

มหาวิทยาลัยบูรพา

ภาคผนวก

Burapha University

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ภาคผนวก ก

ข้อยื่นที่ได้รับการคัดเลือก

ตารางที่ 30 รายละเอียดของซีเอ็นทีที่ได้รับการคัดเลือก

ลำดับ เลขซีเอ็นที	หมายเลข ซีเอ็นทีตาม ต้นฉบับ	รายละเอียดซีเอ็นที
1	5 U14973	Human ribosomal protein S29 mRNA, complete cds.
2	11 T72863	FERRITIN LIGHT CHAIN (HUMAN);.
3	13 X63432	H.sapiens ACTB mRNA for mutant beta-actin (beta'-actin).
4	14 H20709	MYOSIN LIGHT CHAIN ALKALI, SMOOTH-MUSCLE ISOFORM (HUMAN);.
5	15 U14971	Human ribosomal protein S9 mRNA, complete cds.
6	16 T52342	Human tra1 mRNA for human homologue of murine tumor rejection antigen gp96.
7	18 T63508	FERRITIN HEAVY CHAIN (HUMAN);.
8	23 R22197	60S RIBOSOMAL PROTEIN L32 (HUMAN);.
9	26 T95018	40S RIBOSOMAL PROTEIN S18 (Homo sapiens)
10	27 H86060	NEGATIVE FACTOR (Simian immunodeficiency virus)
11	31 T61609	LAMININ RECEPTOR (HUMAN);.
12	32 T62220	CALPACTIN I LIGHT CHAIN (HUMAN);.
13	37 R86975	40S RIBOSOMAL PROTEIN S28 (HUMAN);.
14	39 control	
15	40 control	
16	41 control	
17	42 control	
18	43 T57619	40S RIBOSOMAL PROTEIN S6 (Nicotiana tabacum)
19	45 R36455	NUCLEOLAR TRANSCRIPTION FACTOR 1 (Homo sapiens)
20	46 T61602	40S RIBOSOMAL PROTEIN S11 (HUMAN);.
21	47 T58861	60S RIBOSOMAL PROTEIN L30E (Kluyveromyces lactis)
22	49 T61661	PROFILIN I (HUMAN);.
23	50 control	
24	51 control	
25	52 control	
26	53 control	
27	54 T52015	ELONGATION FACTOR 1-GAMMA (HUMAN).
28	57 T93094	ANNEXIN II (HUMAN);.
29	59 U12255	Human IgG Fc receptor hFcRn mRNA, complete cds.
30	60 R01182	60S RIBOSOMAL PROTEIN L38 (HUMAN);.
31	62 T48804	40S RIBOSOMAL PROTEIN S24 (HUMAN).
32	66 T71025	Human (HUMAN);.
33	67 T51534	CYSTATIN C PRECURSOR (HUMAN).
34	70 T61661	PROFILIN I (HUMAN);.
35	72 H55758	ALPHA ENOLASE (HUMAN);.
36	75 X55715	Human Hums3 mRNA for 40S ribosomal protein s3.
37	78 R42570	PLATELET-ACTIVATING FACTOR ACETYLDHYDROLASE 45 KD SUBUNIT (Bos taurus)
38	79 T47645	GONADOTROPIN-RELEASING HORMONE RECEPTOR (Homo sapiens)
39	83 H05803	DIHYDROPYRIDINE-SENSITIVE L-TYPE, SKELETAL MUSCLE CALCIUM CHANNEL ALPHA-1 SUBUNIT (Cyprinus carpio)
40	85 T68848	PEPTIDYL-PROLYL CIS-TRANS ISOMERASE A (HUMAN);.
41	86 T72938	QM PROTEIN (HUMAN);.
42	88 R50158	MITOCHONDRIAL LON PROTEASE HOMOLOG PRECURSOR (Homo sapiens)
43	91 T47144	JN0549 RIBOSOMAL PROTEIN YL30.
44	95 R01124	PROBABLE NUCLEAR ANTIGEN (Pseudorabies virus)

ลำดับ	หมายเลข ยีน	หมายเลข ยีนตาม ต้นฉบับ	รายละเอียดยีน
45	99	D45887	Human mRNA for calmodulin, complete cds.
46	100	T52185	P17074 40S RIBOSOMAL PROTEIN.
47	102	T57633	40S RIBOSOMAL PROTEIN S8 (HUMAN).
48	103	T62878	CYTOCHROME C OXIDASE POLYPEPTIDE IV PRECURSOR (HUMAN);.
49	104	M57710	Human IgE-binding protein (epsilon-BP) mRNA, complete cds.
50	105	T72879	60S RIBOSOMAL PROTEIN L7A (HUMAN);.
51	107	T63370	GUANINE NUCLEOTIDE-BINDING PROTEIN BETA SUBUNIT-LIKE PROTEIN 12.3 (Homo sapiens)
52	111	R78934	ENDOTHELIAL ACTIN-BINDING PROTEIN (Homo sapiens)
53	115	X67325	H.sapiens p27 mRNA.
54	118	T72889	INTERFERON-INDUCIBLE PROTEIN 1-8U (HUMAN);.
55	123	M28214	RAS-RELATED PROTEIN RAB-3B (HUMAN);.
56	125	U12255	Human IgG Fc receptor hFcRn mRNA, complete cds.
57	127	T51529	ELONGATION FACTOR 1-DELTA (Artemia salina)
58	132	R49974	LEUKOCYTE ANTIGEN CD37 (Homo sapiens)
59	134	H87366	CENTROMERIC PROTEIN E (Homo sapiens)
60	136	T62856	P09895 60S RIBOSOMAL PROTEIN ;.
61	137	D25217	Human mRNA (KIAA0027) for ORF, partial cds.
62	138	M26697	Human nucleolar protein (B23) mRNA, complete cds.
63	139	T65003	P29316 60S RIBOSOMAL PROTEIN ;.
64	141	D21261	SM22-ALPHA HOMOLOG (HUMAN);.
65	143	R28373	HEMOGLOBIN BETA CHAIN (HUMAN);.
66	145	H48072	CYTOCHROME C OXIDASE POLYPEPTIDE VIA-LIVER (HUMAN);.
67	147	R34698	INTERFERON-INDUCIBLE PROTEIN 9-27 (HUMAN);.
68	151	M86553	Human cathepsin S mRNA, complete cds.
69	163	H70425	INTERFERON-ALPHA RECEPTOR PRECURSOR (Homo sapiens)
70	164	X57351	INTERFERON-INDUCIBLE PROTEIN 1-8D (HUMAN);contains MSR1 repetitive element ;.
71	165	M14200	Human diazepam binding inhibitor (DBI) mRNA, complete cds.
72	166	T52342	Human tra1 mRNA for human homologue of murine tumor rejection antigen gp96.
73	169	R37276	EUKARYOTIC INITIATION FACTOR 4 GAMMA (Homo sapiens)
74	173	M19311	Human calmodulin mRNA, complete cds.
75	175	T94579	Human chitotriosidase precursor mRNA, complete cds.
76	181	D14662	Human mRNA for ORF, complete cds.
77	183	X51346	Human jun-D mRNA for JUN-D protein.
78	187	T51023	HEAT SHOCK PROTEIN HSP 90-BETA (HUMAN).
79	188	T63133	THYMOSIN BETA-10 (HUMAN);.
80	189	T64467	P33477 ANNEXIN XI ;.
81	190	D63874	Human mRNA for HMG-1.
82	191	R93738	GRANULINS PRECURSOR (Cavia porcellus)
83	194	Z22572	H.sapiens CDEI binding protein mRNA.
84	196	R43309	ZONA PELLUCIDA SPERM-BINDING PROTEIN 2 PRECURSOR (Homo sapiens)
85	198	T57630	S34195 RIBOSOMAL PROTEIN L3 -.
86	199	L28010	Homo sapiens HnRNP F protein mRNA, complete cds.
87	200	T61338	PROHIBITIN (Rattus norvegicus)
88	201	Z24727	H.sapiens tropomyosin isoform mRNA, complete CDS.

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89	202	X15822	Human COX VIIa-L mRNA for liver-specific cytochrome c oxidase (EC 1.9.3.1).
90	207	R21547	TRANS-ACTING TRANSCRIPTIONAL PROTEIN ICP0 (Bovine herpesvirus type 1)
91	211	T47424	INSULIN RECEPTOR SUBSTRATE-1 (Homo sapiens)
92	214	L09159	Homo sapiens RHOA proto-oncogene multi-drug-resistance protein mRNA, 3' end.
93	221	X53743	H.sapiens mRNA for fibulin-1 C.
94	223	Y00264	Human mRNA for amyloid A4 precursor of Alzheimer's disease.
95	224	T51852	VIMENTIN (HUMAN).
96	226	M22806	Human prolyl 4-hydroxylase beta-subunit and disulfide isomerase (P4HB) gene, exon 11, clones 6B-(1,3,5,6).
97	227	M64445	Human GM-CSF receptor mRNA, complete cds.
98	229	T74556	ATP SYNTHASE ALPHA CHAIN, MITOCHONDRIAL PRECURSOR (HUMAN);.
99	235	T63591	60S ACIDIC RIBOSOMAL PROTEIN P0 (HUMAN);.
100	237	T50334	14-3-3-LIKE PROTEIN GF14 OMEGA (Arabidopsis thaliana)
101	241	M36981	Human putative NDP kinase (nm23-H2S) mRNA, complete cds.
102	245	M76378	Human cysteine-rich protein (CRP) gene, exons 5 and 6.
103	248	R16255	SERINE/THREONINE PROTEIN PHOSPHATASE 2B CATALYTIC SUBUNIT 2 (Homo sapiens)
104	249	M63391	Human desmin gene, complete cds.
105	250	U20982	Human insulin-like growth factor binding protein-4 (IGFBP4) gene, promoter and complete cds.
106	252	T51613	UBIQUINOL-CYTOCHROME C REDUCTASE 11 KD PROTEIN (HUMAN);.
107	254	H80975	PLASMA PROTEASE C1 INHIBITOR PRECURSOR (HUMAN);.
108	257	X61123	Human BTG1 mRNA.
109	258	M16937	Human homeo box c1 protein, mRNA, complete cds.
110	264	M26252	PYRUVATE KINASE, M2 ISOZYME (HUMAN);.
111	266	H01346	EUKARYOTIC INITIATION FACTOR 4 GAMMA (Homo sapiens)
112	267	M76378	Human cysteine-rich protein (CRP) gene, exons 5 and 6.
113	271	D14520	Human mRNA for GC-Box binding protein BTEB2, complete cds.
114	273	T69748	PHOSPHOGLYCERATE KINASE 1 (HUMAN);.
115	276	T53694	COMPLEMENT C1Q SUBCOMPONENT, A CHAIN PRECURSOR (Homo sapiens)
116	277	R54941	GUANYLATE KINASE HOMOLOG (Vaccinia virus)
117	278	R83904	ER LUMEN PROTEIN RETAINING RECEPTOR 1 (Homo sapiens)
118	279	K03460	Human alpha-tubulin isotype H2-alpha gene, last exon.
119	280	J05272	INOSINE-5'-MONOPHOSPHATE DEHYDROGENASE 1 (HUMAN);.
120	281	T79152	60S RIBOSOMAL PROTEIN L19 (HUMAN);.
121	283	T69446	EUKARYOTIC INITIATION FACTOR 4A-I (HUMAN);.
122	284	H38185	ACYL-COA-BINDING PROTEIN (Homo sapiens)
123	286	H64489	LEUKOCYTE ANTIGEN CD37 (Homo sapiens)
124	290	R52271	OUTER MEMBRANE USHER PROTEIN PAPC PRECURSOR (Escherichia coli)
125	293	X57206	H.sapiens mRNA for 1D-myo-inositol-trisphosphate 3-kinase B isoenzyme.
126	295	X15183	Human mRNA for 90-kDa heat-shock protein.
127	296	M86400	Human phospholipase A2 mRNA, complete cds.
128	297	H03461	MITOCHONDRIAL PROTEIN IMPORT PROTEIN 2 (Saccharomyces cerevisiae)
129	299	T55248	78 KD GLUCOSE REGULATED PROTEIN PRECURSOR (HUMAN).
130	304	X87342	H.sapiens mRNA for human giant larvae homolog.
131	306	J00231	Human Ig gamma3 heavy chain disease OMM protein mRNA.
132	312	M86752	TRANSFORMATION-SENSITIVE PROTEIN IEF SSP 3521 (HUMAN);.

