

REFERENCES

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APPENDIX

APPENDIX A CERTIFICATE OF APPROVAL



EC 017-54

เอกสารรับรองโครงการวิจัย
โดย
คณะกรรมการจริยธรรมการวิจัย โรงพยาบาลประสาทเชียงใหม่

ชื่อโครงการ	การศึกษาความสัมพันธ์ของ Single Nucleotide Polymorphisms ใน Presenilin 1 gene ในผู้ป่วยคนไทยที่เป็นโรคอัลไซเมอร์
หัวหน้าโครงการ/ หน่วยงานที่สังกัด	นายทองหล่อ โสภาคัย นักศึกษานิเทศศาสตร์ คณะวิทยาศาสตร์การแพทย์ มหาวิทยาลัยนเรศวร
สถานที่ทำวิจัย	โรงพยาบาลประสาทเชียงใหม่
ระยะเวลาดำเนินการ	๓ ปี
เอกสารที่รับรอง	- โครงการวิจัย - เอกสารชี้แจงผู้เข้าร่วมการวิจัย - แบบฟอร์มยินยอมเข้าร่วมโครงการวิจัย - ยานเภสัชภัณฑ์/ยาที่ใช้วิจัย/ยาควบคุม/ยาพิษ

รับรองโครงการเมื่อวันที่ ๒๓ สิงหาคม พ.ศ. ๒๕๕๔
การรับรองโครงการนี้ผลถึงวันที่ ๒๓ สิงหาคม พ.ศ. ๒๕๕๕

นางสาวอรุณรัตน์ ธรรมมาสาร
ประธานคณะกรรมการจริยธรรมการวิจัย
โรงพยาบาลประสาทเชียงใหม่
(นางสาวอรุณรัตน์ ธรรมมาสาร)
ผู้อำนวยการคณะกรรมการจริยธรรมการวิจัย

APPENDIX B CERTIFICATE OF APPROVAL



เอกสารรับรองโครงการวิจัยในมนุษย์
คณะกรรมการจริยธรรมการวิจัยในมนุษย์ มหาวิทยาลัยอัสสัมชัญ

ชื่อโครงการ	การศึกษาความสัมพันธ์ของ Single Nucleotide polymorphisms ใน Presenilin 1 gene ในผู้ป่วยคนไทยที่เป็นโรคอัลไซเมอร์ Single Nucleotide Polymorphisms Association Studies of Presenilin 1 gene in Thai Alzheimer's Disease Patients
ชื่อหัวหน้าโครงการ	นางเกื้อหล้า ไสภพิทย
ชื่ออาจารย์ที่ปรึกษา	รศ.ดร.สุรเกียรติ์ ชัยสาทรศรีกุล
เลขที่โครงการ/รหัส	54-02-02-0061
สังกัดหน่วยงาน/คณะ	วิทยาศาสตร์การแพทย์
การวันเวลา	ขอรับรองโครงการวิจัยดังกล่าวที่ คณะนี้ได้ผ่านการพิจารณาและรับรอง จากคณะกรรมการจริยธรรมการวิจัยในมนุษย์ มหาวิทยาลัยอัสสัมชัญ ครั้งที่ 10/2554 เมื่อวันที่ 21 กันยายน 2554
วันสิ้นสุดการรับรอง	วันที่ 21 กันยายน 2555
ประเภทการรับรอง	รับรองแบบเฝ้าระวัง

ลงนาม

(นายแพทย์สมบุญ สันสุกสวัสดิ์กุล)
ประธานคณะกรรมการจริยธรรมการวิจัยในมนุษย์
กลุ่มสาขาวิทยาศาสตร์สุขภาพ
มหาวิทยาลัยอัสสัมชัญ

APPENDIX C Solution preparation

0.5 M EDTA

EDTA (disodium ethylene diamine tetraacetate H₂O)

Distilled H₂O

Adjust pH to 8.0 with NaOH and adjust the volume to 1 liter with distilled H₂O.

5X TBE buffer

445 mM Tris-base 54.0 g

445 mM Boric acid 27.5 g of boric acid

10 mM EDTA 20 ml of 0.5 M (pH 8.0)

Adjust volume with distilled H₂O to 1 liter.



