M1, M2 genes for matrix
CY021558.1	Influenza A virus (A/duck/Italy/551/2000(H7N1)) segment 7, complete

5. H1F266A

Accession	Description
CY021797.1	Influenza A virus (A/Albanv/20/1978(H1N1)) segment 4, complete seq
CY021757.1	Influenza A virus (A/South Australia/51/2005(H1N1)) segment 4, com
CY021717.1	Influenza A virus (A/California/10/1978(H1N1)) segment 4, complete
CY021701.1	Influenza A virus (A/Albanv/4836/1950(H1N1)) segment 4, complete :
CY021698.1	Influenza A virus (A/Memphis/15/2000(H1N1)) segment 4, complete s
CY021629.1	Influenza A virus (A/Wellington/4/2000(H1N1)) segment 4, complete :
CY021037.1	Influenza A virus (A/Christ's Hospital/157/1982(H1N1)) segment 4, co
CY021029.1	Influenza A virus (A/Baylor/4052/1981(H1N1)) segment 4, complete s
CY021005.1	Influenza A virus (A/Memphis/15/1996(H1N1)) segment 4, complete s
CY020573.1	Influenza A virus (A/Tientsin/78/1977(H1N1)) segment 4, complete se
CY020509.1	Influenza A virus (A/Wellington/6/2000(H1N1)) segment 4, complete :
CY020485.1	Influenza A virus (A/Tonqa/14/1984(H1N1)) segment 4, complete sea
CY020477.1	Influenza A virus (A/Singapore/6/1986(H1N1)) segment 4, complete s
CY020453.1	Influenza A virus (A/India/6263/1980(H1N1)) segment 4, complete se
CY020437.1	Influenza A virus (A/Chile/1/1983(H1N1)) segment 4, complete seque
CY020429.1	Influenza A virus (A/Western Australia/22/2001(H1N1)) segment 4, cc
CY020421.1	Influenza A virus (A/Western Australia/21/2001(H1N1)) segment 4, cc
CY020293.1	Influenza A virus (A/Brazil/11/1978(H1N1)) segment 4, complete seq
CY020277.1	Influenza A virus (A/Western Australia/19/2001(H1N1)) segment 4, cc
CY020269.1	Influenza A virus (A/Western Australia/18/2001(H1N1)) segment 4, cc
CY020261.1	Influenza A virus (A/Memphis/1/2001(H1N1)) segment 4, complete se
CY020253.1	Influenza A virus (A/Memphis/14/1996(H1N1)) segment 4, complete s
CY020245.1	Influenza A virus (A/Memphis/5/2003(H1N1)) segment 4, complete se
CY020237.1	Influenza A virus (A/Memphis/39/1983(H1N1)) segment 4, complete s
CY020189.1	Influenza A virus (A/New Zealand/7/1983(H1N1)) segment 4, complet
CY020173.1	Influenza A virus (A/Lackland/7/1978(H1N1)) segment 4, complete se
CY020165.1	Influenza A virus (A/Lackland/3/1978(H1N1)) segment 4, complete se
CY020157.1	Influenza A virus (A/Western Australia/77/2005(H1N1)) segment 4, cc
CY020149.1	Influenza A virus (A/Memphis/7/2001(H1N1)) segment 4, complete se
CY020141.1	Influenza A virus (A/Memphis/6/2001(H1N1)) segment 4, complete se
CY019997.1	Influenza A virus (A/Waikato/17/2005(H1N1)) segment 4, complete se