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133	315	X63187	H.sapiens HE4 mRNA for extracellular proteinase inhibitor homologue.
134	316	U26401	Human galactokinase (galK) mRNA, complete cds.
135	317	M19045	Human lysozyme mRNA, complete cds.
136	323	U28963	Human Gps2 (GPS2) mRNA, complete cds.
137	325	Z46389	Homo sapiens encoding vasodilator-stimulated phosphoprotein (VASP).
138	328	H40705	MYOSIN REGULATORY LIGHT CHAIN 2, NONSARCOMERIC (HUMAN);.
139	329	M65028	Human hnRNP type A/B protein mRNA, complete cds.
140	331	X62153	H.sapiens mRNA for P1 protein (P1.h).
141	334	H65823	CYSTATIN B (HUMAN);.
142	339	M93010	Human epithelial cell marker protein 1 (HME1) mRNA, complete cds.
143	341	D13315	LACTOYLGLUTATHIONE LYASE (HUMAN);contains Alu repetitive element;.
144	343	Y00345	Human mRNA for polyA binding protein.
145	345	X80026	H.sapiens B-cam mRNA.
146	347	T52642	GUANYLATE KINASE HOMOLOG (Vaccinia virus)
147	348	U05681	Human proto-oncogene (BCL3) gene, exons 3-9 and complete cds.
148	350	D26129	RIBONUCLEASE PANCREATIC PRECURSOR (HUMAN);contains element MER21 repetitive element ;.
149	353	T57882	MYOSIN HEAVY CHAIN, NONMUSCLE TYPE A (Homo sapiens)
150	359	M83751	Human arginine-rich gene.
151	360	L09604	INTESTINAL MEMBRANE A4 PROTEIN (HUMAN);.
152	365	X14958	Human hmg1 mRNA for high mobility group protein Y.
153	369	T70058	P07157 ELONGATION FACTOR TU ;.
154	375	R49169	HLA CLASS I HISTOCOMPATIBILITY ANTIGEN, C-4 ALPHA CHAIN (Homo sapiens)
155	377	Z50753	H.sapiens mRNA for GCAP-II/uroguanylin precursor.
156	384	T56940	P24050 40S RIBOSOMAL PROTEIN.
157	390	R73052	Homo sapiens growth-arrest-specific protein (gas) mRNA, complete cds.
158	391	D31885	Human mRNA (KIAA0069) for ORF (novel proetin), partial cds.
159	395	R80966	CLATHRIN LIGHT CHAIN B (HUMAN);.
160	396	H85835	UNC-33 PROTEIN (Caenorhabditis elegans)
161	397	R44884	ADP,ATP CARRIER PROTEIN, LIVER ISOFORM T2 (HUMAN);.
162	399	U30825	Human splicing factor SRp30c mRNA, complete cds.
163	411	X87159	H.sapiens mRNA for beta subunit of epithelial amiloride-sensitive sodium channel.
164	413	H25136	INOSITOL 1,4,5-TRISPHOSPHATE-BINDING PROTEIN TYPE 2 RECEPTOR (Rattus norvegicus)
165	415	T60155	ACTIN, AORTIC SMOOTH MUSCLE (HUMAN);.
166	419	R44418	EBNA-2 NUCLEAR PROTEIN (Epstein-barr virus)
167	422	R77824	64 KD AUTOANTIGEN D1 (Homo sapiens)
168	427	L10284	Homo sapiens integral membrane protein, calnexin, (IP90) mRNA, complete cds.
169	428	U27143	Human protein kinase C inhibitor-I cDNA, complete cds.
170	429	T72403	HLA CLASS II HISTOCOMPATIBILITY ANTIGEN, DQ(3) ALPHA CHAIN PRECURSOR (Homo sapiens)
171	437	H41129	GALECTIN-1 (HUMAN);contains Alu repetitive element;.
172	440	M94556	SINGLE-STRANDED DNA-BINDING PROTEIN MITOCHONDRIAL PRECURSOR (HUMAN);.
173	444	T59878	PEPTIDYL-PROLYL CIS-TRANS ISOMERASE B PRECURSOR (HUMAN);.
174	447	R43913	P37879 LYSYL-TRNA SYNTHETASE ;.
175	448	X02875	Human mRNA (3'-fragment) for (2'-5') oligo A synthetase E (1,8 kb RNA).
176	449	R61359	BASIGIN PRECURSOR (Gallus gallus)

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177	451	X55187	Human mRNA for alpha-actinin, partial cds.
178	453	H61410	PLATELET GLYCOPROTEIN IV (Homo sapiens)
179	458	K03001	Human aldehyde dehydrogenase 2 mRNA.
180	462	R42291	DUAL SPECIFICITY MITOGEN-ACTIVATED PROTEIN KINASE KINASE 2 (Homo sapiens)
181	464	R44770	METABOTROPIC GLUTAMATE RECEPTOR 2 PRECURSOR (Rattus norvegicus)
182	465	L33075	Homo sapiens ras GTPase-activating-like protein (IQGAP1) mRNA, complete cds.
183	467	H40560	THIOREDOXIN (HUMAN);
184	469	T88712	VOLTAGE-DEPENDENT ANION-SELECTIVE CHANNEL PROTEIN 1 (Homo sapiens)
185	475	H39654	GUANINE NUCLEOTIDE-BINDING PROTEIN BETA SUBUNIT-LIKE PROTEIN 12.3 (Homo sapiens)
186	481	H56686	GENOME POLYPROTEIN (Hog cholera virus)
187	482	D00761	PROTEASOME COMPONENT C5 (HUMAN);
188	489	X72727	H.sapiens tunp mRNA for transformation upregulated nuclear protein.
189	493	R87126	MYOSIN HEAVY CHAIN, NONMUSCLE (Gallus gallus)
190	494	M37984	Human slow twitch skeletal muscle/cardiac muscle troponin C gene, complete cds.
191	495	H20426	NUCLEOSIDE DIPHOSPHATE KINASE (Ginglymostoma cirratum)
192	500	H17646	ELONGATION FACTOR 1-DELTA (HUMAN);
193	504	X55362	Human odc1 mRNA for ornithine decarboxylase.
194	508	H01677	GLUCOSE-6-PHOSPHATASE (Mus musculus)
195	510	D90188	Human mRNA for scavenger receptor type II (phSR2).
196	512	H82631	INTEGRIN ALPHA-1 PRECURSOR (Rattus norvegicus)
197	513	M22382	MITOCHONDRIAL MATRIX PROTEIN P1 PRECURSOR (HUMAN);
198	515	T56604	TUBULIN BETA CHAIN (Haliothis discus)
199	517	U30827	Human splicing factor SRp40-3 (SRp40) mRNA, complete cds.
200	519	M60484	Human protein phosphatase 2A catalytic subunit-beta gene, complete cds.
201	520	T95048	S22051 RIBOSOMAL PROTEIN HS24 - ;.
202	522	T88902	COT PROTO-ONCOGENE SERINE/THREONINE-PROTEIN KINASE (Homo sapiens)
203	523	M96839	Human proteinase 3 gene, exon 5 and cds (3' end).
204	527	U31215	Human metabotropic glutamate receptor 1 alpha (mGluR1alpha) mRNA, complete cds.
205	529	T57483	60S RIBOSOMAL PROTEIN L4 (HUMAN).
206	538	R37428	Human unknown protein mRNA, partial cds.
207	539	H65182	SIGNAL TRANSDUCER AND ACTIVATOR OF TRANSCRIPTION 1-ALPHA/BETA (Homo sapiens)
208	546	R49565	H.sapiens HSJ1 mRNA.
209	547	M37984	Human slow twitch skeletal muscle/cardiac muscle troponin C gene, complete cds.
210	548	T40645	Human Wiskott-Aldrich syndrome (WAS) mRNA, complete cds.
211	549	T49732	Human SnRNP core protein Sm D2 mRNA, complete cds.
212	550	M94630	Homo sapiens hnRNP-C like protein mRNA, complete cds.
213	554	H24401	MAP KINASE PHOSPHATASE-1 (Homo sapiens)
214	555	M33680	Human 26-kDa cell surface protein TAPA-1 mRNA, complete cds.
215	557	R83285	BUTYROPHILIN PRECURSOR (Bos taurus)
216	561	R46753	CYCLIN-DEPENDENT KINASE INHIBITOR 1 (Homo sapiens)
217	563	U07664	Human HB9 homeobox gene, exons 2 and 3 and complete cds.
218	564	M28128	Homo sapiens eosinophil cationic protein (ECP) mRNA, complete cds.
219	570	D55673	Human mRNA for heterogeneous nuclear ribonucleoprotein D (hnRNP D).
220	571	R42501	INOSINE-5'-MONOPHOSPHATE DEHYDROGENASE 2 (HUMAN);

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221	572	T58756	POL POLYPROTEIN (Lelystad virus)
222	576	D14812	Human mRNA for ORF, complete cds.
223	581	T51571	P24480 CALGIZZARIN.
224	582	H51015	PROTO-ONCOGENE DBL PRECURSOR (Homo sapiens)
225	583	H59599	HIGH AFFINITY IMMUNOGLOBULIN EPSILON RECEPTOR BETA-SUBUNIT (Mus musculus)
226	585	M63509	Human glutathione transferase M2 (GSTM2) mRNA, complete cds.
227	586	H17897	ADP,ATP CARRIER PROTEIN, FIBROBLAST ISOFORM (HUMAN);
228	590	R15447	CALNEXIN PRECURSOR (Homo sapiens)
229	591	H27921	ATRIAL NATRIURETIC PEPTIDE RECEPTOR A PRECURSOR (Homo sapiens)
230	601	D16431	Human mRNA for hepatoma-derived growth factor, complete cds.
231	602	H28711	Human tetracycline transporter-like protein mRNA, complete cds.
232	609	R21427	PROTEIN-TYROSINE PHOSPHATASE PTP-H1 (Homo sapiens)
233	611	L06895	Homo sapiens antagonist of myc transcriptional activity (Mad) mRNA, complete cds.
234	615	R94588	CELL DIVISION PROTEIN KINASE 2 (HUMAN);
235	617	H67764	ESTROGEN SULFOTRANSFERASE (Bos taurus)
236	619	H89087	SPLICING FACTOR SC35 (Homo sapiens)
237	621	L19437	TRANSALDOLASE (HUMAN);contains Alu repetitive element;contains PTR5 repetitive element ;
238	622	M28129	Homo sapiens eosinophil-derived neurotoxin (EDN) mRNA, complete cds.
239	624	T51250	CYTOCHROME C OXIDASE POLYPEPTIDE VIII-LIVER/HEART (HUMAN).
240	625	X12671	Human gene for heterogeneous nuclear ribonucleoprotein (hnRNP) core protein A1.
241	627	Z48541	H.sapiens mRNA for protein tyrosine phosphatase.
242	632	U19796	Human melanoma antigen p15 mRNA, complete cds.
243	633	H87344	SERUM ALBUMIN PRECURSOR (Homo sapiens)
244	635	U07695	Human tyrosine kinase (HTK) mRNA, complete cds.
245	636	M85289	Human heparan sulfate proteoglycan (HSPG2) mRNA, complete cds.
246	639	H17434	NUCLEOLIN (HUMAN);
247	645	H42477	RAS-RELATED C3 BOTULINUM TOXIN SUBSTRATE 1 (Homo sapiens)
248	648	U02493	Human 54 kDa protein mRNA, complete cds.
249	652	R10066	PROHIBITIN (Homo sapiens)
250	653	T62864	GUANINE NUCLEOTIDE-BINDING PROTEIN G(S), ALPHA SUBUNIT (HUMAN);
251	654	D30755	Human mRNA (HA1652) for ORF, partial cds.
252	661	T62972	P02403 60S RIBOSOMAL PROTEIN ;
253	662	X68277	H.sapiens CL 100 mRNA for protein tyrosine phosphatase.
254	663	Z17227	H.sapiens mRNA for transmembrane receptor protein.
255	665	R38513	FIBROBLAST GROWTH FACTOR RECEPTOR 2 PRECURSOR (Homo sapiens)
256	667	H72110	T-CELL RECEPTOR BETA CHAIN PRECURSOR (Oryctolagus cuniculus)
257	679	X70944	H.sapiens mRNA for PTB-associated splicing factor.
258	685	L35249	VACUOLAR ATP SYNTHASE SUBUNIT B, BRAIN ISOFORM (HUMAN);
259	689	X73358	H.sapiens hAES-1 mRNA.
260	693	L11370	Human protocadherin 42 mRNA, complete cds for abbreviated PC42.
261	694	M88279	P59 PROTEIN (HUMAN);
262	698	T51261	GLIA DERIVED NEXIN PRECURSOR (Mus musculus)
263	701	U18920	Human chromosome 17q12-21 mRNA, clone pOV-3, partial cds.
264	704	U07695	Human tyrosine kinase (HTK) mRNA, complete cds.

