HBV-RYD-5

File name	**HBV-RYD-5.sam**
Ref name	**KX357637.1 Hepatitis B virus isolate MK20ETH, complete genome**
Ref len	**3182**
Program used	**Tanoti Assembler 1.0**
Total reads	**2858246**
Mapped reads	**2272500 (79.51%)**
Unmapped reads	**585746**
Mapped loan pairs	**4008**
Average read length	**148nt**
Coverage	**3182nt (100.00%)**
Average depth	**104628 reads/site**
Average insert length	**641nt**

Coverage by reads

Entropy of the reads
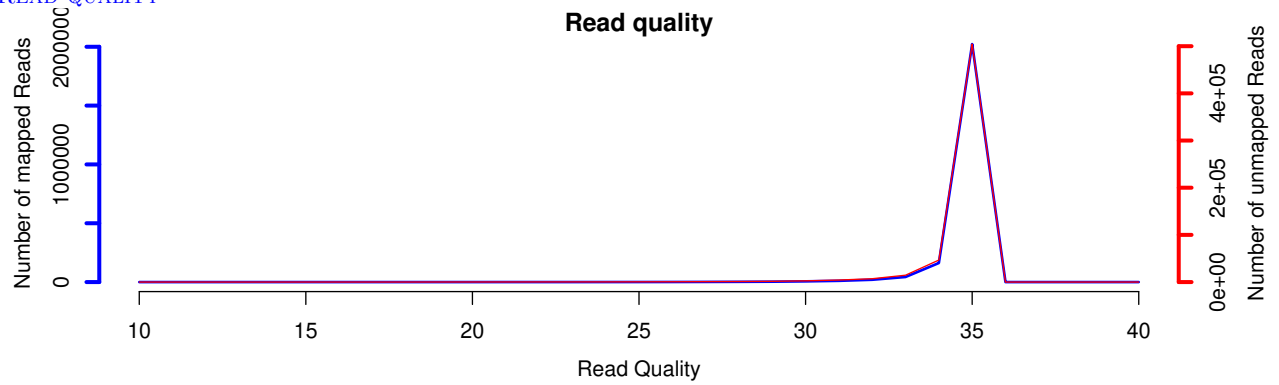

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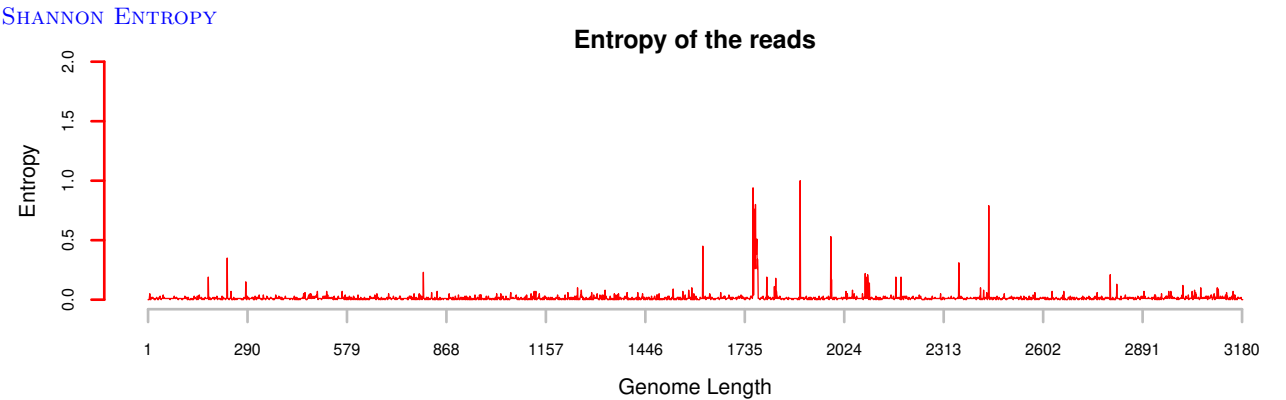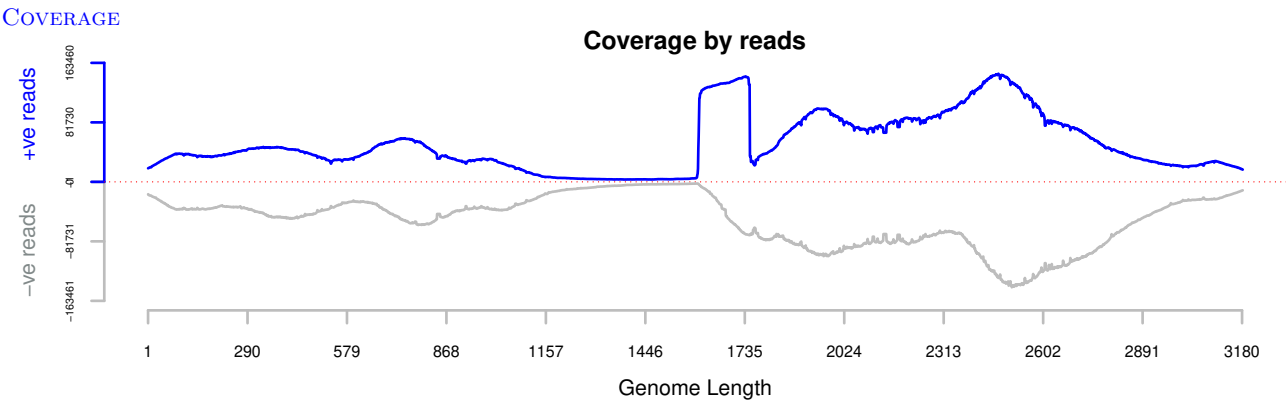
Consensus sequence