6. H1R627A

Accession	Description
CY021821.1	Influenza A virus (A/Albany/12/1951(H1N1)) segment 4, complete seq
CY021797.1	Influenza A virus (A/Albany/20/1978(H1N1)) segment 4, complete seq
CY021749.1	Influenza A virus (A/South Australia/44/2000(H1N1)) segment 4, com
CY021733.1	Influenza A virus (A/New York/2924-1/1986(H1N1)) segment 4, comp
CY021717.1	Influenza A virus (A/California/10/1978(H1N1)) segment 4, complete
CY021709.1	Influenza A virus (A/AA/Huston/1945(H1N1)) segment 4, complete se
CY021701.1	Influenza A virus (A/Albany/4836/1950(H1N1)) segment 4, complete :
CY021037.1	Influenza A virus (A/Christ's Hospital/157/1982(H1N1)) segment 4, co
CY021053.1	Influenza A virus (A/Malaya/302/1954(H1N1)) segment 4, complete si
CY021029.1	Influenza A virus (A/Baylor/4052/1981(H1N1)) segment 4, complete s
CY020573.1	Influenza A virus (A/Tientsin/78/1977(H1N1)) segment 4, complete se
CY020565.1	Influenza A virus (A/Texas/2922-3/1986(H1N1)) segment 4, complete
CY020477.1	Influenza A virus (A/Singapore/6/1986(H1N1)) segment 4, complete s
CY020469.1	Influenza A virus (A/Phila/1935(H1N1)) segment 4, complete sequenc
CY020461.1	Influenza A virus (A/Iowa/1943(H1N1)) segment 4, complete sequenc
CY020453.1	Influenza A virus (A/India/6263/1980(H1N1)) segment 4, complete se
CY020437.1	Influenza A virus (A/Chile/1/1983(H1N1)) segment 4, complete seque
CY020293.1	Influenza A virus (A/Brazil/11/1978(H1N1)) segment 4, complete seat
CY020285.1	Influenza A virus (A/AA/Marton/1943(H1N1)) segment 4, complete se
CY020253.1	Influenza A virus (A/Memphis/14/1996(H1N1)) segment 4, complete s
CY020237.1	Influenza A virus (A/Memphis/39/1983(H1N1)) segment 4, complete s
CY020189.1	Influenza A virus (A/New Zealand/7/1983(H1N1)) segment 4, complet
CY020181.1	Influenza A virus (A/Maryland/2/1980(H1N1)) segment 4, complete se
CY020173.1	Influenza A virus (A/Lackland/7/1978(H1N1)) segment 4, complete se
CY020165.1	Influenza A virus (A/Lackland/3/1978(H1N1)) segment 4, complete se
EF462563.1	Influenza A virus (A/South Africa/214/1999(H1N1)) segment 4 hemag
CY019971.1	Influenza A virus (A/Roma/1949(H1N1)) segment 4, complete sequen
CY019963.1	Influenza A virus (A/Arizona/14/1978(H1N1)) segment 4, complete se
CY019947.1	Influenza A virus (A/Albany/4835/1948(H1N1)) segment 4, complete :
CY019867.1	Influenza A virus (A/Memphis/13/1996(H1N1)) segment 4, complete s
CY019803.1	Influenza A virus (A/Memphis/11/1996(H1N1)) segment 4, complete s
CY019795.1	Influenza A virus (A/Memphis/10/1996(H1N1)) segment 4, complete s
CY019787.1	Influenza A virus (A/Memphis/6/1996(H1N1)) segment 4, complete se

7. H3F3

Accession	Description
CY021555.1	Influenza A virus (A/mallard/Ohio/184/1986(Mixed)) segment 4, complete
CY021845.1	Influenza A virus (A/Albanv/10/1968(H3N2)) segment 4, complete seq
CY021837.1	Influenza A virus (A/Albanv/4/1969(H3N2)) segment 4, complete seq
CY021829.1	Influenza A virus (A/Albanv/15/1976(H3N2)) segment 4, complete seq
CY021781.1	Influenza A virus (A/South Australia/81/2000(H3N2)) segment 4, com
CY021773.1	Influenza A virus (A/South Australia/72/2000(H3N2)) segment 4, com
CY021755.1	Influenza A virus (A/South Australia/53/2005(H3N2)) segment 4, com
CY021741.1	Influenza A virus (A/South Australia/11/2000(H3N2)) segment 4, com
CY021597.1	Influenza A virus (A/Memphis/3/1971(H3N2)) segment 4, complete se
CY019333.1	Influenza A virus (A/New York/933/2006(H3N2)) segment 4, complete
CY019325.1	Influenza A virus (A/New York/928/2006(H3N2)) segment 4, complete
CY019317.1	Influenza A virus (A/New York/918/2005(H3N2)) segment 4, complete
CY019309.1	Influenza A virus (A/New York/918/2005(H3N2)) segment 4, complete
CY019301.1	Influenza A virus (A/New York/918/2005(H3N2)) segment 4, complete
CY019293.1	Influenza A virus (A/New York/913/2005(H3N2)) segment 4, complete
CY019285.1	Influenza A virus (A/New York/913/2005(H3N2)) segment 4, complete
CY019277.1	Influenza A virus (A/New York/913/2005(H3N2)) segment 4, complete
CY019269.1	Influenza A virus (A/New York/913/2005(H3N2)) segment 4, complete
CY019261.1	Influenza A virus (A/New York/908/2004(H3N2)) segment 4, complete
CY019253.1	Influenza A virus (A/New York/908/2004(H3N2)) segment 4, complete
CY019245.1	Influenza A virus (A/New York/908/2004(H3N2)) segment 4, complete
CY019189.1	Influenza A virus (A/New York/918/2005(H3N2)) segment 4, complete
CY019181.1	Influenza A virus (A/New York/905/2004(H3N2)) segment 4, complete
CY019173.1	Influenza A virus (A/New York/905/2004(H3N2)) segment 4, complete
CY019165.1	Influenza A virus (A/New York/900/2004(H3N2)) segment 4, complete
CY019157.1	Influenza A virus (A/New York/900/2004(H3N2)) segment 4, complete
CY019149.1	Influenza A virus (A/New York/900/2004(H3N2)) segment 4, complete
CY019141.1	Influenza A virus (A/New York/900/2004(H3N2)) segment 4, complete
CY019029.1	Influenza A virus (A/Queensland/56/2005(H3N2)) segment 4, complet
CY019005.1	Influenza A virus (A/Queensland/41/2004(H3N2)) segment 4, complet
CY018997.1	Influenza A virus (A/Queensland/35/2003(H3N2)) segment 4, complet
CY018989.1	Influenza A virus (A/Queensland/34/2003(H3N2)) segment 4, complet
CY018981.1	Influenza A virus (A/Queensland/32/2003(H3N2)) segment 4, complet