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265	705	T83673	SYNAPTIC VESICLE PROTEIN 2 (Rattus norvegicus)
266	708	H17969	H.sapiens mRNA for 90K product.
267	716	M14200	Human diazepam binding inhibitor (DBI) mRNA, complete cds.
268	724	M34175	Human beta adaptin mRNA, complete cds.
269	726	M22490	Human bone morphogenetic protein-2B (BMP-2B) mRNA.
270	731	T47584	60S RIBOSOMAL PROTEIN L22 (HUMAN).
271	732	R67343	IMMEDIATE-EARLY REGULATORY PROTEIN IE-N (Autographa californica nuclear polyhedrosis virus)
272	733	D00763	PROTEASOME COMPONENT C9 (HUMAN);.
273	734	X66839	H.sapiens MaTu MN mRNA for p54/58N protein.
274	737	M69135	Human monoamine oxidase B (MAOB) gene, exon 15.
275	738	L01664	Human eosinophil Charcot-Leyden crystal (CLC) protein (lysophospholipase) mRNA, complete cds.
276	739	X12369	TROPOMYOSIN ALPHA CHAIN, SMOOTH MUSCLE (HUMAN);.
277	740	Z35093	H.sapiens mRNA for SURF-1.
278	752	M32800	Human MHC class I truncated HLA G mRNA, complete cds.
279	756	T65438	PRE-MRNA SPLICING FACTOR SRP20 (Homo sapiens)
280	758	T78104	Human proline- arginine-rich end leucine-rich repeat protein PRELP mRNA, complete cds.
281	761	R27017	DOPAMINE- AND CAMP-REGULATED NEURONAL PHOSPHOPROTEIN, DARPP-32 (Bos taurus)
282	763	T54276	PROTEASOME COMPONENT C13 (HUMAN).
283	764	X05276	Human mRNA for fibroblast tropomyosin TM30 (pI).
284	765	M76378	Human cysteine-rich protein (CRP) gene, exons 5 and 6.
285	766	T47342	PHOSPHOGLYCERATE MUTASE, BRAIN FORM (Homo sapiens)
286	767	U07695	Human tyrosine kinase (HTK) mRNA, complete cds.
287	768	X66141	H.sapiens mRNA for cardiac ventricular myosin light chain-2.
288	770	L20688	Human GDP-dissociation inhibitor protein (Ly-GDI) mRNA, complete cds.
289	772	M81758	Homo sapiens skeletal muscle voltage-dependent sodium channel alpha subunit (SkM1) mRNA, complete cds.
290	774	X13451	Human mRNA for lymphocyte lineage-restricted mb-1 membrane glycoprotein C-term. (m-mb-1 homolog.).
291	776	H87465	PRE-MRNA SPLICING FACTOR SRP75 (Homo sapiens)
292	777	L41268	Homo sapiens natural killer-associated transcript 2 (NKAT2) mRNA, complete cds.
293	779	H24030	S40237 CHAPERONIN - ;.
294	780	H40095	MACROPHAGE MIGRATION INHIBITORY FACTOR (HUMAN);.
295	784	T61599	PROTEIN TRANSLATION FACTOR SUI1 HOMOLOG (Arabidopsis thaliana)
296	785	D13627	Human mRNA for ORF, complete cds.
297	786	H70250	BRAIN CALCIUM CHANNEL BII-2 PROTEIN (Oryctolagus cuniculus)
298	787	M83667	Human NF-IL6-beta protein mRNA, complete cds.
299	789	X14618	Human mRNA for acid phosphatase type 5 (EC 3.1.3.2).
300	790	H26419	APOLIPOPROTEIN D PRECURSOR (HUMAN);.
301	791	J04621	SYNDECAN-2 PRECURSOR (HUMAN);contains Alu repetitive element;.
302	792	R88740	ATP SYNTHASE COUPLING FACTOR 6, MITOCHONDRIAL PRECURSOR (HUMAN);.
303	794	R23889	TRANSFERRIN RECEPTOR PROTEIN (Homo sapiens)
304	795	L03840	Human fibroblast growth factor receptor 4 (FGFR4) mRNA, complete cds.
305	799	J03210	Human collagenase type IV mRNA, 3' end.
306	802	X70326	H.sapiens MacMarcks mRNA.

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307	803	R00285	PROTEIN KINASE CEK1 (Schizosaccharomyces pombe)
308	806	X15882	Human mRNA for collagen VI alpha-2 C-terminal globular domain.
309	807	M94132	Human mucin 2 (MUC2) mRNA sequence.
310	809	U34252	Human r-aminobutyraldehyde dehydrogenase mRNA, complete cds.
311	810	X79683	H.sapiens LAMB2 mRNA for beta2 laminin.
312	812	Z49269	H.sapiens gene for chemokine HCC-1.
313	813	M83738	Human protein-tyrosine phosphatase (PTPase MEG2) mRNA, complete cds.
314	814	Z30644	H.sapiens mRNA for chloride channel (putative) 2163bp.
315	817	R16665	ADENYLATE CYCLASE, TYPE V (Canis familiaris)
316	822	T92451	TROPOMYOSIN, FIBROBLAST AND EPITHELIAL MUSCLE-TYPE (HUMAN);.
317	823	X76228	H.sapiens mRNA for vacuolar H+ ATPase E subunit.
318	824	Z49269	H.sapiens gene for chemokine HCC-1.
319	825	X80754	H.sapiens mRNA for GTP-binding protein.
320	826	H22948	CORTICOTROPIN RELEASING FACTOR RECEPTOR PRECURSOR (Mus musculus)
321	830	R75843	TRANSLATIONAL INITIATION FACTOR 2 GAMMA SUBUNIT (Homo sapiens)
322	831	T53868	Human peroxisomal enoyl-CoA hydratase-like protein (HPXEL) mRNA, complete cds.
323	832	R81330	MYRISTOYLATED ALANINE-RICH C-KINASE SUBSTRATE (Homo sapiens)
324	834	U29092	Human ubiquitin conjugating enzyme mRNA, complete cds.
325	836	M23254	Human Ca2-activated neutral protease large subunit (CANP) mRNA, complete cds.
326	837	H11054	PROTEIN KINASE C, DELTA TYPE (HUMAN);.
327	838	T63496	SPORE GERMINATION PROTEIN B2 (Bacillus subtilis)
328	843	R37480	LEUKOTRIENE A-4 HYDROLASE (HUMAN);.
329	846	X80910	H.sapiens PPP1CB mRNA.
330	847	U07132	Human steroid hormone receptor Ner-I mRNA, complete cds.
331	855	L37033	Human FK-506 binding protein homologue (FKBP38) mRNA, complete cds.
332	860	R42994	EXTRACELLULAR SIGNAL-REGULATED KINASE 2 (Rattus norvegicus)
333	862	H21532	RETINOIC ACID RECEPTOR ALPHA-1 (Homo sapiens)
334	866	X82494	H.sapiens mRNA for fibulin-2.
335	875	T41207	COME OPERON PROTEIN 3 (Bacillus subtilis)
336	877	H85361	ATP-BINDING CASSETTE TRANSPORTER 2 (Mus musculus)
337	878	M87789	IG GAMMA-1 CHAIN C REGION (HUMAN);.
338	882	R33367	MEMBRANE COFACTOR PROTEIN PRECURSOR (Homo sapiens)
339	892	U31525	Human glycogenin mRNA, complete cds.
340	893	X72018	H.sapiens hTGR 1 mRNA.
341	895	Z14244	H.sapiens coxVIIb mRNA for cytochrome c oxidase subunit VIIb.
342	897	H43887	COMPLEMENT FACTOR D PRECURSOR (Homo sapiens)
343	899	T41094	DNA-BINDING PROTEIN (Autographa californica nuclear polyhedrosis virus)
344	907	M14016	UROPORPHYRINOGEN DECARBOXYLASE (HUMAN);contains element PTR5 repetitive element ;.
345	909	H75955	B-CELL LYMPHOMA 6 PROTEIN (Homo sapiens)
346	912	X52541	Human mRNA for early growth response protein 1 (hEGR1).
347	914	L13939	Human beta adaptin protein mRNA, complete cds.
348	915	U28389	Human dematin 52 kDa subunit mRNA, complete cds.
349	918	X16356	Human mRNA for transmembrane carcinoembryonic antigen BGPC (part.) (formerly TM3-CEA).
350	927	U09466	Human heme A:farnesyltransferase (COX10) mRNA, complete cds.

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351	928	T93284	COMPLEMENT C1S COMPONENT PRECURSOR (Homo sapiens)
352	929	M96233	Human glutathione transferase class mu number 4 (GSTM4) gene, complete cds.
353	932	L38503	Homo sapiens glutathione S-transferase theta 2 (GSTT2) mRNA, complete cds.
354	934	Y00815	Human mRNA for LCA-homolog. LAR protein (leukocyte antigen related).
355	935	L13042	Homo sapiens calbindin D-9k gene, 5' end cds.
356	936	T54364	PROTEASOME COMPONENT C2 (HUMAN).
357	938	R54401	SYNAPTOTAGMIN IV (Mus musculus)
358	950	R42244	ANTIGEN PEPTIDE TRANSPORTER 1 (HUMAN);.
359	955	T61090	ENDOGLIN PRECURSOR (Homo sapiens)
360	958	T50321	APOLIPOPROTEIN A-I PRECURSOR (Homo sapiens)
361	959	T89115	HETEROGENEOUS NUCLEAR RIBONUCLEOPROTEIN K (Homo sapiens)
362	962	R78927	COATOMER BETA' SUBUNIT (HUMAN);.
363	964	T86473	NUCLEOSIDE DIPHOSPHATE KINASE A (HUMAN);.
364	967	R48936	GLYCOPROTEIN VP7 (Chicken rotavirus a)
365	973	T65740	SINGLE-STRANDED DNA BINDING PROTEIN P9 PRECURSOR (Mus musculus)
366	974	U00968	STEROL REGULATORY ELEMENT BINDING PROTEIN 1 (HUMAN);.
367	978	J04026	Human thioredoxin (TXN) mRNA, complete cds.
368	979	H40137	IRON-RESPONSIVE ELEMENT BINDING PROTEIN (Homo sapiens)
369	980	U06698	Human neuronal kinesin heavy chain mRNA, complete cds.
370	981	H09137	UBIQUINOL-CYTOCHROME C REDUCTASE CORE PROTEIN 2 PRECURSOR (HUMAN);.
371	982	X82103	H.sapiens mRNA for beta-COP.
372	983	L07395	PROTEIN PHOSPHATASE PP1-GAMMA CATALYTIC SUBUNIT (HUMAN);.
373	986	D78134	Human mRNA for CIRP.
374	987	M10065	Human apolipoprotein E (epsilon-4 allele) gene, complete cds.
375	989	T90280	RIBOPHORIN II PRECURSOR (HUMAN);.
376	992	X12466	Human mRNA for snRNP E protein.
377	993	X15880	Human mRNA for collagen VI alpha-1 C-terminal globular domain.
378	994	T51858	EUKARYOTIC INITIATION FACTOR 4B (Homo sapiens)
379	1002	R08183	Q04984 10 KD HEAT SHOCK PROTEIN, MITOCHONDRIAL ;.
380	1003	R44677	IMMEDIATE-EARLY PROTEIN IE180 (Pseudorabies virus)
381	1004	R60883	HLA CLASS II HISTOCOMPATIBILITY ANTIGEN, DQ(W1.1) BETA CHAIN PRECURSOR (Homo sapiens)
382	1006	T53889	COMPLEMENT C1R COMPONENT PRECURSOR (HUMAN).
383	1007	D11086	Human mRNA for interleukin 2 receptor gamma chain.
384	1010	J04813	Human cytochrome P450 PCN3 gene, complete cds.
385	1014	R43914	CREB-BINDING PROTEIN (Mus musculus)
386	1022	R38513	FIBROBLAST GROWTH FACTOR RECEPTOR 2 PRECURSOR (Homo sapiens)
387	1028	L10717	TYROSINE-PROTEIN KINASE LYK (HUMAN);contains Alu repetitive element;.
388	1030	H81068	SYNAPTOTAGMIN III (Rattus norvegicus)
389	1031	L06328	Human voltage-dependent anion channel isoform 2 (VDAC) mRNA, complete cds.
390	1032	R20554	PROBABLE PROTEIN DISULFIDE ISOMERASE ER-60 PRECURSOR (HUMAN);.
391	1033	M69066	MOESIN (HUMAN);contains PTR5 repetitive element ;.
392	1039	L24203	Homo sapiens ataxia-telangiectasia group D-associated protein mRNA, complete cds.
393	1042	R36977	P03001 TRANSCRIPTION FACTOR IIIA ;.
394	1043	M86737	Human high mobility group box (SSRP1) mRNA, complete cds.

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395	1045	M80613	Human homolog of Drosophila female sterile homeotic mRNA, complete cds.
396	1046	M22632	Human mitochondrial aspartate aminotransferase mRNA, complete cds.
397	1047	U09587	Human glycyl-tRNA synthetase mRNA, complete cds.
398	1048	X01060	Human mRNA for transferrin receptor.
399	1049	R72827	INTERCELLULAR ADHESION MOLECULE-3 PRECURSOR (HUMAN);
400	1050	M69043	MAJOR HISTOCOMPATIBILITY COMPLEX ENHANCER-BINDING PROTEIN (HUMAN);
401	1053	T72599	PROBABLE NUCLEAR ANTIGEN (Pseudorabies virus)
402	1057	U31248	Human zinc finger protein (ZNF174) mRNA, complete cds.
403	1058	M80815	H.sapiens a-L-fucosidase gene, exon 7 and 8, and complete cds.
404	1060	U09564	Human serine kinase mRNA, complete cds.
405	1062	Y00097	Human mRNA for protein p68.
406	1063	D13641	Human mRNA for ORF, complete cds.
407	1067	T70062	Human nuclear factor NF45 mRNA, complete cds.
408	1068	M98326	VALYL-TRNA SYNTHETASE (HUMAN);
409	1069	X05610	Human mRNA for type IV collagen alpha (2) chain.
410	1073	R98842	PROTHYMOSIN ALPHA (Homo sapiens)
411	1076	M29065	Human hnRNP A2 protein mRNA.
412	1080	D16481	Human mRNA for mitochondrial 3-ketoacyl-CoA thiolase beta-subunit of trifunctional protein, complete cds.
413	1089	T65790	FARNESYL PYROPHOSPHATE SYNTHETASE (HUMAN);
414	1091	M65105	SODIUM-DEPENDENT NORADRENALINE TRANSPORTER (HUMAN);contains Alu repetitive element;
415	1094	R33481	TRANSCRIPTION FACTOR ATF-A AND ATF-A-DELTA (Homo sapiens)
416	1100	Z23064	H.sapiens mRNA gene for hnRNP G protein.
417	1102	T51558	PROCOLLAGEN ALPHA 1(I) CHAIN PRECURSOR (HUMAN).
418	1106	H92182	RETINOIC ACID-BINDING PROTEIN I, CELLULAR (Bos taurus)
419	1110	L08069	Human heat shock protein, E. coli DnaJ homologue mRNA, complete cds.
420	1111	D31716	Human mRNA for GC box binding protein, complete cds.
421	1113	M81635	Homo sapiens erythrocyte membrane protein mRNA, complete cds.
422	1115	R97912	SERINE/THREONINE-PROTEIN KINASE IPL1 (Saccharomyces cerevisiae)
423	1119	X59511	H.sapiens mRNA for beta-spectrin (3' partial).
424	1123	J03004	Human guanine nucleotide-binding regulatory protein (G) alpha-inhibitory-subunit mRNA, complete cds.
425	1131	U05572	Human lysosomal alpha-mannosidase (MANB) mRNA, complete cds.
426	1135	R44887	NEDD5 PROTEIN (Mus musculus)
427	1136	T56690	CHLORINE CHANNEL PROTEIN P64 (Bos taurus)
428	1137	M34175	Human beta adaptin mRNA, complete cds.
429	1139	R56401	RAN-SPECIFIC GTPASE-ACTIVATING PROTEIN (Homo sapiens)
430	1141	X61587	H.sapiens rhoG mRNA for GTPase.
431	1142	X72889	H.sapiens hbrm mRNA.
432	1146	R76863	DNA-DIRECTED RNA POLYMERASE II LARGEST SUBUNIT (Caenorhabditis elegans)
433	1153	R84411	SMALL NUCLEAR RIBONUCLEOPROTEIN ASSOCIATED PROTEINS B AND B' (HUMAN);
434	1163	U14394	Human tissue inhibitor of metalloproteinases-3 mRNA, complete cds.
435	1168	U04953	Human isoleucyl-tRNA synthetase mRNA, complete cds.
436	1175	H29895	GUANINE NUCLEOTIDE-BINDING PROTEIN G(T) GAMMA-1 SUBUNIT (Homo sapiens)
437	1176	T60437	MITOCHONDRIAL PROCESSING PEPTIDASE BETA SUBUNIT PRECURSOR (Neurospora crassa)