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   1        CTCCACAACT TTCCACCAAA CTCTGCAAGA TCCCAGAGTG AGAGGCCTGT ATTTCCCTGC TGGTGGCTCC
  70        AGTTCAGGAA CAGTAAACCC TGTTCCGACT ACTGTCTCTC CCATATCGTC AATCTTCTCG AGGATTGGGG
 140        ACCCTGCGCT GAACATGGAG AACATCACAT CAGGATTCCT AGGACCCCTG CTCGTGTTAC AGGCGGGGTT
 210        TTTCTTGTTG ACAAGAATCC TCACAATACC GCAGAGTCTA GACTCGTGGT GGACTTCTCT CAATTTTCTA
 280        GGGGGAACTA CCGTGTGTCT TGGCCAAAAT TCGCAGTCCC CAACCTCCAA TCACTCACCA ACCTCCTGTC
 350        CTCCAACTTG TCCTGGTTAT CGCTGGATGT GTCTGCGGCG TTTTATCATC TTCCTCTTCA TCCTGCTGCT
 420        ATGCCTCATC TTCTTGTTGG TTCTTCTGGA CTATCAAGGT ATGTTGCCCG TTTGTCCTCT AATTCCAGGA
 490        TCTTCAACCA CCAGCACGGG ACCATGCAGA ACCTGCACGA CTCCTGCTCA AGGAACCTCT ATGTATCCCT
 560        CCTGCTGCTG TACCAAACCT TCGGACGGAA ATTGCACCTG TATTCCCATC CCATCATCCT GGGCTTTCGG
 630        AAAATTCCTA TGGGAGTGGG CCTCAGCCCG TTTCTCCTGG CTCAGTTTAC TAGTGCCATT TGTTCAGTGG
 700        TTCGTAGGGC TTTCCCCCAC TGTTTGGCTT TCAGTTATAT GGATGATGTG GTATTGGGGG CCAAGTCTGT
 770        ACAGCATCTT GAGTCCCTTT TTACCGCTGT TACCAATTTT CTTTTGTCTT TGGGTATACA TTTAAACCCT
 840        AACAAAACAA AAAGATGGGG TTACTCTTTA CATTTCATGG GCTATGTCAT TGGATGTTAT GGGTCATTGC
 910        CACAAGATCA CATTATACAG AAAATCAAAG AATGTTTTAG AAAACTTCCT GTTAACGACA CTATTGATTG
 980        GAAAGTCTGT CAACGTATTG TGGGTCTTTT GGGTTTTGCT GCCCCTTTTA CACAATGTGG TTATCCTGCT
1050        TTAATGCCCT TGTATGCATG CATTCAATCT AAGCAGGCTT TCACTTTCTC GCCAACTTAC AAGGCCTTTC
1120        TGTGTAAACA ATACCTGAAC CTTTACCCCG TTGCCCGGCA ACGGCCAGGT CTGTGCCAAG TGTTTGCTGA
1190        CGCAACCCCC ACTGGCTGGG GCTTGGTTAT GGGCCATCAG CGCATGCGTG GAACCTTTTT GGCTCCTCTG
1260        CCGATCCATA CTGCGGAACT CCTAGCCGCT TGTTTTGCTC GCAGCCGGTC TGGAGCAAAC ATTCTCGGGA
1330        CGGACAACTC TGTTGTTCTC TCCCGTAAAT ATACATCATT TCCATGGCTG CTAGGCTGTG CTGCCAACTG
1400        GATCCTGCGC GGGACGTCCT TTGTTTACGT CCCGTCGGCG CTGAATCCCG CGGACGACCC TTCTCGGGGC
1470        CGCTTGGGAC TCTCTCGTCC CCTTCTCCGT CTGCCGTTTC GACCGACCAC GGGGCGCACC TCTCTTTACG
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1610        GAGACCACCG TGAACGCCCA CCTATTCTTG CCCAAGGTCT TACATAAGAG GACTCTTGGA CTCTCTGTCA
1680        TGTCAACGAC CGACCTTGAG GCATACTTCA AAGACTGTTT GTTTAAAGAC TGGGAGGAGT TGGGGGAGGA
1750        GATTAGATTA AAGGTCTTTG TATTAGGAGG CTGTAGGCAT AAATTGGTCT GCGCACCAGC ACCATGCAAC
1820        TTTTTCACCT CTGCCTAATC ATCTCTTGTT CATGTCCTAC TGTTCAAGCC TCCAAGCTGT GCCTTGGGTG
1890        GCTTTGGGGC ATGGACATTG ATCCTTATAA AGAATTTGGA GCTACTGTGG AGTTACTCTC GTTTTTGCCT
1960        TCTGACTTCT TTCCTTCAGT ACGAGATCTT CTAGATACCG CCTCAGCTCT ATATCGGGAA GCATTAGAGT
2030        CTCCTGAGCA TTGTTCACCT CACCATACTG CACTCAGGCA AGCAATTCTT TGCTGGGGGG AACTAATGAC
2100        TCTAGCCACC TGGGTGGGTG GTAATTTGGA AGATCCAATA TCCAGGGACC TAGTAGTCAG TTATGTTAAC
2170        ACTAATATGG GCCTAAAGTT CAGGCAACTA TTGTGGTTTC ACATTTCTTG CCTCACTTTT GGAAGAGAAA
2240        CGGTCATAGA GTATTTGGTG TCTTTCGGAG TGTGGATTCG CACTCCTCCA GCTTATAGAC CTCCAAATGC
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2380        CCCTCGCCTC GCAGACGAAG GTCTCAATCG CCGCGTCGCA GAAGATCTCA ATCTCGGGAA TCTCAATGTT
2450        AGTATTCCTT GGACTCATAA GGTGGGCAAC TTTACGGGGC TTTATTCTTC TACTGTTCCT GTCTTTAACC
2520        CTCATTGGAA AACACCCTCT TTTCCTAATA TACATTTACA CCAAGACATT ATTAAAAAAT GTGAACAATT
2590        TGTAGGCCCA CTCACAGTTA ATGAGAAAAG AAGACTACAA TTAATTATGC CTGCTAGGTT TTATCCAAAT
2660        GTTACCAAAT ATTTGCCATT GGATAAGGGT ATTAAACCTT ATTATCCAGA ACATCTAGTT AATCATTACT
2730        TCCAAACCAG ACATTATTTA CACACTCTAT GGAAGGCGGG TATATTATAT AAGAGAGAAA CAACACATAG
2800        CGCCTCATTT TGTGGGTCAC CATATTCTTG GGAACAAGAG CTACAGCATG GGGCAGAATC TTTCCACCAG
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2940        TGGGACTTCA ATCCCAACAA GGACACCTGG CCGGACGCCA ACAAGGTAGG AGCTGGAGCA TTCGGGCTGG
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3150        AGAAACACTC ATCCTCAGGC CATGCAGTGG AA
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Genome Composition	
A	726 (22.82%)
T	911 (28.63%)
G	687 (21.59%)
C	858 (26.96%)
N	0 (0.00%)
Total Nucleotides	3182
GC%	48.55