2% agarose gel

Agarose gel 2 g

Adjust volume with 1XTBE buffer to 100 ml

6X DNA loading dye

10 mM Tris-HCl (pH 7.6)

0.03% bromophenol blue

0.03% xylene cyanol FF

60% glycerol

60 mM EDTA

APPENDIX D Composition of Buffers and Solutions (Promega Corporation, USA)

Membrane Wash Solution (after ethanol addition)

10mM potassium acetate (pH5.0)

80% ethanol

16.7 μ M EDTA (pH 8.0)

Membrane Binding Solution

4.5M guanidine isothiocyanate

0.5M potassium acetate (pH 5.0)

1X TE buffer

10mM Tris-HCl (pH 7.5)

1mM EDTA (pH 8.0)

1X TBE buffer

89mM Tris base

89mM boric acid

2 mM EDTA (pH 8.0)

1X TEA

40mM Tris base

5mM sodium acetate

1mM EDTA (pH 8.0)

APPENDIX E Measurement of nucleic acid concentration

Concentration of extracted DNA was estimated by spectrophotometry method. Light absorbance was measured at the wavelength of 260 nm (A_{260}). An A_{260} value 1.0 corresponds to concentration of 50 $\mu\text{g/ml}$ double-strand DNA (Sambrook et al., 2001). Therefore, concentration of nucleic acids was estimated in $\mu\text{g/ml}$ by using the following equation:

$$\text{DNA} = A_{260} \times 50$$

Purity of the nucleic acid samples can be inferred from the ratio of A_{260}/A_{280} . The ratio is much lower than 1.8 indicates contamination of residual proteins or organic solvents.

rs3025780

[illegible]

1615932 master

9200250072 (T001-3) F-RS1.65932

921120143 (T002-3) F-RS1.65932

920500008 (T004-3) F-RS1.65932

921120145 (T005-3) F-RS1.65932

921120146 (T006-3) F-RS1.65932

921120147 (T007-3) F-RS1.65932

920500009 (T008-3) F-RS1.65932

921120149 (T009-3) F-RS1.65932

920500010 (T012-3) F-RS1.65932

92120152 (T014-3) F-RS1.65932

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92120154 (T016-3) F-RS1.65932

92120155 (T017-3) F-RS1.65932

92120156 (T018-3) F-RS1.65932

92120151 (T019-3) F-RS1.65932

92120059 (AD002-3) F-RS1.65932

92120060 (AD003-3) F-RS1.65932

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92120066 (AD016-3) F-RS1.65932

92120067 (AD019-3) F-RS1.65932

920500012 (AD20-3) F-RS1.65932

920500013 (AD22-3) F-RS1.65932

92120070 (AD25-3) F-RS1.65932

92120071 (AD27-3) F-RS1.65932

92120072 (AD29-3) F-RS1.65932

	10	20	30	40	50	60	70	80	90	100		
1	CTCTGGTAAAT	TGCTGCTGCAT	GACCCGATTAT	CAAGTTTATG	GC AT ACAT	TTT ATTA G	AT GCTCTT	AT GTTT	TT	CTTTTCTAG	ATTAGTGGC	
2				TT	AGGTTTATG	CCCAT ACAT	TTT ATTA G	AT GCTCTT	AT GTTT	TT	CTTTTCTAG	ATTAGTGGC
3					AGGCTTTATG	CCCAT ACAT	TTT ATTA G	AT GCTCTT	AT GTTT	TT	CTTTTCTAG	ATTAGTGGC
4				CA	AAATTTATG	CCA T-AAAT	TTT ATTA G	AT GCTCTT	AT GTTT	TT	CTTTTCTAG	ATTAGTGGC
5						AAATTT	TTTATTTAG	ATAGTCTTAT	AT GTTT	TT	CTTTTCTAG	ATTAGTGGC
6							TTTAAAGAATA	GCTCTTAT	AT GTTT	TT	CTTTTCTAG	ATTAGTGGC
7				T	GTTTTATG	CCCATAAACAT	TTT ATTA G	AT GCTCTT	AT GTTT	TT	CTTTTCTAG	ATTAGTGGC
8						CAATTT	TTTATTTAG	AT GCTCTT	AT GTTT	TT	CTTTTCTAG	ATTAGTGGC
9							CATATTA	G AT GCTCTT	AT GTTT	TT	CTTTTCTAG	ATTAGTGGC
10									AT GTTT	TT	CTTTTCTAG	ATTAGTGGC
11									AT GTTT	TT	CTTTTCTAG	ATTAGTGGC
12									AT GTTT	TT	CTTTTCTAG	ATTAGTGGC
13									AT GTTT	TT	CTTTTCTAG	ATTAGTGGC
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25									AT GTTT	TT	CTTTTCTAG	ATTAGTGGC
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47									AT GTTT	TT	CTTTTCTAG	ATTAGTGGC
48									AT GTTT	TT	CTTTTCTAG	ATTAGTGGC
49												