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438	1186	H40269	PHOSPHOGLYCERATE KINASE 1 (Homo sapiens)
439	1187	M37583	Human histone (H2A.Z) mRNA, complete cds.
440	1194	D00762	PROTEASOME COMPONENT C8 (HUMAN);.
441	1196	D13315	LACTOYLGLUTATHIONE LYASE (HUMAN);contains Alu repetitive element;.
442	1197	T71001	PROLIFERATION-ASSOCIATED PROTEIN PAG (HUMAN);.
443	1199	R40717	MAJOR SURFACE ANTIGEN PRECURSOR (Hepatitis b virus)
444	1200	H65355	ANNEXIN II (Homo sapiens)
445	1209	R96357	POLYADENYLATE-BINDING PROTEIN (Xenopus laevis)
446	1210	R55310	S36390 MITOCHONDRIAL PROCESSING PEPTIDASE ;.
447	1211	T92259	PROTEASOME IOTA CHAIN (HUMAN);.
448	1212	H51196	INSULIN RECEPTOR-RELATED RECEPTOR PRECURSOR (Cavia porcellus)
449	1213	M93651	SET PROTEIN (HUMAN);contains Alu repetitive element;.
450	1221	R62549	PUTATIVE SERINE/THREONINE-PROTEIN KINASE B0464.5 IN CHROMOSOME III (Caenorhabditis elegans)
451	1227	T96873	HYPOTHETICAL PROTEIN IN TRPE 3'REGION (Spirochaeta aurantia)
452	1231	H49870	MAD PROTEIN (Homo sapiens)
453	1233	R56207	SODIUM CHANNEL PROTEIN PARA (Drosophila melanogaster)
454	1241	T64885	GENERAL NEGATIVE REGULATOR OF TRANSCRIPTION SUBUNIT 1 (Saccharomyces cerevisiae)
455	1244	X53461	Human mRNA for upstream binding factor (hUBF).
456	1247	X74295	H.sapiens mRNA for alpha 7B integrin.
457	1248	D43950	Human mRNA (KIAA0098) for ORF (human counterpart of mouse chaperonin containing TCP-1 gene), partial cds.
458	1249	M59371	TYROSINE-PROTEIN KINASE RECEPTOR ECK PRECURSOR (HUMAN);.
459	1252	T75577	1D-MYO-INOSITOL-TRISPHOSPHATE 3-KINASE B (Homo sapiens)
460	1255	T71574	PROTEIN-TYROSINE PHOSPHATASE DELTA (Homo sapiens)
461	1256	U22055	Human 100 kDa coactivator mRNA, complete cds.
462	1257	J02645	TRANSLATIONAL INITIATION FACTOR 2 ALPHA SUBUNIT (HUMAN);.
463	1258	R67358	MAP KINASE PHOSPHATASE-1 (Homo sapiens)
464	1259	R46739	HLA-B-ASSOCIATED TRANSCRIPT 3 (Homo sapiens)
465	1260	X89986	H.sapiens mRNA for NBK apoptotic inducer protein.
466	1263	T40454	ANTIGENIC SURFACE DETERMINANT PROTEIN OA3 PRECURSOR (Homo sapiens)
467	1266	Z17240	Homo sapiens for mRNA encoding HMG2B.
468	1271	X81817	H.sapiens BAP31 mRNA.
469	1272	M92843	TRISTETRAPROLINE (HUMAN);.
470	1279	X68149	H.sapiens BLR1 gene for Burkitt's lymphoma receptor 1.
471	1280	X16354	Human mRNA for transmembrane carcinoembryonic antigen BGPa (formerly TM1-CEA).
472	1282	L25081	TRANSFORMING PROTEIN RHOC (HUMAN);.
473	1285	X12496	Human mRNA for erythrocyte membrane sialoglycoprotein beta (glycophorin C).
474	1286	D16294	Human mRNA for mitochondrial 3-oxoacyl-CoA thiolase, complete cds.
475	1288	X67155	MITOTIC KINESIN-LIKE PROTEIN-1 (HUMAN);contains Alu repetitive element;.
476	1289	R62459	TROPONIN C, ISOFORM 2 (Balanus nubilis)
477	1292	R45942	BETA GALACTOSIDASE-RELATED PROTEIN PRECURSOR (HUMAN);.
478	1293	H23544	GTP-BINDING NUCLEAR PROTEIN RAN (Homo sapiens)
479	1294	U21049	Human DD96 mRNA, complete cds.
480	1297	H62828	ATP SYNTHASE A CHAIN (Trypanosoma brucei brucei)

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481	1306	D17400	Human mRNA for 6-pyruvoyl-tetrahydropterin synthase, complete cds.
482	1308	D14665	Human mRNA for ORF, complete cds.
483	1311	M13450	Human esterase D mRNA, 3'end.
484	1313	T84481	PHOSPHORYLASE B KINASE BETA REGULATORY CHAIN (<i>Oryctolagus cuniculus</i>)
485	1314	H20512	H.sapiens mRNA for Sm protein G.
486	1315	M97676	Homo sapiens (region 7) homeobox protein (HOX7) mRNA, complete cds.
487	1316	H54091	CASEIN KINASE I HOMOLOG HHP2 (<i>Schizosaccharomyces pombe</i>)
488	1319	X65873	KINESIN HEAVY CHAIN (HUMAN);.
489	1320	T47025	HEMAGGLUTININ-NEURAMINIDASE (Human parainfluenza 4a virus)
490	1325	T47377	S-100P PROTEIN (HUMAN).
491	1326	M94203	Homo sapiens protein kinase gene, 3' end of cds and trinucleotide repeat region.
492	1328	R39209	HUMAN IMMUNODEFICIENCY VIRUS TYPE I ENHANCER-BINDING PROTEIN 2 (Homo sapiens)
493	1334	H72234	DNA-(APURINIC OR APYRIMIDINIC SITE) LYASE (HUMAN);.
494	1335	X83301	H.sapiens SMA5 mRNA.
495	1339	U24166	Human EB1 mRNA, complete cds.
496	1340	T98555	DNA-DIRECTED RNA POLYMERASES I AND III 16 KD POLYPEPTIDE (<i>Saccharomyces cerevisiae</i>)
497	1345	H55759	RETINOL-BINDING PROTEIN I, CELLULAR (<i>Mus musculus</i>)
498	1346	T62947	60S RIBOSOMAL PROTEIN L24 (<i>Arabidopsis thaliana</i>)
499	1347	X02157	Human mRNA for fetal erythropoietin.
500	1348	X52228	Human mRNA for secreted epithelial tumour mucin antigen.
501	1351	X68688	H.sapiens ZNF33B gene.
502	1353	M31303	Human oncoprotein 18 (Op18) gene, complete cds.
503	1365	M26683	Human interferon gamma treatment inducible mRNA.
504	1366	Z11502	H.sapiens mRNA for intestine-specific annexin.
505	1367	R44052	TRANS-ACTING TRANSCRIPTIONAL PROTEIN ICP4 (<i>Equine herpesvirus type 1</i>)
506	1370	H22579	INTEGRIN ALPHA-6 PRECURSOR (Homo sapiens)
507	1372	X75208	H.sapiens HEK2 mRNA for protein tyrosine kinase receptor.
508	1378	T98835	80.7 KD ALPHA TRANS-INDUCING PROTEIN (<i>Bovine herpesvirus type 1</i>)
509	1380	M92287	Homo sapiens cyclin D3 (CCND3) mRNA, complete cds.
510	1383	H02540	CATHEPSIN L PRECURSOR (HUMAN);.
511	1386	L40992	Homo sapiens (clone PEBP2aA1) core-binding factor, runt domain, alpha subunit 1 (CBFA1) mRNA, 3' end of cds.
512	1387	L05144	PHOSPHOENOLPYRUVATE CARBOXYKINASE, CYTOSOLIC (HUMAN);contains Alu repetitive element;contains element PTR5 repetitive element ;.
513	1393	H77536	SUCCINATE DEHYDROGENASE (<i>Bos taurus</i>)
514	1394	H70635	EXTRACELLULAR SIGNAL-REGULATED KINASE 1 (<i>Candida albicans</i>)
515	1398	R56399	DEPRESSED GROWTH-RATE PROTEIN DEG1 (<i>Saccharomyces cerevisiae</i>)
516	1400	M59040	Human cell adhesion molecule (CD44) mRNA, complete cds.
517	1401	D13243	Human pyruvate kinase-L gene, exon 12.
518	1404	M14676	PROTO-ONCOGENE TYROSINE-PROTEIN KINASE FYN (HUMAN);.
519	1406	U26312	Human heterochromatin protein HP1Hs-gamma mRNA, partial cds.
520	1407	X86809	H.sapiens mRNA for major astrocytic phosphoprotein PEA-15.
521	1409	R40446	AXONIN-1 PRECURSOR (Homo sapiens)
522	1411	H77597	H.sapiens mRNA for metallothionein (HUMAN);.
523	1413	R11485	PROTEASOME ZETA CHAIN (HUMAN);.

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524	1414	R64115	ADENOSYLHOMOCYSTEINASE (Homo sapiens)
525	1415	X12548	Human mRNA for lysosomal acid phosphatase (EC 3.1.3.2).
526	1416	M28882	Human MUC18 glycoprotein mRNA, complete cds.
527	1417	L20859	Human leukemia virus receptor 1 (GLVR1) mRNA, complete cds.
528	1421	R48303	TYROSINE RICH ACIDIC MATRIX PROTEIN (Bos taurus)
529	1423	J02854	MYOSIN REGULATORY LIGHT CHAIN 2, SMOOTH MUSCLE ISOFORM (HUMAN);contains element TAR1 repetitive element .:
530	1439	H69695	EBNA-2 NUCLEAR PROTEIN (Epstein-barr virus)
531	1440	M35878	Human insulin-like growth factor-binding protein-3 gene, complete cds, clone HL1006d.
532	1442	M34175	Human beta adaptin mRNA, complete cds.
533	1447	T84049	SET PROTEIN (Homo sapiens)
534	1451	D15049	Human mRNA for protein tyrosine phosphatase.
535	1452	H23098	CHL1 PROTEIN (Saccharomyces cerevisiae)
536	1454	M29550	PROTEIN PHOSPHATASE 2B CATALYTIC SUBUNIT 1 (HUMAN);:
537	1457	U30498	Human retinoic acid-inducible E3 protein mRNA, complete cds.
538	1459	T40637	TYROSINE-PROTEIN KINASE TRANSFORMING PROTEIN ABL (Abelson murine leukemia virus)
539	1463	H15662	GLUTAMATE (Mus musculus)
540	1464	M18216	Human nonspecific crossreacting antigen mRNA, complete cds.
541	1465	L32977	Homo sapiens (clone f17252) ubiquinol cytochrome c reductase Rieske iron-sulphur protein (UQCRFS1) gene, exon 2.
542	1466	D00860	RIBOSE-PHOSPHATE PYROPHOSPHOKINASE I (HUMAN);:
543	1472	L41559	Homo sapiens pterin-4a-carbinolamine dehydratase (PCBD) mRNA, complete cds.
544	1473	R54097	TRANSLATIONAL INITIATION FACTOR 2 BETA SUBUNIT (HUMAN);:
545	1475	R80400	HLA CLASS II HISTOCOMPATIBILITY ANTIGEN, GAMMA CHAIN PRECURSOR (Homo sapiens)
546	1480	M64231	Human spermidine synthase gene, complete cds.
547	1482	T64012	ACETYLCHOLINE RECEPTOR PROTEIN, DELTA CHAIN PRECURSOR (Xenopus laevis)
548	1483	K03474	Human Mullerian inhibiting substance gene, complete cds.
549	1484	X57348	H.sapiens mRNA (clone 9112).
550	1489	U10324	Human nuclear factor NF90 mRNA, complete cds.
551	1493	M23115	Homo sapiens calcium-ATPase (HK2) mRNA, complete cds.
552	1494	X86693	H.sapiens mRNA for hevin like protein.
553	1495	Z14978	H.sapiens mRNA for actin-related protein.
554	1496	R35665	EPIDERMAL GROWTH FACTOR RECEPTOR PRECURSOR (Homo sapiens)
555	1499	D42046	Human mRNA (KIAA0083) for ORF (related to yeast gene in chromosome VIII), partial cds.
556	1501	H44044	APOLIPOPROTEIN AI REGULATORY PROTEIN-1 (Mus musculus)
557	1504	H78386	INTERLEUKIN-1 RECEPTOR, TYPE II PRECURSOR (Homo sapiens)
558	1509	M77829	Human channel-like integral membrane protein (CHIP28) mRNA, complete cds.
559	1511	Z25521	H.sapiens integrin associated protein mRNA, complete CDS,.
560	1514	R59202	MYOCYTE-SPECIFIC ENHANCER FACTOR 2, ISOFORM MEF2 (Homo sapiens)
561	1515	M81637	Human grancalcin mRNA, complete cds.
562	1516	H68239	SUPPRESSOR OF HAIRY WING PROTEIN (Drosophila virilis)
563	1524	T47719	JC2247 ACETYL-COA C-ACETYLTRANSFERASE.
564	1526	H05899	HETEROGENEOUS NUCLEAR RIBONUCLEOPROTEINS C1/C2 (HUMAN);:
565	1529	T66960	NUCLEAR FACTOR 1 CLONE PNF1/X (Mesocricetus auratus)
566	1531	M34344	Human platelet Glycoprotein IIb (GPIIb) gene, exon 30.