Read quality

Number of mapped Reads

2000000

1000000

0

Number of unmapped Reads

4e+05

2e+05

0e+00

10   15   20   25   30   35   40

Read Quality

Number of pairs

20000

10000

0

0   200   400   600   800   1000

Insert Length
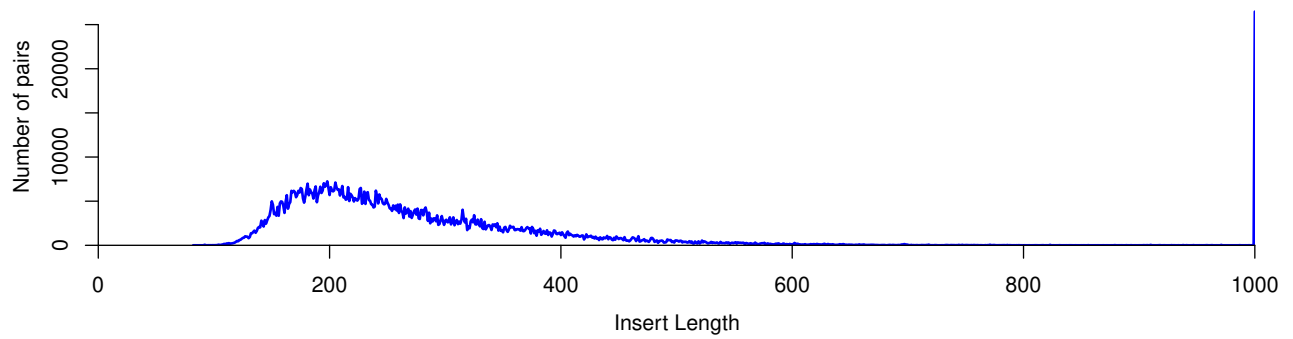
Amino acid variations

Protein	Position	Ref AA	Consensus AA	All AAs
P2	1	F	H	H::99.36(37371)
P2	2	F	N	N::99.94(38706)
P2	4	F	P	P::99.76(41625)
P2	5	F	P	P::99.90(42892)
P2	6	F	N	N::99.93(44292)
P2	7	F	S	S::99.86(45300)
P2	8	F	A	A::99.71(47249)
P2	9	F	R	R::99.89(49231)
P2	10	F	S	S::99.94(50498)
P2	11	F	Q	Q::99.75(52460)
P2	12	F	S	S::99.82(54140)
P2	13	F	E	E::99.87(56340)
P2	14	F	R	R::99.66(57280)
P2	15	F	P	P::99.82(59200)
P2	16	F	V	V::99.81(60900)
P2	18	F	P	P::99.87(64099)
P2	19	F	C	C::99.82(65093)
P2	20	F	W	W::99.82(66993)
P2	21	F	W	W::99.81(68513)
P2	22	F	L	L::99.89(69817)
P2	23	F	Q	Q::99.87(71424)
P2	25	F	R	R::99.61(73626)
P2	26	F	N	N::99.86(75452)
P2	27	F	S	S::99.68(74936)
P2	28	F	K	K::99.86(75100)
P2	29	F	P	P::99.96(75565)
P2	30	F	C	C::99.80(74896)
P2	31	F	S	S::99.79(74466)
P2	32	F	D	D::99.81(74642)
P2	33	F	Y	Y::99.91(74347)
P2	34	F	C	C::99.84(71729)
P2	35	F	L	L::99.89(74002)
P2	36	F	S	S::99.90(73857)
P2	37	F	H	H::99.86(75290)
P2	38	F	I	I::99.94(75220)
P2	39	F	V	V::99.75(75138)
P2	40	F	N	N::99.93(74538)
P2	41	F	L	L::99.94(73463)
P2	42	F	L	L::99.88(72624)
P2	43	F	E	E::99.91(73222)
P2	44	F	D	D::99.89(73111)
P2	45	F	W	W::99.76(72605)
P2	46	F	G	G::99.82(72591)
P2	47	F	P	P::99.88(69439)
P2	48	F	C	C::99.87(71088)
P2	49	F	A	A::99.60(72246)