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R165932 master
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G11210159 (CT005-4) F-RS10146743	AGGGGGGGGG	AAAAGGAGGG	CCTTTTTAGG	GGGGGAGAT	ITCCTTTTAA	ACAAAAAGAA	AGATTTCTGT	GGAGGGCAAA AGGGG
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G11210163 (CT009-4) F-RS10146743	AGGGGGGGGG	AAAAAAGGGG	CCTTTTAAGG	GGGGGAAAT	ICT TTTTAA	CCAAAAAGAA	AAATTTCTGT	GGAGGGCAAA AGG
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G11210073 (AD002-4) F-RS10146743	GGGAGGGGGA	AAATGAGGGG	CCTTTAAGGG	GGGAAAGGT	CCATTTTAA	AAAAAAGAA	AAATTTCTGT	GGAGGGCAAA AGGGG
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G11210075 (AD005-4) F-RS10146743	GGGGGAGGAA	AAATGAGGGG	CCTTTAAGGG	GGGTAAAGGT	ITCATTTTAA	CAAAAAAGAA	AAATTTCTGT	GGAGGGCAAA TGGG
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sl56933 master
G020500245 (C7001-6) F-RS1.65933
G01050024 (C7002-6) F-RS1.65933
G01050025 (C7004-6) F-RS1.65933
G01050026 (C7005-6) F-RS1.65933
G01050027 (C7006-6) F-RS1.65933
G11210189 (C7007-6) F-RS1.65933
G01050028 (C7008-6) F-RS1.65933
G11210191 (C7009-6) F-RS1.65933
G01050029 (C7012-6) F-RS1.65933
G11210194 (C7014-6) F-RS1.65933
G11210195 (C7015-6) F-RS1.65933
G11210196 (C7016-6) F-RS1.65933
G11210197 (C7017-6) F-RS1.65933
G11210198 (C7018-6) F-RS1.65933
G11210193 (C7019-6) F-RS1.65933
G11210101 (AD002-6) F-RS1.65933
G11210102 (AD003-6) F-RS1.65933
G11210103 (AD005-6) F-RS1.65933
G03920581 (AD007-6) F-RS1.65933
G11210104 (AD008-6) F-RS1.65933
G11210105 (AD010-6) F-RS1.65933
G01050030 (AD012-6) F-RS1.65933
G11210107 (AD014-6) F-RS1.65933
G11210108 (AD015-6) F-RS1.65933
G11210109 (AD019-6) F-RS1.65933
G11210110 (AD020-6) F-RS1.65933
G11210111 (AD021-6) F-RS1.65933
G11210112 (AD022-6) F-RS1.65933
G11210113 (AD025-6) F-RS1.65933
G11210114 (AD027-6) F-RS1.65933