ลำดับ	หมายเลข ยีน	หมายเลข ยีนตาม ต้นฉบับ	รายละเอียดยีน
567	1534	X74330	H.sapiens mRNA for DNA primase (subunit p48).
568	1536	T67406	COMPLEMENT C4 PRECURSOR (Homo sapiens)
569	1537	Y00971	Human mRNA for phosphoribosyl pyrophosphate synthetase subunit II (EC 2.7.6.1).
570	1541	R42127	UBIQUITIN CARBOXYL-TERMINAL HYDROLASE ISOZYME L3 (HUMAN);.
571	1542	X53179	Human mRNA for neuronal nicotinic acetylcholine receptor beta-2 subunit.
572	1545	T61333	METALLOPROTEINASE INHIBITOR 3 PRECURSOR (Gallus gallus)
573	1546	T51493	Homo sapiens PP2A B56-gamma1 mRNA, 3' end of cds.
574	1547	R71875	GLYCOGENIN (Oryctolagus cuniculus)
575	1548	T40578	40S RIBOSOMAL PROTEIN S6 (Homo sapiens)
576	1549	H11084	VASCULAR ENDOTHELIAL GROWTH FACTOR (Cavia porcellus)
577	1551	U20141	Human inducible nitric oxide synthase mRNA, complete cds.
578	1555	L38929	Homo sapiens protein tyrosine phosphatase delta mRNA, complete cds.
579	1560	R06601	METALLOTHIONEIN-II (Homo sapiens)
580	1566	X07384	Human mRNA for GLI protein.
581	1567	R08021	INORGANIC PYROPHOSPHATASE (Bos taurus)
582	1568	D14695	Human mRNA (KIAA0025) for ORF (complete cds) and PIGHEP3 homologous region.
583	1570	H81558	PROCYCLIC FORM SPECIFIC POLYPEPTIDE B1-ALPHA PRECURSOR (Trypanosoma brucei brucei)
584	1573	D29641	Human mRNA (KIAA0052) for ORF, partial cds.
585	1574	L21993	Human adenylyl cyclase mRNA, 3' end of cds.
586	1580	T79831	MAP KINASE PHOSPHATASE-1 (Homo sapiens)
587	1581	R60877	DELTA-CRYSTALLIN ENHANCER BINDING FACTOR (Gallus gallus)
588	1582	X63629	H.sapiens mRNA for p cadherin.
589	1583	X13482	U2 SMALL NUCLEAR RIBONUCLEOPROTEIN A' (HUMAN);contains MER22 repetitive element ;.
590	1589	R71651	ACTIN DEPOLYMERIZING FACTOR (Lilium longiflorum)
591	1590	R74208	GENERAL NEGATIVE REGULATOR OF TRANSCRIPTION SUBUNIT 4 (Saccharomyces cerevisiae)
592	1596	X51435	Human PRDII-BF1 gene for a DNA-binding protein.
593	1597	T47383	ALKALINE PHOSPHATASE, PLACENTAL TYPE 1 PRECURSOR (Homo sapiens)
594	1599	L06132	OUTER MITOCHONDRIAL MEMBRANE PROTEIN PORIN (HUMAN);.
595	1608	L12723	Human heat shock protein 70 (hsp70) mRNA, complete cds.
596	1609	L37792	Human syntaxin 1A mRNA, complete cds.
597	1614	T51539	HEPATOCTE GROWTH FACTOR-LIKE PROTEIN PRECURSOR (Homo sapiens) --68dd_5699-4733_4d62-1290_1927 Content-Type: application/octet-stream Content-Transfer-Encoding: 7bit Content-MD5: NAlwVJQ4msWkg7LKAY/Asw== Content-Description: rank2b.info
598	1617	U30872	Human mitosin mRNA, complete cds.
599	1622	T86444	PROBABLE NUCLEAR ANTIGEN (Pseudorabies virus)
600	1623	T94993	FIBROBLAST GROWTH FACTOR RECEPTOR 2 PRECURSOR (Homo sapiens)
601	1625	R05291	SEROTRANSFERRIN PRECURSOR (Homo sapiens)
602	1630	L37936	Human nuclear-encoded mitochondrial elongation factor Ts (EF-Ts) mRNA, 3' end of cds.
603	1634	T83368	MEMBRANE COFACTOR PROTEIN PRECURSOR (Homo sapiens)
604	1635	M36634	Human vasoactive intestinal peptide (VIP) mRNA, complete cds.
605	1641	K02268	Human enkephalin B (enkB) gene, exon 4 and 3' flank and complete cds.
606	1642	L05485	Human surfactant protein D (SP-D) gene exon 7, complete cds.
607	1643	T56244	S38725 MULTICATALYTIC ENDOPEPTIDASE COMPLEX CHAIN RC7-I -.
608	1644	R80427	C4-DICARBOXYLATE TRANSPORT SENSOR PROTEIN DCTB (Rhizobium leguminosarum)
609	1648	T86749	Human (clone PSK-J3) cyclin-dependent protein kinase mRNA, complete cds.,.

ลำดับ	หมายเลข ยีน	หมายเลข ยีนตาม ต้นฉบับ	รายละเอียดยีน
610	1649	M31994	Human cytosolic aldehyde dehydrogenase (ALDH1) gene, exon 13.
611	1650	R71585	EBNA-2 NUCLEAR PROTEIN (Epstein-barr virus)
612	1651	U28686	Human putative RNA binding protein RNPL mRNA, complete cds.
613	1652	L19437	TRANSALDOLASE (HUMAN);contains Alu repetitive element;contains PTR5 repetitive element ;
614	1660	H14372	ATP-BINDING CASSETTE TRANSPORTER 1 (Mus musculus)
615	1663	X16663	Human HS1 gene for heamatopoietic lineage cell specific protein.
616	1664	H79136	ALPHA-2-MACROGLOBULIN PRECURSOR (Homo sapiens)
617	1665	X59842	Human PBX2 mRNA.
618	1666	R34876	Human SnRNP core protein Sm D3 mRNA, complete cds.
619	1667	M35252	Human CO-029.
620	1668	M82919	Human gamma amino butyric acid (GABAA) receptor beta-3 subunit mRNA, complete cds.
621	1669	U34074	Human A kinase anchor protein S-AKAP84 mRNA, nuclear gene encoding mitochondrial protein, complete cds.
622	1670	H23975	IG ALPHA-1 CHAIN C REGION (Gorilla gorilla gorilla)
623	1671	M26383	Human monocyte-derived neutrophil-activating protein (MONAP) mRNA, complete cds.
624	1672	D42047	Human mRNA (KIAA0089) for ORF (mouse glycerophosphate dehydrogenase-related), partial cds.
625	1674	T67077	SODIUM/POTASSIUM-TRANSPORTING ATPASE GAMMA CHAIN (Ovis aries)
626	1675	D00596	Human thymidylate syntase (EC 2.1.1.45) gene, complete cds.
627	1676	U03851	Human capping protein alpha mRNA, partial cds.
628	1679	X53586	Human mRNA for integrin alpha 6.
629	1683	T98274	PROTEIN KINASE MEK1/MRE4 (Saccharomyces cerevisiae)
630	1698	U20998	Homo sapiens signal recognition particle subunit 9 (SRP9) mRNA, complete cds.
631	1699	R39540	DELTA ANTIGEN (Hepatitis delta virus)
632	1705	T48692	ALPHA-2A ADRENERGIC RECEPTOR (Homo sapiens)
633	1707	U22897	Homo sapiens nuclear domain 10 protein (ndp52) mRNA, complete cds.
634	1713	R08829	PYRUVATE KINASE, ISOZYMES R/L (Homo sapiens)
635	1718	M60335	Human vascular cell adhesion molecule 1 mRNA, complete cds.
636	1724	H16991	NUCLEOLYSIN TIAR (HUMAN);.
637	1727	X60489	Human mRNA for elongation factor-1-beta.
638	1728	R75893	PROBABLE G PROTEIN-COUPLED RECEPTOR 6H1 FROM T-CELLS (Gallus gallus)
639	1729	R81170	TRANSLATIONALLY CONTROLLED TUMOR PROTEIN (Homo sapiens)
640	1730	X54942	H.sapiens ckshs2 mRNA for Cks1 protein homologue.
641	1732	J03569	Human lymphocyte activation antigen 4F2 large subunit mRNA, complete cds.
642	1734	H05695	POSSIBLE GUSTATORY RECEPTOR CLONE PTE38 (Rattus norvegicus)
643	1741	H64526	VIRION INFECTIVITY FACTOR (Visna lentivirus)
644	1744	H01482	PLECKSTRIN (Homo sapiens)
645	1746	X74795	H.sapiens P1-Cdc46 mRNA.
646	1748	U05291	Human fibromodulin mRNA, partial cds.
647	1750	T54303	KERATIN, TYPE II CYTOSKELETAL 8 (HUMAN).
648	1751	R40717	MAJOR SURFACE ANTIGEN PRECURSOR (Hepatitis b virus)
649	1758	H20819	26S PROTEASE REGULATORY SUBUNIT 6 (Homo sapiens)
650	1759	H11460	GOLIATH PROTEIN (Drosophila melanogaster)
651	1761	T94350	PERIPHERAL MYELIN PROTEIN 22 (Homo sapiens)
652	1763	X73902	H.sapiens mRNA for nicein B2 chain.

ลำดับ	หมายเลข ยีน	หมายเลข ยีนตาม ต้นฉบับ	รายละเอียดยีน
653	1764	T53549	HOMEOTIC GENE REGULATOR (<i>Drosophila melanogaster</i>)
654	1766	M75126	Human hexokinase 1 (HK1) mRNA, complete cds.
655	1767	H73943	40 KD PROTEIN KINASE (<i>Xenopus laevis</i>)
656	1770	U17899	Human chloride channel regulatory protein mRNA, complete cds.
657	1771	J05032	Human aspartyl-tRNA synthetase alpha-2 subunit mRNA, complete cds.
658	1772	H08393	COLLAGEN ALPHA 2(XI) CHAIN (<i>Homo sapiens</i>)
659	1775	T90350	MYOBLAST CELL SURFACE ANTIGEN 24.1D5 (<i>Homo sapiens</i>)
660	1780	R42095	TYROSINE KINASE SEK RECEPTOR PRECURSOR (<i>Mus musculus</i>)
661	1785	T50797	DEOXYURIDINE 5'-TRIPHOSPHATE NUCLEOTIDOHYDROLASE (HUMAN).
662	1786	M22050	Human MHC class II HLA-DRw11-beta-I chain (DRw11.3) gene (DRw11/w11), exon 5.
663	1790	U10362	Human GP36b glycoprotein mRNA, complete cds.
664	1791	T48904	HEAT SHOCK 27 KD PROTEIN (HUMAN).
665	1792	M85169	Human homologue of yeast sec7 mRNA, complete cds.
666	1794	R27369	INOSITOL 1,4,5-TRISPHOSPHATE-BINDING PROTEIN TYPE 1 RECEPTOR (<i>Mus musculus</i>)
667	1795	Z18948	S-100E PROTEIN (HUMAN);.
668	1797	L13738	Human activated p21cdc42Hs kinase (ack) mRNA, complete cds.
669	1798	X68314	H.sapiens mRNA for glutathione peroxidase-GI.
670	1799	R41873	PUTATIVE 126.9 KD TRANSCRIPTIONAL REGULATORY PROTEIN IN YSW1-RIB7 INTERGENIC REGION (<i>Saccharomyces cerevisiae</i>)
671	1802	T40674	30S RIBOSOMAL PROTEIN S18 (<i>Cyanophora paradoxa</i>)
672	1808	U21090	Human DNA polymerase delta small subunit mRNA, complete cds.
673	1812	X93510	H.sapiens mRNA for 37 kDa LIM domain protein.
674	1813	H02031	POLYPEPTIDE N-ACETYL GALACTOSAMINYL TRANSFERASE (<i>Bos taurus</i>)
675	1819	T71049	CYTOCHROME C OXIDASE POLYPEPTIDE VB PRECURSOR (HUMAN);.
676	1827	T55871	HEXOKINASE, TYPE I (<i>Homo sapiens</i>)
677	1832	X15943	Human calcitonin/alpha-CGRP gene.
678	1836	U14631	Human 11 beta-hydroxysteroid dehydrogenase type II mRNA, complete cds.
679	1838	H06245	PHOSPHOLIPASE ADRAB-B PRECURSOR (<i>Oryctolagus cuniculus</i>)
680	1839	X07290	Human HF.12 gene mRNA.
681	1842	M87434	Human 71 kDa 2'5' oligoadenylate synthetase (p69 2-5A synthetase) mRNA, complete cds.
682	1843	H06524	GELSOLIN PRECURSOR, PLASMA (HUMAN);.
683	1863	X89985	H.sapiens mRNA for BCL7B protein.
684	1867	U32519	Human GAP SH3 binding protein mRNA, complete cds.
685	1870	H55916	PEPTIDYL-PROLYL CIS-TRANS ISOMERASE, MITOCHONDRIAL PRECURSOR (HUMAN);.
686	1871	M84490	Human extracellular signal-regulated kinase 1 mRNA, 3' end.
687	1872	X69295	H.sapiens MSX2 mRNA for transcription factor.
688	1873	L07648	Human MXI1 mRNA, complete cds.
689	1874	L13385	<i>Homo sapiens</i> (clone 71) Miller-Dieker lissencephaly protein (LIS1) mRNA, complete cds.
690	1878	L04953	Human x11 protein (x11) mRNA, 3' end.
691	1884	R44301	MINERALOCORTICOID RECEPTOR (<i>Homo sapiens</i>)
692	1885	M85085	Human cleavage stimulation factor, complete cds.
693	1886	M84721	Human AMP deaminase (AMPD3) mRNA, complete cds.
694	1887	M58050	Human membrane cofactor protein (MCP) mRNA, complete cds.
695	1892	U25138	Human MaxiK potassium channel beta subunit mRNA, complete cds.
696	1894	X07767	Human mRNA for cAMP-dependent protein kinase catalytic subunit type alpha (EC 2.7.1.37).