P2	50	F	E	E::99.85(72171)
P2	51	F	H	H::99.84(72073)
P2	52	F	G	G::99.92(70864)
P2	53	F	E	E::99.83(70857)
P2	54	F	H	H::99.92(71709)
P2	55	F	H	H::99.75(71715)
P2	56	F	I	I::99.87(71600)
P2	57	F	R	R::99.81(71360)
P2	58	F	I	I::97.02(69111)
P2	59	F	P	P::99.94(70933)
P2	60	F	R	R::99.87(70354)
P2	61	F	T	T::99.93(69516)
P2	62	F	P	P::99.90(69682)
P2	63	F	A	A::99.76(69677)
P2	64	F	R	R::99.93(69539)
P2	65	F	V	V::99.89(69797)
P2	66	F	T	T::99.90(69411)
P2	67	F	G	G::99.93(69253)
P2	68	F	G	G::99.90(69237)
P2	69	F	V	V::99.93(69029)
P2	71	F	L	L::99.96(68197)
P2	72	F	V	V::99.95(69574)
P2	73	F	D	D::99.81(69676)
P2	74	F	K	K::99.86(70079)
P2	75	F	N	N::99.90(70960)
P2	76	F	P	P::99.84(70686)
P2	77	F	H	H::99.80(70947)
P2	78	F	N	N::99.92(71771)
P2	79	F	T	T::99.88(71850)
P2	80	F	A	A::98.91(70780)
P2	81	F	E	E::99.95(73229)
P2	82	F	S	S::99.93(73368)
P2	83	F	R	R::99.80(73745)
P2	84	F	L	L::99.94(74333)
P2	85	F	V	V::99.86(74518)
P2	86	F	V	V::99.93(74916)
P2	87	F	D	D::99.89(75546)
P2	89	F	S	S::99.90(74909)
P2	90	F	Q	Q::99.88(77449)
P2	92	F	S	S::99.95(77605)
P2	93	F	R	R::99.84(78360)
P2	94	F	G	G::99.88(78467)
P2	95	F	N	N::99.84(78903)
P2	96	F	Y	Y::99.71(79558)
P2	97	F	R	R::99.73(81555)
P2	98	F	V	V::99.92(82456)
P2	99	F	S	S::99.89(82524)
P2	100	F	W	W::99.72(81920)
P2	101	F	P	P::99.76(82973)
P2	102	F	K	K::99.95(84513)
P2	104	F	A	A::99.69(84920)

P2	105	F	V	V::99.93(86649)
P2	106	F	P	P::99.80(86703)
P2	107	F	N	N::99.89(87098)
P2	108	F	L	L::99.87(87608)
P2	109	F	Q	Q::99.85(87751)
P2	110	F	S	S::99.93(88298)
P2	111	F	L	L::99.91(89184)
P2	112	F	T	T::99.89(89775)
P2	113	F	N	N::99.90(90616)
P2	114	F	L	L::99.92(91548)
P2	115	F	L	L::99.89(91678)
P2	116	F	S	S::99.87(92557)
P2	117	F	S	S::99.91(93305)
P2	118	F	N	N::99.90(93552)
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P2	121	F	W	W::99.90(94395)
P2	122	F	L	L::99.93(94109)
P2	123	F	S	S::99.89(93976)
P2	124	F	L	L::99.91(94622)
P2	125	F	D	D::99.87(95051)
P2	126	F	V	V::99.92(94824)
P2	127	F	S	S::99.90(94132)
P2	128	F	A	A::99.69(94091)
P2	129	F	A	A::99.85(94040)
P2	131	F	Y	Y::99.91(93882)
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P2	133	F	L	L::99.67(93080)
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P2	135	F	L	L::99.91(92971)
P2	136	F	H	H::99.84(93574)
P2	137	F	P	P::99.95(93226)
P2	138	F	A	A::99.88(93980)
P2	139	F	A	A::99.86(93912)
P2	140	F	M	M::99.88(93468)
P2	141	F	P	P::99.89(93301)
P2	142	F	H	H::99.92(92430)
P2	143	F	L	L::99.93(91792)
P2	144	F	L	L::99.79(90889)
P2	145	F	V	V::99.88(92509)
P2	146	F	G	G::99.89(90386)
P2	147	F	S	S::99.91(88947)
P2	148	F	S	S::99.91(87773)
P2	149	F	G	G::99.91(88023)
P2	150	F	L	L::99.86(87272)
P2	151	F	S	S::99.77(85935)
P2	152	F	R	R::99.84(83163)
P2	153	F	Y	Y::99.92(85465)
P2	154	F	V	V::99.93(84114)
P2	155	F	A	A::99.53(82761)
P2	156	F	R	R::99.79(82452)

P2	157	F	L	L::99.29(81073)
P2	158	F	S	S::99.90(81294)
P2	159	F	S	S::99.83(80582)
P2	160	F	N	N::99.59(80062)
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P2	163	F	I	I::99.79(76349)
P2	165	F	N	N::99.83(73901)
P2	166	F	H	H::99.82(73080)
P2	167	F	Q	Q::99.90(72884)
P2	168	F	H	H::99.88(69212)
P2	169	F	G	G::99.79(71267)
P2	170	F	T	T::99.75(70552)
P2	171	F	M	M::99.54(69979)
P2	172	F	Q	Q::99.65(67557)
P2	173	F	N	N::98.99(67182)
P2	174	F	L	L::99.69(66348)
P2	175	F	H	H::99.87(65904)
P2	176	F	D	D::99.81(64167)
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P2	178	F	C	C::99.77(62631)
P2	179	F	S	S::99.93(63961)
P2	180	F	R	R::99.68(64046)
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P2	182	F	L	L::99.92(62139)
P2	183	F	Y	Y::99.81(61600)
P2	184	F	V	V::99.65(60877)
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P2	186	F	L	L::99.85(60477)
P2	187	F	L	L::99.88(59329)
P2	188	F	L	L::99.67(56184)
P2	189	F	L	L::99.95(58828)
P2	190	F	Y	Y::99.90(58609)
P2	191	F	Q	Q::99.56(58457)
P2	192	F	T	T::99.95(59032)
P2	194	F	G	G::99.91(57332)
P2	195	F	R	R::99.56(57410)
P2	196	F	K	K::99.92(57985)
P2	197	F	L	L::99.93(58369)
P2	198	F	H	H::99.80(57753)
P2	199	F	L	L::99.57(55594)
P2	200	F	Y	Y::99.92(59999)
P2	201	F	S	S::99.88(60256)
P2	202	F	H	H::99.88(60497)
P2	203	F	P	P::99.57(61227)
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P2	209	F	R	R::99.86(64699)
P2	210	F	K	K::99.93(66045)