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GCGGAGAC	GCG	GCT	TGS	GAGCT	GCGGAGCAG	TG	TGT	GA	GATGAA	TTG	G	AGGGTTG	GA	NTGGTG
GCGGAGAC	GCGGCGC	T	TTG	TAGCT	GCGGAGCAG	TG	TGT	GA	GATGAA	TTG	G	TGGGTTG	GATAGTGAGA	
GAAAGAAC	GCGCGCTT	TTT	AGCT	GCGGAGCAG	TG	TGT	GA	GATGAA	TTG	G	TGGGTTG	GATAGTGAGA		
CAGTA	ACGTGACT	TTGTAGACT	GCGGAGCAG	TG	TGT	GA	GATGAA	TTG	G	TGGGTTG	GATAGTGAGA			
GCGGAGAC	GCGGCGCT	TGS	TAGCT	GCGGAGCAG	TG	TGT	GA	GATGAA	TTG	G	TGGGTTG	GATAGTGAGA		
GAAACC	CAATGCTT	TTGTAGACT	GCGGAGCAG	TG	TGT	GA	GATGAA	TTG	G	TGGGTTG	GATAGTGAGA			
		GCT	GACCGCGCTG	GCGCGTACG	TG	TGT	GA	GATGAATTG	G	TGGGTTG	GATAGTGAGA			
		GCGCTA	TCTTTGCT	TAGCG	TG	TGTTGA	GATGAA	TTG	G	TGGGTTG	GATAGTGAGA			
CGGGAGAC	GCTGGCGCT	TTT	GTAGC	TGGGAGCAG	TG	TGT	GA	GATGAA	TTG	G	TGGGTTG	GATAGTGAGA		
		AG	GACTTGGCT	GCGGAGCAG	TG	TGTTGA	GATGAATTG	G	TGGGTTG	GATAGTGAGA				
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GCGACC	GCGGCTTT	TGS	TAGCCT	GCGGAGCAG	TG	TGT	GA	GATGAA	TTG	G	TGGGTTG	GATAGTGAGA		
TGGAGAGCG	GCGCGCTT	TGS	AGCT	GCGGAGCAG	TG	TGT	GA	GATGAA	TTG	G	TGGGTTG	GATAGTGAGA		
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GCGGAGAC	GCGCGCTT	TTGTAGACT	GCGGAGCAG	TG	TGT	GA	GATGAA	TTG	G	TGGGTTG	GATAGTGAGA			
TGGGGAGGCC	GCGCGCTT	TGS	TAGCCT	GCGGAGCAG	TG	TGT	GA	GATGAA	TTG	G	TGGGTTG	GATAGTGAGA		
				TGGGT	GCGTTG	AG	GATGAAATTA	GTTTGGGTTG	G	TGGGTTG	GATAGTGAGA			
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CACC	GTTCCTTG	TTTATAGCT	GCGGAGC	C	TG	TGT	GA	GATGAA	TTG	G	TGGGTTG	GATAGTGAGA		
		TGGG	TTTAAAGCTTG	GCGGAGCAG	TGGTTGTGAG	GATGAATTG	G	TGGGTTG	GATAGTGAGA					
		GCG	TTTAGCTTTG	GCGGAGCAG	TG	TGT	GA	GATGAATTG	G	TGGGTTG	GATAGTGAGA			
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CGAGAGCG	GCGGCTTT	TTTTTAGCT	GCGGAGCAG	TG	TGT	GA	GATGAA	TTG	G	TGGGTTG	GATAGTGAGA			
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		TGT	TTTAGCTTT	GCGGAGAAC	TG	ATGTGAG	ATGGAATTCG	G	TGGGTTG	GATAGTGAGA				
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GAAAGAAC	GCTGGCGCTT	TGGTAGCT	GCGGAGCAG	TG	TGT	GA	GATGAA	TTG	G	TGGGTTG	GATAGTGAGA			
		TTT	TTTAGGCGTG	GCGGAGCAG	TG	TGTGAG	GATGAATTG	G	TGGGTTG	GATAGTGAGA				
TCGAGAAC	GCTGTCTCT	TGS	TAGC	TGGGAGCAG	TG	TGT	GA	GATGAA	TTG	G	TGGGTTG	GATAGTGAGA		
		GG	TATAGGCTTG	GCGGCGGACT	TG	TGT	GA	GATGAATTG	G	TGGGTTG	GATAGTGAGA			