ลำดับ	หมายเลข ยีน	หมายเลข ยีนตาม ต้นฉบับ	รายละเอียดยีน
697	1895	R99907	INTERFERON REGULATORY FACTOR 2 (Homo sapiens)
698	1896	M76558	Human neuronal DHP-sensitive, voltage-dependent, calcium channel alpha-1D subunit mRNA, complete cds.
699	1897	U19969	Human two-handed zinc finger protein ZEB mRNA, partial cds.
700	1900	X56597	Human humFib mRNA for fibrillar.
701	1902	U01038	Human pLK mRNA, complete cds.
702	1904	X54941	H.sapiens ckshs1 mRNA for Cks1 protein homologue.
703	1910	R45442	STE6 PROTEIN (Schizosaccharomyces pombe)
704	1912	R16156	RED CELL ACID PHOSPHATASE 1, ISOZYME F (Homo sapiens)
705	1914	U26710	Human cbl-b mRNA, complete cds.
706	1916	T41204	P14780 92 KD TYPE V COLLAGENASE PRECURSOR ,.
707	1917	M91463	Human glucose transporter (GLUT4) gene, complete cds.
708	1918	X77548	H. sapiens cDNA for RFG.
709	1920	J04102	Human erythroblastosis virus oncogene homolog 2 (ets-2) mRNA, complete cds.
710	1924	H64807	PLACENTAL FOLATE TRANSPORTER (Homo sapiens)
711	1929	H20503	CELL ADHESION PROTEIN (HUMAN);.
712	1937	H74178	RAPAMYCIN-SELECTIVE 25 KD IMMUNOPHILIN (Homo sapiens)
713	1939	X70297	NEURONAL ACETYLCHOLINE RECEPTOR PROTEIN, ALPHA-7 CHAIN (HUMAN);.
714	1942	R67999	PROBABLE ATP-DEPENDENT RNA HELICASE PRH1 (Schizosaccharomyces pombe)
715	1943	D29808	Human mRNA for T-cell acute lymphoblastic leukemia associated antigen 1 (TALLA-1), complete cds.
716	1946	L38951	Homo sapiens importin beta subunit mRNA, complete cds.
717	1953	M80359	PUTATIVE SERINE/THREONINE-PROTEIN KINASE P78 (HUMAN);contains MSR1 repetitive element ;.
718	1954	M35531	Human GDP-L-fucose:beta-D-galactoside 2-alpha-L-fucosyltransferase mRNA, complete cds.
719	1959	M15841	U2 SMALL NUCLEAR RIBONUCLEOPROTEIN B' (HUMAN);.
720	1960	D59253	Human mRNA for NCBP interacting protein 1.
721	1965	U05040	Human FUSE binding protein mRNA, complete cds.
722	1967	T60778	MATRIX GLA-PROTEIN PRECURSOR (Rattus norvegicus)
723	1970	R06749	ERYTHROID KRUEPPEL-LIKE TRANSCRIPTION FACTOR (Mus musculus)
724	1971	U24105	Human coatomer protein (HEPCOP) mRNA, complete cds.
725	1972	T57468	FIBRILLARIN (HUMAN).
726	1974	M64110	Human caldesmon mRNA, complete cds.
727	1976	K03474	Human Mullerian inhibiting substance gene, complete cds.
728	1978	D00760	PROTEASOME COMPONENT C3 (HUMAN);.
729	1981	H62854	CATHEPSIN S PRECURSOR (Homo sapiens)
730	1982	T89666	INTERLEUKIN-6 RECEPTOR BETA CHAIN PRECURSOR (Homo sapiens)
731	1983	D38551	Human mRNA (KIAA0078) for ORF (s.pombe rad21 gene product-related), complete cds.
732	1984	U12140	Human tyrosine kinase receptor p145TRK-B (TRK-B) mRNA, complete cds.
733	1985	M63239	Human tyrosinase gene, exon 5.
734	1987	M67454	Human Fas antigen (fas) mRNA, complete cds.
735	1988	T64128	TRANSCRIPTION FACTOR SP1 (Homo sapiens)
736	1991	X67699	H.sapiens HE5 mRNA for CDw52 antigen.
737	1993	L11706	Human hormone-sensitive lipase (LIPE) gene, complete cds.
738	1994	T90549	P-SELECTIN PRECURSOR (Homo sapiens)

ภาคผนวก ข

ผลการเปรียบเทียบค่าเฉลี่ย Sen และ Spe ของการจำแนกประเภทตัวแปร เมื่อคัดเลือกตัวแปรด้วย
วิธี VIP-1 วิธี VIP-BCT และวิธี VIIC-BCT โดยจำแนกตาม Pret, Mdif, Σ และ n

ตารางที่ 31 ผลการเปรียบเทียบค่าเฉลี่ย Sen ของการจำแนกประเภทตัวแปร เมื่อคัดเลือกตัวแปรด้วยวิธี VIP-1 วิธี VIP-BCT และวิธี VIIC-BCT โดยจำแนกตาม Prel, Mdif, Σ และ n

Prel	Mdif	n	Σ														
			Σ_1			Σ_2			Σ_3			Σ_4			Σ_5		
			VIP-1	VIP-BCT	VIIC-BCT	VIP-1	VIP-BCT	VIIC-BCT	VIP-1	VIP-BCT	VIIC-BCT	VIP-1	VIP-BCT	VIIC-BCT	VIP-1	VIP-BCT	VIIC-BCT
1		40	0.9848	0.7180	0.9028	0.9843	0.7143	0.9093	0.9908	0.7273	0.9238	0.9815	0.7200	0.9013	0.9885	0.7258	0.9215
		70	0.9988	0.9585	0.9920	1.0000	0.9613	0.9933	1.0000	0.9718	0.9908	0.9988	0.9518	0.9903	0.9998	0.9543	0.9920
		100	1.0000	0.9953	0.9995	1.0000	0.9943	1.0000	1.0000	0.9998	1.0000	1.0000	0.9950	0.9990	1.0000	0.9995	1.0000
1	3	40	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
		70	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
		100	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5		40	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
		70	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
		100	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

หมายเหตุ : Sen แทน Sensitivity

ตารางที่ 31 (ต่อ)

Prel	Mdif	n	Σ														
			Σ_1			Σ_2			Σ_3			Σ_4			Σ_5		
			VIP-1	VIP-BCT	VIIC-BCT	VIP-1	VIP-BCT	VIIC-BCT	VIP-1	VIP-BCT	VIIC-BCT	VIP-1	VIP-BCT	VIIC-BCT	VIP-1	VIP-BCT	VIIC-BCT
1	40	0.9803	0.7222	0.9002	0.9918	0.7313	0.9363	0.9813	0.7813	0.9505	0.9800	0.7196	0.9001	0.9883	0.7269	0.9198	
	70	0.9988	0.9527	0.9895	1.0000	0.9732	0.9993	1.0000	0.9878	1.0000	0.9993	0.9551	0.9885	0.9999	0.9587	0.9963	
	100	1.0000	0.9959	0.9994	1.0000	0.9986	1.0000	1.0000	0.9999	1.0000	1.0000	0.9948	0.9993	1.0000	0.9983	1.0000	
3	40	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
	70	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
	100	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
5	40	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
	70	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
	100	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	

ตารางที่ 31 (ต่อ)

Prel	Mdif	n	Σ														
			Σ_1			Σ_2			Σ_3			Σ_4			Σ_5		
			VIP-1	VIP-BCT	VIIC-BCT	VIP-1	VIP-BCT	VIIC-BCT	VIP-1	VIP-BCT	VIIC-BCT	VIP-1	VIP-BCT	VIIC-BCT	VIP-1	VIP-BCT	VIIC-BCT
1	40	0.9768	0.7174	0.8980	0.9986	0.7969	0.9602	0.9878	0.8524	0.9692	0.9761	0.7231	0.8961	0.9837	0.7439	0.9136	
	70	0.9977	0.9507	0.9903	1.0000	0.9922	1.0000	1.0000	0.9892	0.9960	0.9980	0.9569	0.9903	0.9983	0.9598	0.9923	
	100	1.0000	0.9956	0.9993	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999	0.9956	0.9993	1.0000	0.9966	0.9997	
5	3	40	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
	70	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
	100	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
5	5	40	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
	70	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
	100	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	

ตารางที่ 31 (ต่อ)

Prel	Mdif	n	Σ														
			Σ_1			Σ_2			Σ_3			Σ_4			Σ_5		
			VIP-1	VIP-BCT	VIIC-BCT	VIP-1	VIP-BCT	VIIC-BCT	VIP-1	VIP-BCT	VIIC-BCT	VIP-1	VIP-BCT	VIIC-BCT	VIP-1	VIP-BCT	VIIC-BCT
1	40	0.9661	0.7201	0.8958	1.0000	0.8367	0.9837	1.0000	0.9448	0.9964	0.9658	0.7198	0.8948	0.9723	0.7430	0.9036	
	70	0.9954	0.9525	0.9882	1.0000	0.9985	1.0000	1.0000	0.9960	1.0000	0.9957	0.9568	0.9885	0.9965	0.9640	0.9893	
	100	0.9993	0.9945	0.9989	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9996	0.9950	0.9991	0.9998	0.9967	0.9996	
10	40	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
	70	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
	100	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
5	40	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
	70	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
	100	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	

ตารางที่ 32 ผลการเปรียบเทียบค่าเฉลี่ย Spe ของการจำแนกประเภทตัวแปร เมื่อคัดเลือกตัวแปรด้วยวิธี VIP-1 วิธี VIP-BCT และวิธี VIIC-BCT โดยจำแนกตาม Prel, Mdif, Σ และ n

Prel	Mdif	n	Σ														
			Σ_1			Σ_2			Σ_3			Σ_4			Σ_5		
			VIP-1	VIP-BCT	VIIC-BCT	VIP-1	VIP-BCT	VIIC-BCT	VIP-1	VIP-BCT	VIIC-BCT	VIP-1	VIP-BCT	VIIC-BCT	VIP-1	VIP-BCT	VIIC-BCT
1		40	0.6944	0.9858	0.9293	0.6950	0.9854	0.9288	0.6940	0.9855	0.9314	0.6934	0.9856	0.9294	0.6942	0.9856	0.9300
		70	0.7092	0.9832	0.9270	0.7092	0.9834	0.9293	0.7122	0.9828	0.9291	0.7095	0.9834	0.9278	0.7104	0.9837	0.9302
		100	0.7229	0.9827	0.9284	0.7235	0.9818	0.9296	0.7275	0.9811	0.9299	0.7223	0.9825	0.9287	0.7249	0.9813	0.9295
1	3	40	0.7343	0.9858	0.9305	0.7340	0.9855	0.9299	0.7347	0.9853	0.9295	0.7331	0.9857	0.9286	0.7340	0.9850	0.9289
		70	0.7724	0.9838	0.9283	0.7715	0.9830	0.9290	0.7719	0.9822	0.9300	0.7727	0.9835	0.9285	0.7729	0.9826	0.9287
		100	0.8027	0.9829	0.9279	0.8035	0.9817	0.9310	0.8007	0.9808	0.9325	0.8032	0.9829	0.9303	0.8030	0.9816	0.9312
5		40	0.7459	0.9854	0.9293	0.7452	0.9857	0.9307	0.7456	0.9860	0.9308	0.7455	0.9861	0.9306	0.7461	0.9855	0.9311
		70	0.7895	0.9839	0.9290	0.7894	0.9837	0.9307	0.7887	0.9832	0.9289	0.7892	0.9838	0.9280	0.7896	0.9834	0.9299
		100	0.8234	0.9826	0.9279	0.8243	0.9821	0.9299	0.8247	0.9822	0.9322	0.8250	0.9832	0.9297	0.8246	0.9820	0.9293