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P2	213	F	M	M::99.87(67513)
P2	214	F	G	G::99.87(69243)
P2	215	F	V	V::99.71(69562)
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P2	219	F	P	P::99.87(76113)
P2	221	F	L	L::99.93(78344)
P2	222	F	L	L::99.93(80774)
P2	223	F	A	A::99.82(83150)
P2	224	F	Q	Q::99.81(85022)
P2	226	F	T	T::99.72(86619)
P2	227	F	S	S::99.91(87835)
P2	228	F	A	A::99.86(89738)
P2	229	F	I	I::99.93(90543)
P2	230	F	C	C::99.90(91860)
P2	231	F	S	S::99.87(92554)
P2	232	F	V	V::99.94(94756)
P2	233	F	V	V::99.46(95623)
P2	234	F	R	R::99.81(96355)
P2	235	F	R	R::99.88(98238)
P2	236	F	A	A::99.80(98623)
P2	238	F	P	P::99.88(100263)
P2	239	F	H	H::99.93(102532)
P2	240	F	C	C::99.67(103002)
P2	241	F	L	L::99.91(104316)
P2	242	F	A	A::99.89(106415)
P2	244	F	S	S::99.60(108143)
P2	245	F	Y	Y::99.92(108874)
P2	246	F	M	M::99.90(110051)
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P2	248	F	D	D::99.88(111289)
P2	249	F	V	V::99.91(111457)
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P2	252	F	G	G::99.94(112654)
P2	253	F	A	A::99.52(113553)
P2	254	F	K	K::99.85(113969)
P2	255	F	S	S::99.88(113500)
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P2	257	F	Q	Q::99.81(112041)
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P2	267	F	T	T::99.93(107603)
P2	268	F	N	N::99.88(107052)
P2	270	F	L	L::99.77(103492)
P2	271	F	L	L::99.72(102662)
P2	272	F	S	S::99.92(102976)
P2	273	F	L	L::99.91(99582)
P2	274	F	G	G::99.89(98443)
P2	275	F	I	I::99.91(96459)
P2	276	F	H	H::99.87(95790)
P2	277	F	L	L::99.83(93348)
P2	278	F	N	N::99.92(92724)
P2	279	F	P	P::99.88(88991)
P2	280	F	N	N::99.17(75424)
P2	281	F	K	K::99.95(76025)
P2	282	F	T	T::99.94(75986)
P2	283	F	K	K::99.93(82794)
P2	284	F	R	R::99.92(83650)
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P2	287	F	Y	Y::99.88(81650)
P2	288	F	S	S::99.84(82083)
P2	289	F	L	L::99.90(79290)
P2	290	F	H	H::99.81(79215)
P2	292	F	M	M::99.70(76570)
P2	293	F	G	G::99.89(74029)
P2	294	F	Y	Y::99.90(73148)
P2	295	F	V	V::99.92(71852)
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P2	297	F	G	G::99.93(70156)
P2	298	F	C	C::99.82(68525)
P2	299	F	Y	Y::99.91(68215)
P2	300	F	G	G::99.90(68345)
P2	301	F	S	S::99.87(67112)
P2	302	F	L	L::99.91(66925)
P2	303	F	P	P::99.90(66270)
P2	304	F	Q	Q::99.92(65002)
P2	305	F	D	D::99.63(65272)
P2	306	F	H	H::99.90(65021)
P2	307	F	I	I::99.68(58280)
P2	308	F	I	I::99.73(58316)
P2	309	F	Q	Q::99.88(64225)
P2	310	F	K	K::99.92(65364)
P2	311	F	I	I::99.94(65980)
P2	312	F	K	K::99.81(64771)
P2	313	F	E	E::99.85(64911)
P2	314	F	C	C::99.92(65048)
P2	316	F	R	R::99.90(62371)
P2	317	F	K	K::99.93(65687)
P2	318	F	L	L::99.95(65947)
P2	319	F	P	P::99.69(65996)
P2	320	F	V	V::99.92(65676)

P2	321	F	N	N::99.50(64789)
P2	322	F	R	R::99.89(62983)
P2	323	F	P	P::99.93(65531)
P2	324	F	I	I::99.92(66177)
P2	325	F	D	D::99.93(66654)
P2	326	F	W	W::99.86(66043)
P2	327	F	K	K::99.87(66383)
P2	328	F	V	V::99.93(64284)
P2	329	F	C	C::99.87(65254)
P2	330	F	Q	Q::99.91(67522)
P2	331	F	R	R::99.83(67977)
P2	332	F	I	I::99.92(68015)
P2	333	F	V	V::99.92(67950)
P2	334	F	G	G::99.92(67736)
P2	335	F	L	L::99.95(65864)
P2	336	F	L	L::99.81(66898)
P2	337	F	G	G::99.94(66694)
P2	339	F	A	A::99.75(64741)
P2	340	F	A	A::99.79(64462)
P2	341	F	P	P::99.94(64442)
P2	343	F	T	T::99.89(62982)
P2	344	F	Q	Q::99.89(62690)
P2	345	F	C	C::99.90(61953)
P2	346	F	G	G::99.93(61511)
P2	347	F	Y	Y::99.82(60540)
P2	348	F	P	P::99.96(60189)
P2	349	F	A	A::99.88(56777)
P2	350	F	L	L::99.94(57790)
P2	351	F	M	M::98.67(57027)
P2	352	F	P	P::99.87(55905)
P2	353	F	L	L::99.85(54843)
P2	354	F	Y	Y::99.86(53740)
P2	355	F	A	A::99.82(47930)
P2	356	F	C	C::99.56(47805)
P2	357	F	I	I::99.93(49565)
P2	358	F	Q	Q::99.73(49483)
P2	359	F	S	S::99.97(48957)
P2	360	F	K	K::99.95(47586)
P2	361	F	Q	Q::99.79(46068)
P2	362	F	A	A::99.92(45673)
P2	364	F	T	T::99.94(43758)
P2	366	F	S	S::99.93(37851)
P2	367	F	P	P::99.81(39012)
P2	368	F	T	T::99.96(39243)
P2	369	F	Y	Y::99.90(38308)
P2	370	F	K	K::99.82(37655)
P2	371	F	A	A::99.40(36468)
P2	373	F	L	L::99.87(33971)
P2	374	F	C	C::99.14(32886)
P2	375	F	K	K::98.68(32494)
P2	376	F	Q	Q::99.97(31758)