rs165933 master

RG0200575 (CT001-6)	F-RS165933
G01050024 (CT002-6)	F-RS165933
G01050025 (CT004-6)	F-RS165933
G01050026 (CT005-6)	F-RS165933
G01050027 (CT006-6)	F-RS165933
G11210189 (CT007-6)	F-RS165933
G01050028 (CT008-6)	F-RS165933
G1120191 (CT009-6)	F-RS165933
G01050029 (CT012-6)	F-RS165933
G1120194 (CT014-6)	F-RS165933
G1120195 (CT015-6)	F-RS165933
G1120196 (CT016-6)	F-RS165933
G1120197 (CT017-6)	F-RS165933
G1120198 (CT018-6)	F-RS165933
G1120193 (CT019-6)	F-RS165933
G1120101 (AD002-6)	F-RS165933
G1120102 (AD003-6)	F-RS165933
G1120103 (AD005-6)	F-RS165933
RG0200581 (AD006-6)	F-RS165933
G1120104 (AD008-6)	F-RS165933
G1120105 (AD010-6)	F-RS165933
G01050030 (AD012-6)	F-RS165933
G1120107 (AD014-6)	F-RS165933
G1120108 (AD015-6)	F-RS165933
G1120109 (AD019-6)	F-RS165933
G1120110 (AD020-6)	F-RS165933
G1120111 (AD021-6)	F-RS165933
G1120112 (AD022-6)	F-RS165933
G1120113 (AD025-6)	F-RS165933
G1120114 (AD027-6)	F-RS165933

[illegible]

rs165933 (C→G)
G9200375 (T001-6) F-RS165933
G0105024 (CT002-6) F-RS165933
G0105023 (CT004-6) F-RS165933
G0105026 (CT005-6) F-RS165933
G0105027 (CT006-6) F-RS165933
G1210189 (CT007-5) F-RS165933
G0105028 (CT008-6) F-RS165933
G1210191 (CT009-6) F-RS165933
G0105029 (CT012-6) F-RS165933
G1210194 (CT014-6) F-RS165933
G1210195 (CT015-6) F-RS165933
G1210196 (CT016-6) F-RS165933
G1210197 (CT017-5) F-RS165933
G1210198 (CT018-6) F-RS165933
G1210193 (CT019-6) F-RS165933
G1210101 (AD002-6) F-RS165933
G1210102 (AD003-6) F-RS165933
G1210103 (AD005-6) F-RS165933
G9200381 (AD007-5) F-RS165933
G1210104 (AD008-6) F-RS165933
G1210105 (AD010-6) F-RS165933
G0105030 (AD012-6) F-RS165933
G1210107 (AD014-6) F-RS165933
G1210108 (AD015-6) F-RS165933
G1210109 (AD019-5) F-RS165933
G1210110 (AD020-5) F-RS165933
G1210111 (AD021-6) F-RS165933
G1210112 (AD022-6) F-RS165933
G1210113 (AD025-6) F-RS165933
G1210114 (AD027-6) F-RS165933

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[illegible][illegible][illegible]

[illegible][illegible]