8. H3R2

Accession	Description
CY021565.1	Influenza A virus (A/mallard/Ohio/184/1986(Mixed)) segment 4, complete
CY021845.1	Influenza A virus (A/Albany/10/1968(H3N2)) segment 4, complete seq
CY021837.1	Influenza A virus (A/Albany/4/1969(H3N2)) segment 4, complete seq
CY021829.1	Influenza A virus (A/Albany/15/1976(H3N2)) segment 4, complete seq
CY021781.1	Influenza A virus (A/South Australia/81/2000(H3N2)) segment 4, complete
CY021773.1	Influenza A virus (A/South Australia/72/2000(H3N2)) segment 4, complete
CY021765.1	Influenza A virus (A/South Australia/53/2005(H3N2)) segment 4, complete
CY021741.1	Influenza A virus (A/South Australia/11/2000(H3N2)) segment 4, complete
CY021597.1	Influenza A virus (A/Memphis/3/1971(H3N2)) segment 4, complete seq
CY019325.1	Influenza A virus (A/New York/928/2006(H3N2)) segment 4, complete
CY019317.1	Influenza A virus (A/New York/918/2005(H3N2)) segment 4, complete
CY019309.1	Influenza A virus (A/New York/918/2005(H3N2)) segment 4, complete
CY019301.1	Influenza A virus (A/New York/918/2005(H3N2)) segment 4, complete
CY019293.1	Influenza A virus (A/New York/913/2005(H3N2)) segment 4, complete
CY019285.1	Influenza A virus (A/New York/913/2005(H3N2)) segment 4, complete
CY019277.1	Influenza A virus (A/New York/913/2005(H3N2)) segment 4, complete
CY019269.1	Influenza A virus (A/New York/913/2005(H3N2)) segment 4, complete
CY019261.1	Influenza A virus (A/New York/908/2004(H3N2)) segment 4, complete
CY019253.1	Influenza A virus (A/New York/908/2004(H3N2)) segment 4, complete
CY019245.1	Influenza A virus (A/New York/908/2004(H3N2)) segment 4, complete
AB289341.1	Influenza A virus (A/swan/Shimane/227/01(H3N9)) HA gene for haem
CY019189.1	Influenza A virus (A/New York/918/2005(H3N2)) segment 4, complete
CY019181.1	Influenza A virus (A/New York/905/2004(H3N2)) segment 4, complete
CY019173.1	Influenza A virus (A/New York/905/2004(H3N2)) segment 4, complete
CY019165.1	Influenza A virus (A/New York/900/2004(H3N2)) segment 4, complete
CY019157.1	Influenza A virus (A/New York/900/2004(H3N2)) segment 4, complete
CY019149.1	Influenza A virus (A/New York/900/2004(H3N2)) segment 4, complete
CY019141.1	Influenza A virus (A/New York/900/2004(H3N2)) segment 4, complete
CY019029.1	Influenza A virus (A/Queensland/56/2005(H3N2)) segment 4, complete
CY019005.1	Influenza A virus (A/Queensland/41/2004(H3N2)) segment 4, complete
CY018997.1	Influenza A virus (A/Queensland/35/2003(H3N2)) segment 4, complete
CY018989.1	Influenza A virus (A/Queensland/34/2003(H3N2)) segment 4, complete
CY018981.1	Influenza A virus (A/Queensland/32/2003(H3N2)) segment 4, complete