P2	377	F	Y	Y::99.89(29985)
P2	378	F	L	L::99.71(29687)
P2	379	F	N	N::99.33(28037)
P2	380	F	L	L::99.92(27086)
P2	381	F	Y	Y::99.89(25635)
P2	382	F	P	P::99.95(25092)
P2	383	F	V	V::99.87(24544)
P2	384	F	A	A::99.68(22218)
P2	385	F	R	R::99.81(22782)
P2	386	F	Q	Q::99.84(23078)
P2	387	F	R	R::99.85(21981)
P2	388	F	P	P::99.88(20699)
P2	389	F	G	G::99.91(21061)
P2	390	F	L	L::99.93(20132)
P2	391	F	C	C::99.77(19607)
P2	392	F	Q	Q::99.88(19310)
P2	393	F	V	V::99.92(18947)
P2	395	F	A	A::99.82(18402)
P2	396	F	D	D::99.89(17942)
P2	397	F	A	A::99.88(17635)
P2	398	F	T	T::99.85(17671)
P2	399	F	P	P::99.91(17046)
P2	400	F	T	T::99.87(16778)
P2	401	F	G	G::99.86(16606)
P2	402	F	W	W::99.83(16305)
P2	403	F	G	G::99.89(16405)
P2	404	F	L	L::99.48(15738)
P2	405	F	V	V::99.89(14926)
P2	406	F	M	M::99.26(15131)
P2	407	F	G	G::99.78(15163)
P2	408	F	H	H::99.90(15003)
P2	409	F	Q	Q::99.69(14629)
P2	410	F	R	R::99.67(14625)
P2	411	F	M	M::99.80(14445)
P2	412	F	R	R::99.83(14229)
P2	413	F	G	G::99.72(14046)
P2	414	F	T	T::99.92(14094)
P2	416	F	L	L::99.14(12896)
P2	417	F	A	A::99.92(13325)
P2	418	F	P	P::99.92(13100)
P2	419	F	L	L::99.94(12501)
P2	420	F	P	P::99.50(12825)
P2	421	F	I	I::99.94(12855)
P2	422	F	H	H::99.95(12655)
P2	423	F	T	T::99.96(12589)
P2	424	F	A	A::99.78(12415)
P2	425	F	E	E::99.89(12204)
P2	426	F	L	L::99.93(12028)
P2	427	F	L	L::99.87(11880)
P2	428	F	A	A::99.90(11839)
P2	429	F	A	A::99.71(11763)

P2	430	F	C	C::99.91(11454)
P2	432	F	A	A::99.87(11153)
P2	433	F	R	R::99.73(10990)
P2	434	F	S	S::99.75(10750)
P2	435	F	R	R::99.82(10051)
P2	436	F	S	S::99.95(10356)
P2	437	F	G	G::99.95(10112)
P2	438	F	A	A::99.77(9983)
P2	439	F	N	N::99.85(10045)
P2	440	F	I	I::99.60(9944)
P2	441	F	L	L::99.67(9811)
P2	442	F	G	G::99.90(9662)
P2	443	F	T	T::99.72(9374)
P2	444	F	D	D::99.86(8988)
P2	445	F	N	N::99.95(9182)
P2	446	F	S	S::99.99(9127)
P2	447	F	V	V::99.94(9051)
P2	448	F	V	V::99.92(8986)
P2	449	F	L	L::99.84(8796)
P2	450	F	S	S::99.84(8678)
P2	451	F	R	R::99.96(8253)
P2	452	F	K	K::99.94(8532)
P2	453	F	Y	Y::99.53(8535)
P2	454	F	T	T::99.93(8622)
P2	455	F	S	S::99.88(8251)
P2	457	F	P	P::99.93(8476)
P2	458	F	W	W::99.87(8253)
P2	459	F	L	L::99.91(8143)
P2	460	F	L	L::99.94(7909)
P2	461	F	G	G::99.74(7728)
P2	462	F	C	C::99.63(7552)
P2	463	F	A	A::99.72(7396)
P2	464	F	A	A::99.40(7413)
P2	465	F	N	N::99.95(7471)
P2	466	F	W	W::99.88(7448)
P2	467	F	I	I::99.89(7436)
P2	468	F	L	L::99.93(7326)
P2	469	F	R	R::99.81(7240)
P2	470	F	G	G::99.89(7198)
P2	471	F	T	T::99.94(7106)
P2	472	F	S	S::99.87(7102)
P2	474	F	V	V::99.29(7111)
P2	475	F	Y	Y::99.99(7109)
P2	476	F	V	V::99.81(6932)
P2	477	F	P	P::99.96(6888)
P2	478	F	S	S::99.78(6868)
P2	479	F	A	A::99.38(6767)
P2	480	F	L	L::99.80(6901)
P2	481	F	N	N::99.94(6878)
P2	482	F	P	P::99.96(6822)
P2	483	F	A	A::99.88(6720)