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009200575 (CT001-6) F-RS165933	TAGAGTCGTG	GAGCTGGTGA	GCAATTCAAA	ATTAGAGACA	GAGAGAGAGA	GGAAGACAAA	GGGTCAAACT	TTTG GTCAAC	TACTGTGTTT	AGAGATGA
G01050024 (CT002-6) F-RS165933	TAGAGTCGTG	GAGCTGGTGA	GCAATTCAAA	TAAAGACA	GAGAGAGAGA	GGAAGACAAA	GGGTCAAACT	TT GTCAAC	TACTGTGTTT	AGAGATGA
G01050025 (CT004-6) F-RS165933	TAGAGTCGTG	GAGCTGGTGA	GCAATTCAAA	TAAAGACA	GAGAGAGAGA	GGAAGACAAA	GGGTCAAACT	TT GTCAAC	TACTGTGTTT	AGAGATGA
G01050026 (CT005-6) F-RS165933	TAGAGTCGTG	GAGCTGGTGA	GCAATTCAAA	TAAAGACA	GAGAGAGAGA	GGAAGACAAA	GGGTCAAACT	TT GTCAAC	TACTGTGTTT	AGAGATGA
G01050027 (CT006-6) F-RS165933	TAGAGTCGTG	GAGCTGGTGA	GCAATTCAAA	TAAAGACA	GAGAGAGAGA	GGAAGACAAA	GGGTCAAACT	TT GTCAAC	TACTGTGTTT	AGAGATGA
G11210189 (CT007-6) F-RS165933	TAGAGTCGTG	GAGCTGGTGA	GCAATTCAAA	TAAAGACA	GAGAGAGAGA	GGAAGACAAA	GGGTCAAACT	TTGTGTCAAC	TACTGTGTTT	AGAGATGA
G01050028 (CT008-6) F-RS165933	TAGAGTCGTG	GAGCTGGTGA	GCAATTCAAA	TAAAGACA	GAGAGAGAGA	GGAAGACAAA	GGGTCAAACT	TTGTGTCAAC	TACTGTGTTT	AGAGATGA
G11210191 (CT009-6) F-RS165933	TAGAGTCGTG	GAGCTGGTGA	GCAATTCAAA	TAAAGACA	GAGAGAGAGA	GGAAGACAAA	GGGTCAAACT	TTTG GTCAAC	TACTGTGTTT	AGAGATGA
G01050029 (CT012-6) F-RS165933	TAGAGTCGTG	GAGCTGGTGA	GCAATTCAAA	TAAAGACA	GAGAGAGAGA	GGAAGACAAA	GGGTCAAACT	TT GTCAAC	TACTGTGTTT	AGAGATGA
G11210194 (CT014-6) F-RS165933	TAGAGTCGTG	GAGCTGGTGA	GCAATTCAAA	TAAAGACA	GAGAGAGAGA	GGAAGACAAA	GGGTCAAACT	TT GTCAAC	TACTGTGTTT	AGAGATGA
G11210195 (CT015-6) F-RS165933	TAGAGTCGTG	GAGCTGGTGA	GCAATTCAAA	TAAAGACA	GAGAGAGAGA	GGAAGACAAA	GGGTCAAACT	TT GTCAAC	TACTGTGTTT	AGAGATGA
G11210196 (CT016-6) F-RS165933	TAGAGTCGTG	GAGCTGGTGA	GCAATTCAAA	TAAAGACA	GAGAGAGAGA	GGAAGACAAA	GGGTCAAACT	TT GTCAAC	TACTGTGTTT	AGAGATGA
G11210197 (CT017-6) F-RS165933	TAGAGTCGTG	GAGCTGGTGA	GCAATTCAAA	TAAAGACA	GAGAGAGAGA	GGAAGACAAA	GGGTCAAACT	TT GTCAAC	TACTGTGTTT	AGAGATGA
G11210198 (CT018-6) F-RS165933	TAGAGTCGTG	GAGCTGGTGA	GCAATTCAAA	TAAAGACA	GAGAGAGAGA	GGAAGACAAA	GGGTCAAACT	TT GTCAAC	TACTGTGTTT	AGAGATGA
G11210193 (CT019-6) F-RS165933	TAGAGTCGTG	GAGCTGGTGA	GCAATTCAAA	TAAAGACA	GAGAGAGAGA	GGAAGACAAA	GGGTCAAACT	TT GTCAAC	TACTGTGTTT	AGAGATGA
G11210101 (AD002-6) F-RS165933	TAGAGTCGTG	GAGCTGGTGA	GCAATTCAAA	TAAAGACA	GAGAGAGAGA	GGAAGACAAA	GGGTCAAACT	TT GTCAAC	TACTGTGTTT	AGAGATGA