9. H5F3

Accession	Description
EF473075.1	Influenza A virus (A/goose/Cambodia/022b/2005(H5N1)) segment 4
EF473074.1	Influenza A virus (A/chicken/Cambodia/022LC3b/2005(H5N1))
EF473073.1	Influenza A virus (A/chicken/Cambodia/013LC1b/2005(H5N1))
EF473070.1	Influenza A virus (A/goose/Cambodia/28/2004(H5N1)) segment 4
EF473069.1	Influenza A virus (A/chicken/Cambodia/7/2004(H5N1)) segment 4
EF473068.1	Influenza A virus (A/chicken/Cambodia/1/2004(H5N1)) segment 4
EF473081.1	Influenza A virus (A/chicken/Indonesia/11/2003(H5N1)) segment 4
EF473080.1	Influenza A virus (A/chicken/Indonesia/7/2003(H5N1)) segment 4
EF467802.1	Influenza A virus (A/chicken/Thailand/2/04(H5N1)) segment 4
EF451059.1	Influenza A virus (A/Viet Nam/3212/2004(H5N1)) segment 4
AY553802.2	Influenza A virus (A/little grebe/Thailand/Phichit-01/2004(H5N1))
EF456805.1	Influenza A virus (A/Cambodia/JP52a/2005(H5N1)) segment 4
EF456802.1	Influenza A virus (A/Viet Nam/JPHN30321/2005(H5N1)) segment 4
EF456799.1	Influenza A virus (A/Viet Nam/JP14/2005(H5N1)) segment 4
EF456798.1	Influenza A virus (A/Viet Nam/JP4207/2005(H5N1)) segment 4
EF456795.1	Influenza A virus (A/Viet Nam/JP178/2004(H5N1)) segment 4
EF208920.1	Influenza A Virus (A/chicken/West Java/Cjr3/2005(H5N1))
EF208919.1	Influenza A Virus (A/chicken/Jakarta/DK131/2005(H5N1))
EF208917.1	Influenza A virus (A/chicken/West Java/Smihay1/2005(H5N1))
EF208916.1	Influenza A virus (A/chicken/Jakarta/DK13a/2005(H5N1))
CY019432.1	Influenza A virus (A/Indonesia/CDC1047S/2007(H5N1)) segment 4
CY019424.1	Influenza A virus (A/Indonesia/CDC1047/2007(H5N1)) segment 4
CY019416.1	Influenza A virus (A/Indonesia/CDC1046T/2007(H5N1)) segment 4
CY019408.1	Influenza A virus (A/Indonesia/CDC1046/2007(H5N1)) segment 4
CY019400.1	Influenza A virus (A/Indonesia/CDC1032T/2007(H5N1)) segment 4
CY019392.1	Influenza A virus (A/Indonesia/CDC1032N/2007(H5N1)) segment 4
CY019384.1	Influenza A virus (A/Indonesia/CDC1032/2007(H5N1)) segment 4
CY019376.1	Influenza A virus (A/Indonesia/CDC1031RE2/2007(H5N1)) segment 4
CY019368.1	Influenza A virus (A/Indonesia/CDC1031T2/2007(H5N1)) segment 4
CY019360.1	Influenza A virus (A/Indonesia/CDC1031T/2007(H5N1)) segment 4
CY019352.1	Influenza A virus (A/Indonesia/CDC1031/2007(H5N1)) segment 4
EF051515.1	Synthetic construct hemagglutinin gene, complete cds
EF051514.1	Synthetic construct hemagglutinin gene, complete cds
EF057808.1	Synthetic construct hemagglutinin (HA) gene, complete cds
EF057807.1	Synthetic construct hemagglutinin (HA) gene, complete cds
DC999880.1	Influenza A virus (A/chicken/Thailand/PC-168/2006(H5N1))