P2	484	F	D	D::99.76(6628)
P2	485	F	D	D::99.75(6650)
P2	486	F	P	P::99.92(6613)
P2	487	F	S	S::99.94(6482)
P2	488	F	R	R::99.98(6505)
P2	489	F	G	G::99.92(6593)
P2	490	F	R	R::99.73(6543)
P2	491	F	L	L::99.90(6702)
P2	492	F	G	G::99.96(6827)
P2	493	F	L	L::99.93(6841)
P2	494	F	S	S::99.88(6947)
P2	495	F	R	R::99.45(6921)
P2	496	F	P	P::99.94(6858)
P2	497	F	L	L::99.88(6834)
P2	498	F	L	L::99.91(6868)
P2	499	F	R	R::99.82(6781)
P2	500	F	L	L::99.96(6713)
P2	501	F	P	P::99.84(6719)
P2	503	F	R	R::99.94(6541)
P2	504	F	P	P::99.86(6591)
P2	505	F	T	T::99.91(6556)
P2	506	F	T	T::99.94(6509)
P2	507	F	G	G::99.80(6581)
P2	508	F	R	R::99.75(6512)
P2	509	F	T	T::99.92(6646)
P2	510	F	S	S::99.90(6834)
P2	511	F	L	L::99.93(6975)
P2	512	F	Y	Y::99.80(6971)
P2	513	F	A	A::99.79(6980)
P2	514	F	D	D::99.89(6977)
P2	515	F	S	S::99.85(6815)
P2	516	F	P	P::99.99(6807)
P2	517	F	S	S::99.94(6853)
P2	518	F	V	V::99.11(6791)
P2	519	F	P	P::99.84(6830)
P2	520	F	S	S::99.50(6827)
P2	521	F	H	H::99.85(6863)
P2	522	F	L	L::99.91(6775)
P2	523	F	P	P::99.81(6848)
P2	524	F	D	D::99.36(6852)
P2	525	F	R	R::99.76(6934)
P2	526	F	V	V::99.87(7127)
P2	527	F	H	H::99.76(7171)
P2	529	F	A	A::99.97(7191)
P2	530	F	S	S::99.92(7215)
P2	531	F	P	P::99.96(7568)
P2	532	F	L	L::99.96(11565)
P2	533	F	H	H::99.94(48619)
P2	534	F	V	V::99.97(119369)
P2	535	F	A	A::99.76(126908)
P2	536	F	W	W::99.85(131130)

P2	537	F	R	R::90.42(120848) K::9.41(12581)
P2	538	F	P	P::99.85(135521)
S2	1	F	S	S::100.00(35962)
S2	2	F	T	T::99.25(37745)
S2	3	F	T	T::99.96(38713)
S2	5	F	H	H::99.58(41872)
S2	6	F	Q	Q::99.87(43461)
S2	7	F	T	T::99.90(44942)
S2	8	F	L	L::99.82(45547)
S2	9	F	Q	Q::99.74(47931)
S2	10	F	D	D::99.94(49593)
S2	11	F	P	P::99.82(51411)
S2	12	F	R	R::99.61(53048)
S2	13	F	V	V::99.86(54725)
S2	14	F	R	R::99.86(56656)
S2	15	F	G	G::99.32(57822)
S2	16	F	L	L::99.78(59628)
S2	17	F	Y	Y::99.87(61159)
S2	19	F	P	P::99.93(64566)
S2	20	F	A	A::99.81(66484)
S2	21	F	G	G::99.86(68024)
S2	22	F	G	G::99.88(69249)
S2	23	F	S	S::99.88(70196)
S2	24	F	S	S::99.86(71856)
S2	25	F	S	S::99.90(72874)
S2	26	F	G	G::99.54(74026)
S2	27	F	T	T::99.86(74876)
S2	28	F	V	V::99.66(74574)
S2	29	F	N	N::99.88(75327)
S2	30	F	P	P::99.89(75543)
S2	31	F	V	V::99.88(75354)
S2	32	F	P	P::99.76(74634)
S2	33	F	T	T::99.93(74799)
S2	34	F	T	T::99.90(75032)
S2	35	F	V	V::99.89(71760)
S2	36	F	S	S::99.73(74084)
S2	37	F	P	P::99.80(75091)
S2	38	F	I	I::99.81(75019)
S2	39	F	S	S::99.91(74750)
S2	40	F	S	S::99.90(74294)
S2	41	F	I	I::99.94(74273)
S2	43	F	S	S::99.89(71919)
S2	44	F	R	R::99.86(73247)
S2	45	F	I	I::99.65(72574)
S2	46	F	G	G::99.80(72866)
S2	47	F	D	D::99.84(72935)
S2	48	F	P	P::99.71(69313)
S2	49	F	A	A::99.70(72097)
S2	50	F	L	L::99.64(72084)
S2	51	F	N	N::99.86(72450)
S2	52	F	M	M::99.76(71813)

S2	53	F	E	E::99.86(70802)
S2	54	F	N	N::99.89(71416)
S2	55	F	I	I::99.93(71814)
S2	56	F	T	T::99.78(71470)
S2	57	F	S	S::99.88(70933)
S2	58	F	G	G::99.89(71137)
S2	60	F	L	L::99.84(70325)
S2	61	F	G	G::99.89(69968)
S2	62	F	P	P::99.91(69572)
S2	63	F	L	L::99.92(69497)
S2	64	F	L	L::99.91(69748)
S2	65	F	V	V::99.77(69419)
S2	66	F	L	L::99.85(69567)
S2	67	F	Q	Q::99.69(69087)
S2	68	F	A	A::99.91(68900)
S2	69	F	G	G::99.88(68912)
S2	72	F	L	L::99.74(67937)
S2	73	F	L	L::99.79(69418)
S2	74	F	T	T::99.83(68912)
S2	75	F	R	R::99.84(70290)
S2	76	F	I	I::99.90(70929)
S2	77	F	L	L::93.37(66187) R::6.47(4584)
S2	78	F	T	T::99.85(70770)
S2	79	F	I	I::99.92(71717)
S2	80	F	P	P::99.86(71900)
S2	81	F	Q	Q::99.00(71561)
S2	82	F	S	S::99.93(73384)
S2	83	F	L	L::99.91(72687)
S2	84	F	D	D::99.87(74281)
S2	85	F	S	S::99.89(73532)
S2	86	F	W	W::99.82(74369)
S2	87	F	W	W::99.84(74812)
S2	88	F	T	T::99.91(75706)
S2	89	F	S	S::99.92(75235)
S2	90	F	L	L::99.83(75344)
S2	91	F	N	N::99.91(78025)
S2	93	F	L	L::99.90(77194)
S2	94	F	G	G::99.91(78352)
S2	95	F	G	G::97.95(76517)
S2	96	F	T	T::99.94(79249)
S2	97	F	T	T::99.90(81310)
S2	98	F	V	V::99.77(81842)
S2	99	F	C	C::99.80(81964)
S2	100	F	L	L::99.89(82290)
S2	101	F	G	G::99.78(83165)
S2	102	F	Q	Q::99.80(83381)
S2	103	F	N	N::99.93(85178)
S2	104	F	S	S::99.68(84077)
S2	105	F	Q	Q::99.66(85377)
S2	106	F	S	S::99.79(86274)
S2	107	F	P	P::99.71(86069)