หมายเหตุ : Spe แทน Specificity

ตารางที่ 32 (ต่อ)

Prel	Mdif	n	Σ														
			Σ_1			Σ_2			Σ_3			Σ_4			Σ_5		
			VIP-1	VIP-BCT	VIIC-BCT	VIP-1	VIP-BCT	VIIC-BCT	VIP-1	VIP-BCT	VIIC-BCT	VIP-1	VIP-BCT	VIIC-BCT	VIP-1	VIP-BCT	VIIC-BCT
1	40	0.7264	0.9854	0.9302	0.7271	0.9841	0.9315	0.7305	0.9832	0.9305	0.7261	0.9856	0.9304	0.7258	0.9848	0.9300	
	70	0.7614	0.9839	0.9285	0.7614	0.9809	0.9325	0.7688	0.9796	0.9327	0.7611	0.9841	0.9300	0.7607	0.9816	0.9322	
	100	0.7902	0.9826	0.9291	0.7861	0.9793	0.9344	0.7916	0.9784	0.9345	0.7896	0.9822	0.9308	0.7859	0.9799	0.9329	
3	40	0.8159	0.9860	0.9320	0.8155	0.9835	0.9329	0.8134	0.9832	0.9347	0.8166	0.9859	0.9324	0.8155	0.9849	0.9330	
	70	0.8785	0.9843	0.9290	0.8752	0.9804	0.9367	0.8694	0.9793	0.9397	0.8793	0.9835	0.9302	0.8779	0.9815	0.9342	
	100	0.9182	0.9829	0.9290	0.9110	0.9786	0.9409	0.8988	0.9794	0.9432	0.9195	0.9830	0.9328	0.9171	0.9801	0.9385	
5	40	0.8393	0.9854	0.9307	0.8378	0.9850	0.9337	0.8378	0.9842	0.9352	0.8392	0.9860	0.9316	0.8378	0.9854	0.9323	
	70	0.9033	0.9837	0.9294	0.9026	0.9813	0.9354	0.9013	0.9809	0.9381	0.9024	0.9842	0.9318	0.9029	0.9828	0.9325	
	100	0.9402	0.9834	0.9300	0.9395	0.9793	0.9395	0.9366	0.9792	0.9416	0.9403	0.9834	0.9318	0.9403	0.9811	0.9354	

ตารางที่ 32 (ต่อ)

Prel	Mdif	n	Σ																
			Σ_1			Σ_2			Σ_3			Σ_4			Σ_5				
			VIP-1	VIP-BCT	VIIC-BCT	VIP-1	VIP-BCT	VIIC-BCT	VIP-1	VIP-BCT	VIIC-BCT	VIP-1	VIP-BCT	VIIC-BCT	VIP-1	VIP-BCT	VIIC-BCT		
1	40	70	100	0.7542	0.9857	0.9291	0.7565	0.9824	0.9336	0.7592	0.9816	0.9335	0.7542	0.9856	0.9304	0.7542	0.9842	0.9325	
	40	70	100	0.8019	0.9836	0.9296	0.7945	0.9794	0.9368	0.7966	0.9800	0.9361	0.8022	0.9835	0.9304	0.7987	0.9808	0.9347	
	40	70	100	0.8391	0.9828	0.9303	0.8144	0.9793	0.9382	0.8100	0.9791	0.9366	0.8382	0.9820	0.9325	0.8289	0.9792	0.9368	
5	3	40	70	100	0.8703	0.9856	0.9300	0.8685	0.9823	0.9369	0.8603	0.9816	0.9395	0.8701	0.9852	0.9317	0.8707	0.9839	0.9346
	3	40	70	100	0.9337	0.9841	0.9320	0.9267	0.9802	0.9449	0.9080	0.9800	0.9457	0.9337	0.9835	0.9327	0.9327	0.9809	0.9375
	3	40	70	100	0.9645	0.9836	0.9335	0.9513	0.9799	0.9479	0.9260	0.9824	0.9469	0.9647	0.9824	0.9343	0.9634	0.9790	0.9414
5	5	40	70	100	0.8955	0.9859	0.9321	0.8945	0.9841	0.9381	0.8932	0.9825	0.9388	0.8955	0.9856	0.9332	0.8955	0.9852	0.9331
	5	40	70	100	0.9535	0.9847	0.9316	0.9522	0.9803	0.9397	0.9485	0.9791	0.9442	0.9539	0.9845	0.9337	0.9533	0.9825	0.9354
	5	40	70	100	0.9787	0.9837	0.9326	0.9771	0.9784	0.9463	0.9721	0.9797	0.9496	0.9789	0.9836	0.9337	0.9787	0.9813	0.9410

ตารางที่ 32 (ต่อ)

Prel	Mdif	N	Σ														
			Σ_1			Σ_2			Σ_3			Σ_4			Σ_5		
			VIP-1	VIP-BCT	VIIC-BCT	VIP-1	VIP-BCT	VIIC-BCT	VIP-1	VIP-BCT	VIIC-BCT	VIP-1	VIP-BCT	VIIC-BCT	VIP-1	VIP-BCT	VIIC-BCT
1	40	0.8103	0.9858	0.9308	0.7946	0.9804	0.9371	0.7919	0.9815	0.9385	0.8097	0.9854	0.9315	0.8091	0.9830	0.9347	
	70	0.8740	0.9840	0.9316	0.8176	0.9808	0.9395	0.7980	0.9803	0.9367	0.8737	0.9830	0.9321	0.8678	0.9792	0.9383	
	100	0.9148	0.9831	0.9326	0.8188	0.9816	0.9391	0.7876	0.9785	0.9329	0.9127	0.9811	0.9327	0.8981	0.9793	0.9429	
10	40	0.9452	0.9859	0.9359	0.9325	0.9809	0.9470	0.9083	0.9826	0.9482	0.9443	0.9854	0.9342	0.9443	0.9837	0.9395	
	70	0.9844	0.9846	0.9361	0.9655	0.9832	0.9496	0.9277	0.9845	0.9465	0.9843	0.9838	0.9366	0.9839	0.9803	0.9435	
	100	0.9952	0.9839	0.9353	0.9735	0.9852	0.9488	0.9337	0.9848	0.9433	0.9952	0.9822	0.9395	0.9952	0.9793	0.9490	
5	40	0.9632	0.9859	0.9354	0.9616	0.9813	0.9447	0.9565	0.9815	0.9475	0.9635	0.9861	0.9365	0.9635	0.9850	0.9398	
	70	0.9920	0.9847	0.9391	0.9902	0.9798	0.9503	0.9842	0.9818	0.9519	0.9924	0.9848	0.9389	0.9922	0.9819	0.9403	
	100	0.9982	0.9837	0.9380	0.9969	0.9817	0.9527	0.9906	0.9846	0.9505	0.9982	0.9834	0.9393	0.9981	0.9803	0.9445	

ภาคผนวก ค

เกณฑ์จุดตัดเฉลี่ยสำหรับดัชนี VIP เมื่อใช้วิธีการคัดเลือกตัวแปร VIP-BCT (BCT_{VIP})

โดยจำแนกตาม $Prel$, $Mdif$, Σ และ n

ตารางที่ 33 เกณฑ์จุดตัดเฉลี่ยสำหรับดัชนี VIP เมื่อใช้วิธีการคัดเลือกตัวแปร VIP-BCT (BCT_{VIP}) โดย
จำแนกตาม Prel, Mdif, Σ และ n

Prel	Mdif	Σ_1			Σ_2			Σ_3			Σ_4			Σ_5		
		$n=40$	$n=70$	$n=100$	$n=40$	$n=70$	$n=100$	$n=40$	$n=70$	$n=100$	$n=40$	$n=70$	$n=100$	$n=40$	$n=70$	$n=100$
1	1	2.36	2.30	2.24	2.35	2.27	2.21	2.34	2.26	2.19	2.35	2.30	2.23	2.35	2.28	2.21
	3	2.26	2.13	2.04	2.25	2.12	2.00	2.24	2.10	1.98	2.26	2.13	2.03	2.25	2.11	2.01
	5	2.22	2.09	1.98	2.22	2.09	1.97	2.21	2.07	1.95	2.22	2.10	1.99	2.22	2.08	1.96
3	1	2.27	2.17	2.07	2.23	2.06	1.95	2.20	2.02	1.90	2.28	2.15	2.05	2.25	2.10	1.99
	3	2.03	1.82	1.67	1.99	1.75	1.59	1.96	1.73	1.58	2.03	1.82	1.66	2.01	1.77	1.61
	5	1.97	1.74	1.58	1.95	1.70	1.52	1.93	1.68	1.51	1.97	1.74	1.58	1.96	1.72	1.55
5	1	2.20	2.05	1.94	2.10	1.91	1.79	2.07	1.86	1.75	2.19	2.03	1.91	2.15	1.97	1.83
	3	1.87	1.62	1.45	1.80	1.53	1.39	1.76	1.54	1.43	1.86	1.61	1.44	1.83	1.57	1.39
	5	1.78	1.52	1.36	1.74	1.46	1.29	1.71	1.45	1.30	1.78	1.52	1.35	1.77	1.49	1.32
10	1	2.05	1.84	1.68	1.88	1.71	1.64	1.85	1.70	1.66	2.04	1.82	1.66	1.98	1.74	1.60
	3	1.58	1.31	1.14	1.49	1.30	1.20	1.51	1.36	1.30	1.58	1.30	1.13	1.55	1.26	1.10
	5	1.48	1.21	1.05	1.41	1.16	1.04	1.41	1.19	1.09	1.48	1.20	1.04	1.46	1.19	1.02

ภาคผนวก ง

การเปรียบเทียบค่าความเบ้ของ VIP_{noise} และ $VIIC_{noise}$

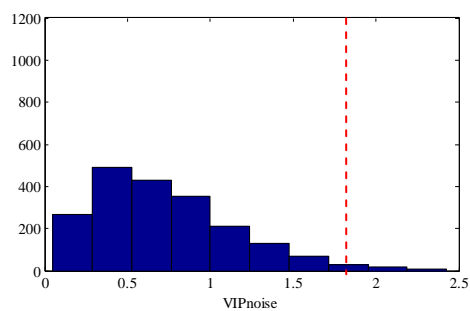
เมื่อคัดเลือกตัวแปรด้วยวิธี VIP-BCT และวิธี VIIC-BCT

ตารางที่ 34 ผลการเปรียบเทียบค่าความเบี่ยงเบนของ VIP_{noise} และ $VIIC_{noise}$ เมื่อคัดเลือกตัวแปรด้วยวิธี VIP-BCT และวิธี VIIC-BCT โดยจำแนกตาม Prel, Mdif, Σ และ n

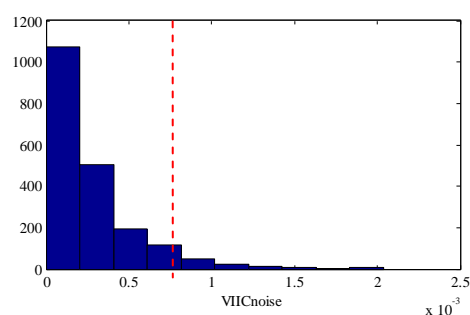
Prel	Mdif	n	Σ									
			Σ_1		Σ_2		Σ_3		Σ_4		Σ_5	
			VIP-BCT	VIIC-BCT	VIP-BCT	VIIC-BCT	VIP-BCT	VIIC-BCT	VIP-BCT	VIIC-BCT	VIP-BCT	VIIC-BCT
1	1	40	0.9510	2.4345	0.9518	2.4128	0.9544	2.4292	0.9484	2.4386	0.9559	2.4382
		70	1.0002	2.5557	1.0047	2.5265	1.0156	2.5389	0.9978	2.5430	1.0086	2.5520
		100	1.0190	2.5844	1.0383	2.5883	1.0446	2.5608	1.0205	2.5763	1.0358	2.5758
	3	40	0.9433	2.4065	0.9559	2.4290	0.9530	2.3792	0.9497	2.4420	0.9557	2.4209
		70	0.9949	2.5274	1.0050	2.5214	1.0133	2.4804	0.9958	2.5300	1.0015	2.4880
		100	1.0134	2.5603	1.0298	2.5174	1.0394	2.5250	1.0244	2.5785	1.0393	2.5619
	5	40	0.9449	2.4055	0.9504	2.4059	0.9539	2.4384	0.9479	2.4098	0.9476	2.4387
		70	0.9942	2.5598	1.0007	2.5243	1.0064	2.5002	0.9991	2.5429	1.0058	2.5499
		100	1.0193	2.6010	1.0254	2.5316	1.0398	2.5652	1.0199	2.5770	1.0340	2.5585
3	1	40	0.9465	2.4239	0.9682	2.3831	0.9861	2.3903	0.9430	2.3864	0.9669	2.3969
		70	0.9918	2.5423	1.0296	2.4995	1.0221	2.4574	1.0002	2.5353	1.0231	2.4830
		100	1.0228	2.5698	1.0248	2.4585	1.0161	2.4842	1.0295	2.5513	1.0335	2.4765
	3	40	0.9415	2.3632	0.9731	2.3113	0.9886	2.3301	0.9519	2.3695	0.9590	2.3240
		70	0.9811	2.4564	1.0136	2.3386	1.0115	2.3145	0.9873	2.4735	1.0249	2.4212
		100	1.0144	2.5122	1.0250	2.2906	0.9774	2.2540	1.0281	2.5197	1.0392	2.3932
	5	40	0.9396	2.3487	0.9735	2.3507	0.9746	2.3314	0.9444	2.3558	0.9630	2.3680
		70	0.9878	2.4767	1.0222	2.3723	1.0222	2.3515	0.9942	2.4977	0.9997	2.4097
		100	1.0039	2.4997	1.0429	2.3551	1.0255	2.2809	1.0115	2.4641	1.0363	2.4192