G11210102 (AD003-6) F-RS165933	TAGAGTCGTG	GAGCTGGTGA	GCAATTCAAA	TAAAGACA	GAGAGAGAGA	GGAAGACAAA	GGGTCAAACT	TT GTCAAC	TACTGTGTTT	AGAGATGA
G11210103 (AD005-6) F-RS165933	TAGAGTCGTG	GAGCTGGTGA	GCAATTCAAA	TAAAGACA	GAGAGAGAGA	GGAAGACAAA	GGGTCAAACT	TT GTCAAC	TACTGTGTTT	AGAGATGA
G09200581 (AD007-6) F-RS165933	TAGAGTCGTG	GAGCTGGTGA	GCAATTCAAA	TAAAGACA	GAGAGAGAGA	GGAAGACAAA	GGGTCAAACT	TT GTCAAC	TACTGTGTTT	AGAGATGA
G11210104 (AD008-6) F-RS165933	TAGAGTCGTG	GAGCTGGTGA	GCAATTCAAA	TAAAGACA	GAGAGAGAGA	GGAAGACAAA	GGGTCAAACT	TT GTCAAC	TACTGTGTTT	AGAGATGA
G11210105 (AD010-6) F-RS165933	TAGAGTCGTG	GAGCTGGTGA	GCAATTCAAA	TAAAGACA	GAGAGAGAGA	GGAAGACAAA	GGGTCAAACT	TT GTCAAC	TACTGTGTTT	AGAGATGA
G01050030 (AD012-6) F-RS165933	GGTCTGTGAG	CTGGTGTGCA	ATTCAATATA	AGGCGAGAGA	CAATGAGGAG	ACATGGGTCC	GGTCTGTGAG	CTGTGTGAG	GTGCTAGAGA	GAGAGATGA
G11210107 (AD014-6) F-RS165933	TAGAGTCGTG	GAGCTGGTGA	GCAATTCAAA	TAAAGACA	GAGAGAGAGA	GGAAGACAAA	GGGTCAAACT	TT GTCAAC	TACTGTGTTT	AGAGATGA
G11210108 (AD015-6) F-RS165933	TAGAGTCGTG	GAGCTGGTGA	GCAATTCAAA	TAAAGACA	GAGAGAGAGA	GGAAGACAAA	GGGTCAAACT	TT GTCAAC	TACTGTGTTT	AGAGATGA
G11210109 (AD019-6) F-RS165933	TAGAGTCGTG	GAGCTGGTGA	GCAATTCAAA	TAAAGACA	GAGAGAGAGA	GGAAGACAAA	GGGTCAAACT	TT GTCAAC	TACTGTGTTT	AGAGATGA
G11210110 (AD020-6) F-RS165933	TAGAGTCGTG	GAGCTGGTGA	GCAATTCAAA	TAAAGACA	GAGAGAGAGA	GGAAGACAAA	GGGTCAAACT	TT GTCAAC	TACTGTGTTT	AGAGATGA
G11210111 (AD021-6) F-RS165933	TAGAGTCGTG	GAGCTGGTGA	GCAATTCAAA	TAAAGACA	GAGAGAGAGA	GGAAGACAAA	GGGTCAAACT	TTGTGTCAAC	TACTGTGTTT	AGAGATGA
G11210112 (AD025-6) F-RS165933	TAGAGTCGTG	GAGCTGGTGA	GCAATTCAAA	TAAAGACA	GAGAGAGAGA	GGAAGACAAA	GGGTCAAACT	TT GTCAAC	TACTGTGTTT	AGAGATGA
G11210113 (AD025-6) F-RS165933	TAGAGTCGTG	GAGCTGGTGA	GCAATTCAAA	TAAAGACA	GAGAGAGAGA	GGAAGACAAA	GGGTCAAACT	TT GTCAAC	TACTGTGTTT	AGAGATGA
G11210114 (AD027-6) F-RS165933	TAGAGTCGTG	GAGCTGGTGA	GCAATTCAAA	TAAAGACA	GAGAGAGAGA	GGAAGACAAA	GGGTCAAACT	TTGTGTCAAC	TACTGTGTTT	AG

[illegible]

BIOGRAPHY



BIOGRAPHY

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Publication

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Identification of single nucleotide polymorphisms in Presenilin1 gene and primer design for Multiplex Polymerase Chain Reaction: A possible Tool in Alzheimer's diagnosis in Thai population. In

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