10. H5R2++

Accession	Description
EF205150.1	Influenza A virus (A/chicken/Tula/4/05(H5N1)) segment 4, complete s
EF205159.1	Influenza A virus (A/chicken/Krasnodar/123/06(H5N1)) segment 4, co
EF205158.1	Influenza A virus (A/turkey/Suzdalka/12/05(H5N1)) segment 4, comp
EF205157.1	Influenza A virus (A/goose/Krasnoozerskoe/627/05(H5N1)) segment .
EF205156.1	Influenza A virus (A/goose/Suzdalka/10/05(H5N1)) segment 4, compl
EF205155.1	Influenza A virus (A/chicken/Omsk/14/05(H5N1)) segment 4, complet
EF205154.1	Influenza A virus (A/chicken/Suzdalka/06/05(H5N1)) segment 4, com
CY021517.1	Influenza A virus (A/chicken/Ivory Coast/1787-35/2006(H5N1)) segm
AM492165.1	Influenza A virus (A/stone marten/Germany/R747/2006(H5N1)) H5HA
AM408216.1	Influenza A virus (A/tufted duck/Germany/R1240/06(H5N1)) HA gene
AM408215.1	Influenza A virus (A/gull/Germany/R882/06(H5N1)) HA gene for hema
AM408213.1	Influenza A virus (A/common buzzard/Germany/R870/06(H5N1)) part
AM408212.1	Influenza A virus (A/great crested grebe/Germany/R1226/06(H5N1))
AM408211.1	Influenza A virus (A/falcon/Germany/R899/06(H5N1)) partial HA gene
AM408210.1	Influenza A virus (A/goose/Germany/R696/06(H5N1)) partial HA gene
AM408209.1	Influenza A virus (A/cormorant/Germany/R292/06(H5N1)) partial HA
AM403475.1	Influenza A virus (A/stork/Germany/R1239/06(H5N1)) HA gene for he
AM403474.1	Influenza A virus (A/Canada goose/Germany/R1207/06(H5N1)) HA ge
AM403473.1	Influenza A virus (A/eagle owl/Germany/R1166/06(H5N1)) HA gene fr
AM403472.1	Influenza A virus (A/turkey/Germany/R1077/06(H5N1)) HA gene for h
AM403471.1	Influenza A virus (A/mute swan/Germany/R854/06(H5N1)) HA gene fi
AM403470.1	Influenza A virus (A/duck/Germany/R751/06(H5N1)) HA gene for hen
AM403469.1	Influenza A virus (A/coot/Germany/R655/06(H5N1)) HA gene for hem
AM403468.1	Influenza A virus (A/cat/Germany/R606/06(H5N1)) HA gene for hema
AM403467.1	Influenza A virus (A/duck/Germany/R603/06(H5N1)) HA gene for hen
AM403466.1	Influenza A virus (A/duck/Germany/R592/06(H5N1)) HA gene for hen
AM403465.1	Influenza A virus (A/pochard/Germany/R348/06(H5N1)) HA gene for l
AM403464.1	Influenza A virus (A/duck/Germany/R338/06(H5N1)) HA gene for hen
AM403463.1	Influenza A virus (A/common buzzard/Germany/R306/06(H5N1)) HA .
AM403462.1	Influenza A virus (A/whooper swan/Germany/R88/06(H5N1)) HA gene
AM403461.1	Influenza A virus (A/Canada goose/Germany/R71/06(H5N1)) HA gene
AM403460.1	Influenza A virus (A/mute swan/Germany/R65/06(H5N1)) HA gene fo
EF469650.1	Influenza A virus (A/chicken/Eqvpt/1892N3-HK49/2007(H5N1)) hemac
EF469659.1	Influenza A virus (A/chicken/Eqvpt/1891N3-CLEVB/2007(H5N1)) hem.
EF469658.1	Influenza A virus (A/goose/Eqvpt/13009N3-SM2/2006(H5N1)) hemacd
EF469657.1	Influenza A virus (A/duck/Eqvpt/1888N3-SM25/2007(H5N1)) hemaddl
EF469656.1	Influenza A virus (A/duck/Eqvpt/13010N3-CLEVB/2006(H5N1)) hemac
EF469655.1	Influenza A virus (A/duck/Eqvpt/12380N3-CLEVB/2006(H5N1)) hemac

ประวัติผู้เขียนวิทยานิพนธ์

ชื่อ-นามสกุล ปิติรัตน์ บุญสุข เพศ หญิง

อายุ 25 ปี เกิด 2 พฤศจิกายน 2524

สถานที่เกิด โรงพยาบาลรามา กรุงเทพมหานคร

ที่อยู่ 77/12 ม. 8 ต.บางด้วน อ. เมือง จ. สมุทรปราการ 10270

ประวัติการศึกษา

ระดับปริญญาตรี สำเร็จการศึกษาวิทยาศาสตร์บัณฑิต (สาขาพันธุศาสตร์)

จาก คณะวิทยาศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย ใน

ปี 2546

ระดับปริญญาโท เข้าศึกษาต่อระดับวิทยาศาสตรมหาบัณฑิต หลักสูตรวิทยาศาสตร

การแพทย์ คณะแพทยศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย เมื่อปี

พ.ศ.2548

ประวัติการทำงาน

ทำงานในตำแหน่งนักวิทยาศาสตร์ ณ ศูนย์เชี่ยวชาญเฉพาะทางด้านไวรัสวิทยาคลินิก

เป็นเวลา 1 ปี หลังจากจบการศึกษาระดับปริญญาตรี ระหว่างปี 2546-2547