ตารางที่ 34 (ต่อ)

Prel	Mdif	n	Σ											
			Σ_1		Σ_2		Σ_3		Σ_4		Σ_5			
			VIP-BCT	VIIC-BCT	VIP-BCT	VIIC-BCT	VIP-BCT	VIIC-BCT	VIP-BCT	VIIC-BCT	VIP-BCT	VIIC-BCT		
1	40	40	0.9422	2.3992	0.9918	2.3541	0.9838	2.3573	0.9431	2.3859	0.9751	2.3843		
			1	70	0.9925	2.5043	1.0067	2.4191	0.9756	2.3829	1.0117	2.5278	1.0281	2.4466
			1	100	1.0208	2.5672	0.9747	2.3836	0.9647	2.4373	1.0316	2.5060	1.0336	2.4209
5	40	40	0.9440	2.3456	0.9870	2.2376	0.9760	2.2153	0.9446	2.3243	0.9705	2.2744		
			3	70	0.9881	2.4288	0.9969	2.2171	0.9203	2.1297	1.0008	2.4116	1.0258	2.3015
			3	100	1.0056	2.4224	0.9483	2.1327	0.8627	2.1462	1.0257	2.3983	1.0267	2.2124
5	40	40	0.9417	2.3100	0.9757	2.2252	0.9799	2.2048	0.9376	2.3199	0.9640	2.3118		
			5	70	0.9843	2.4171	1.0251	2.2354	1.0026	2.1689	0.9826	2.3921	1.0202	2.3755
			5	100	1.0063	2.4232	1.0245	2.1536	0.9571	2.0657	1.0108	2.4080	1.0388	2.2971
10	40	40	0.9428	2.3626	0.9500	2.2598	0.9253	2.2861	0.9499	2.3411	0.9868	2.3334		
			1	70	0.9920	2.4707	0.9158	2.3347	0.9282	2.3691	1.0181	2.4739	1.0171	2.3065
			1	100	1.0181	2.5055	0.9126	2.3726	1.0056	2.4869	1.0342	2.4548	0.9937	2.2731
10	40	40	0.9419	2.2166	0.9339	2.0292	0.8607	2.0190	0.9479	2.2151	0.9789	2.1285		
			3	70	0.9836	2.2547	0.8477	2.0285	0.7797	2.0996	1.0022	2.2313	1.0235	2.1217
			3	100	0.9993	2.2251	0.7843	2.0640	0.8048	2.2430	1.0263	2.1825	1.0166	1.9930
10	40	40	0.9390	2.1732	0.9776	1.9839	0.9382	1.9403	0.9394	2.1122	0.9721	2.1145		
			5	70	0.9778	2.1105	0.9596	1.9667	0.8716	1.9764	0.9805	2.0835	1.0245	2.1541
			5	100	0.9979	2.1011	0.9075	1.9159	0.7883	1.9877	1.0088	2.0992	1.0415	2.0873



(1)



(2)

ภาพที่ 33 ตัวอย่างฮิสโทแกรมของ (1) VIP_{noise} และ (2) $VIIC_{noise}$ สำหรับสถานการณ์ที่ $Prel=10$, $Mdif=1$, $n=70$ และ $\Sigma = \Sigma_3$ โดยที่เส้นประแนวตั้งเป็นเกณฑ์จุดตัด

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โปรแกรมที่ใช้ในงานวิจัย

```

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%                               Generate Data                               %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
function [X,Y]=myMVN(p,prel,mdif,n,covfm,r)

% Generate multivariate normal random number
if n/2~=round(n/2)
    n2=round(n/2);
else
    n2=n/2;
end
n1=n-n2;
dr=ceil(prel*(p/100));    % number of relevant var
di=p-dr;                  % number of irrelevant var
SIGMA_r=zeros(dr);

% Gen mu of relevant variable for 2 classes given mean difference
switch mdif
    case 1
        mrel1=0.5*ones(1,dr);
        mrel2=(-0.5)*ones(1,dr);
    case 3
        mrel1=1.5*ones(1,dr);
        mrel2=(-1.5)*ones(1,dr);
    case 5
        mrel1=2.5*ones(1,dr);
        mrel2=(-2.5)*ones(1,dr);
    otherwise
        display('error of mean difference input');
end

```

```

% Gen covariance of relevant variable
switch covfm
case 1      %independent covariance between relevant variable
    SIGMA_r=eye(dr);
case 2      %constant correlation between relevant variable
    SIGMA_r(1:dr,1:dr)=r;
    for i=1:dr
        SIGMA_r(i,i)=1;
    end
case 3      %unconstant correlation between relevant variable
    for i=1:dr-1
        for j=i+1:dr
            SIGMA_r(i,j)=r^(j-i);
            SIGMA_r(j,i)=SIGMA_r(i,j);
        end
    end
end
for i=1:dr
    SIGMA_r(i,i)=1;
end
otherwise
    display('error of covariance format input');
end

```

```

% Gen relevant variable (nxdr matrix)
XRmvm1=mvnrnd(mrel1,SIGMA_r,n1);
XRmvm2=mvnrnd(mrel2,SIGMA_r,n2);
XRmvm=[XRmvm1;XRmvm2];

```

```

% Gen irrelevant variable (nxdi matrix)
SIGMA_ir=eye(di);
mirr=zeros(1,di);

```

```

XI=mvnrnd(mirr,SIGMA_ir,n);

% output X (n x p matrix) and Y (n x 1 matrix)
X=[XRmvn XI];
Y1=ones(n1,1);
Y2=(-1)*ones(n2,1);
Y=[Y1;Y2];
end

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%                               Variable Selection by VIP-1                               %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

function [vix,vips]= mySelVarVIP(X,Y,ctff,ncomp)

error(nargchk(1,4,nargin));
error(nargoutchk(0,2,nargout));
if nargin<2
    error('not enough input, they have to be at least 2 argument!');
elseif nargin==2
    ctff=1;
    ncomp=3;
elseif nargin==3
    ncomp=3;
end
VIP= myVIP(X,Y,ncomp);
vix=find(VIP>ctff);
vips=VIP(vix);
end

```

```

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%                               Variable Selection by VIP-BCT and VIIC-BCT                               %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

```

```
function [SLixAcBx,SLixVcBx,BxctffAc,BxctffVc]=mySelVarCtffCR(X,Y,ncomp)
```

```
error(nargchk(1,3,nargin));
```

```
error(nargoutchk(0,4,nargout));
```

```
if nargin<2
```

```
    error('not enough input, they have to be at least 2 argument');
```

```
elseif nargin==2
```

```
    ncomp=3;
```

```
end
```

```
[n,p]=size(X);
```

```
Xns=myRPmX(X); % noise variable
```

```
Z=[X Xns];
```

```
[myindAcZ]= myIndexACR(Z,Y,ncomp); % VIIC
```

```
[vipZ]= myVIP(Z,Y,ncomp);
```

```
myindAc=myindAcZ(1:p);
```

```
Vc=vipZ(1:p);
```

```
Acns=myindAcZ(p+1:2*p); % myindAc of noise
```

```
Vcns=vipZ(p+1:2*p); % vip of noise
```

```
BxctffAc=prctile(Acns,75)+(1.5*iqr(Acns));
```

```
BxctffVc=prctile(Vcns,75)+(1.5*iqr(Vcns));
```

```
SLixAcBx=find(myindAc>BxctffAc);
```

```
SLixVcBx=find(Vc>BxctffVc);
```

```
end
```

```
%----- 2nd function -----
```

```
function [Xns]= myRPmX(X)
```

```
% Randomly Permutation of X
```

```

[n,p]=size(X);
Xns=zeros(n,p);
for i=1:p
    pmix=randperm(n);
    Xns(:,i)=X(pmix,i);
end
end

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%                               Calculate VIP                               %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

function [VIP]= myVIP(X,Y,ncomp)

[T,P,U,Q,B,W] = pls_mod(X,Y);
p=size(W,1);
R2=zeros(1,ncomp);
for i=1:ncomp
    cor=corrcoef(Y,T(:,i));
    R2(i)=cor(1,2).^2;
end

nu_vip=R2*(W(:,1:ncomp).^2)'; % numerator of VIP-not comp cum
de_vip=sum(R2);               % denominator of VIP-not comp cum
VIP=sqrt(p*nu_vip/de_vip);
end

```



```

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%                               Calculate VIIC                               %
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

```

```
function [myindAc]= myIndexACR(X,Y,ncomp)
```

```

[n,p]=size(X);
ACR=zeros(1,ncomp);
CR=zeros(1,ncomp);
Yp=zeros(n,1);

% Find adjusted counted R2
[T,P,U,Q,B,W] = pls_mod(X,Y); % Partial least squares
Ymean=mean(Y);
Ystd=std(Y);
Ysdz=(Y-Ymean(ones(n,1),:))./Ystd(ones(n,1),:);
for i=1:ncomp
    Tt=[ones(n,1) T(:,i)]; %design matrix for i component model
    beta=((Tt'*Tt)\Tt'*Ysdz); %inv(Tt'*Tt)*Tt'*Ysdz
    Ytp = Ymean+Ystd*Tt*beta; %predicted Y (Numeric Y)
    Yp(Ytp>=0)=1; %predicted Y in category
    Yp(Ytp<0)=-1;
    a=sum(Yp==1&Y==1); %No.of True Positive case->(a)
    PP=sum(Yp==1); %No.of Positive Predicted case->(a+b)
    PO=sum(Y==1); %no.of Positive Observed case->(a+c)
    NO=n-PO; %no.of Negative Observed case->(b+d)
    b=PP-a;
    c=PO-a;
    d=NO-b;
    ACR(1,i)=(a+d-(max(PO,NO)))/(n-max(PO,NO)); %adjusted count R2
end

```

```
myindAc=ACR*(W(:,1:ncomp).^2);  
end
```

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ตัวอย่างข้อมูลติบ

ตารางที่ 35 ตัวอย่างข้อมูลดิบของข้อมูลไมโครอาร์เรย์เกี่ยวกับมะเร็งลำไส้ใหญ่ที่ใช้ในงานวิจัย

ตัวอย่างที่	การเป็นมะเร็ง ลำไส้ใหญ่	ยีน 1	ยีน 2	...	ยีน 1999	ยีน 2000
1	-1	8589.4163	5468.2409	...	83.5225	28.7013
2	1	9164.2537	6719.5295	...	44.4725	16.7738
3	-1	3825.7050	6970.3614	...	16.0925	15.1563
4	1	6246.4487	7823.5341	...	49.9825	16.0850
5	-1	3230.3287	3694.4500	...	7.4888	31.8125
⋮	⋮	⋮	⋮	⋮	⋮	⋮
61	-1	6234.6225	4005.3000	...	32.6875	23.2650
62	1	7472.0100	3653.9341	...	49.8625	39.6313
ค่าเฉลี่ย		7015.7867	4966.9600	...	53.2512	42.9658
ส่วนเบี่ยงเบนมาตรฐาน		3092.9706	2188.8905	...	38.4628	28.3952

หมายเหตุ : ข้อมูลจาก Alon and others (1999)

ตารางที่ 36 ตัวอย่างข้อมูลดิบของค่า BAC, Sen และ Spe ของการจำแนกประเภทการเป็นมะเร็งลำไส้ใหญ่เมื่อใช้ยีนที่ได้จากการคัดเลือกตัวแปรด้วยวิธี VIP-1 วิธี VIP-BCT และวิธี VIIC-BCT และจำแนกประเภทด้วยวิธี PLS-DA

รอบที่	วิธีการคัดเลือกตัวแปร								
	VIP-1			VIP-BCT			VIIC-BCT		
	BAC	Sen	Spe	BAC	Sen	Spe	BAC	Sen	Spe
1	0.7917	0.9167	0.6667	0.8750	0.9167	0.8333	0.7917	0.9167	0.6667
2	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4	0.9583	0.9167	1.0000	0.7500	0.8333	0.6667	0.9583	0.9167	1.0000
5	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333	0.8333
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
199	0.9167	0.8333	1.0000	0.9583	0.9167	1.0000	0.9167	0.8333	1.0000
200	0.8333	1.0000	0.6667	0.8333	1.0000	0.6667	0.9167	1.0000	0.8333
ค่าเฉลี่ย	0.8202	0.8721	0.7683	0.8271	0.8858	0.7683	0.8321	0.8783	0.7858
ส่วนเบี่ยงเบนมาตรฐาน	0.0887	0.0847	0.1618	0.0902	0.0816	0.1644	0.0881	0.0843	0.1632

หมายเหตุ : BAC แทน Balanced Accuracy, Sen แทน Sensitivity, Spe แทน Specificity