S2	108	F	T	T::99.50(87009)
S2	109	F	S	S::99.85(87588)
S2	110	F	N	N::99.86(88337)
S2	111	F	H	H::99.93(89239)
S2	112	F	S	S::99.54(88099)
S2	113	F	P	P::99.89(89433)
S2	114	F	T	T::99.94(90900)
S2	115	F	S	S::99.91(91093)
S2	116	F	C	C::99.78(91559)
S2	117	F	P	P::99.88(93506)
S2	118	F	P	P::99.90(92958)
S2	119	F	T	T::99.72(93194)
S2	120	F	C	C::99.83(93289)
S2	121	F	P	P::99.92(95169)
S2	122	F	G	G::99.94(94355)
S2	123	F	Y	Y::99.92(94369)
S2	124	F	R	R::99.60(93885)
S2	125	F	W	W::99.69(94325)
S2	126	F	M	M::99.78(94558)
S2	127	F	C	C::99.59(94250)
S2	128	F	L	L::99.91(93808)
S2	129	F	R	R::99.72(93941)
S2	130	F	R	R::99.69(93371)
S2	132	F	I	I::99.91(94343)
S2	133	F	I	I::99.91(93875)
S2	135	F	L	L::99.86(93852)
S2	137	F	I	I::99.86(93897)
S2	138	F	L	L::99.91(92977)
S2	139	F	L	L::99.87(93411)
S2	140	F	L	L::99.91(93067)
S2	141	F	C	C::99.88(92990)
S2	142	F	L	L::99.67(93102)
S2	143	F	I	I::99.75(92007)
S2	145	F	L	L::99.89(90523)
S2	146	F	L	L::99.88(91332)
S2	147	F	V	V::99.92(90292)
S2	148	F	L	L::99.92(88367)
S2	149	F	L	L::99.90(87242)
S2	150	F	D	D::99.77(88132)
S2	151	F	Y	Y::99.30(86816)
S2	152	F	Q	Q::99.13(82569)
S2	153	F	G	G::99.86(85230)
S2	154	F	M	M::99.91(84916)
S2	155	F	L	L::99.90(83090)
S2	156	F	P	P::99.34(82595)
S2	157	F	V	V::99.59(82352)
S2	158	F	C	C::99.44(81399)
S2	159	F	P	P::99.88(81345)
S2	160	F	L	L::99.66(79561)
S2	161	F	I	I::99.79(79885)
S2	162	F	P	P::99.66(78573)

S2	163	F	G	G::99.64(77450)
S2	164	F	S	S::99.76(71590)
S2	165	F	S	S::99.86(72723)
S2	166	F	T	T::99.76(73725)
S2	167	F	T	T::99.87(73032)
S2	168	F	S	S::99.83(72459)
S2	169	F	T	T::99.86(69201)
S2	170	F	G	G::99.60(70659)
S2	171	F	P	P::99.73(70156)
S2	172	F	C	C::99.78(69654)
S2	173	F	R	R::99.86(67720)
S2	174	F	T	T::99.68(67176)
S2	175	F	C	C::99.82(66254)
S2	176	F	T	T::99.78(65118)
S2	177	F	T	T::99.88(58363)
S2	178	F	P	P::99.78(58296)
S2	179	F	A	A::99.76(63164)
S2	180	F	Q	Q::99.77(63912)
S2	181	F	G	G::99.65(62912)
S2	182	F	T	T::99.84(62925)
S2	183	F	S	S::99.90(61849)
S2	184	F	M	M::99.74(61451)
S2	185	F	Y	Y::99.69(60905)
S2	186	F	P	P::99.84(60695)
S2	187	F	S	S::99.88(59781)
S2	188	F	C	C::99.61(56123)
S2	189	F	C	C::99.80(57739)
S2	190	F	C	C::99.76(58543)
S2	191	F	T	T::99.73(58609)
S2	192	F	K	K::99.92(58731)
S2	193	F	P	P::99.82(58569)
S2	194	F	S	S::99.76(57475)
S2	195	F	D	D::99.90(57532)
S2	196	F	G	G::99.59(57951)
S2	197	F	N	N::99.91(58398)
S2	198	F	C	C::99.85(58141)
S2	199	F	T	T::99.91(55783)
S2	200	F	C	C::99.69(58997)
S2	201	F	I	I::99.96(60484)
S2	202	F	P	P::99.86(60441)
S2	203	F	I	I::99.93(61095)
S2	204	F	P	P::99.55(61165)
S2	205	F	S	S::99.89(61689)
S2	206	F	S	S::99.93(62147)
S2	207	F	W	W::99.84(62997)
S2	208	F	A	A::99.90(63774)
S2	210	F	G	G::99.69(65023)
S2	211	F	K	K::99.90(66330)
S2	213	F	L	L::99.93(67424)
S2	214	F	W	W::99.81(68155)
S2	215	F	E	E::99.88(69684)

S2	216	F	W	W::99.86(70107)
S2	217	F	A	A::99.71(71793)
S2	218	F	S	S::99.84(72935)
S2	219	F	A	A::99.74(74891)
S2	220	F	R	R::99.51(76481)
S2	222	F	S	S::99.40(78194)
S2	223	F	W	W::99.74(80614)
S2	224	F	L	L::99.92(83510)
S2	225	F	S	S::99.84(85684)
S2	226	F	L	L::99.77(85722)
S2	227	F	L	L::99.95(86237)
S2	228	F	V	V::99.91(89044)
S2	229	F	P	P::99.89(89272)
S2	231	F	V	V::99.91(92983)
S2	232	F	Q	Q::99.84(93363)
S2	233	F	W	W::99.42(94134)
S2	235	F	V	V::99.76(97193)
S2	236	F	G	G::99.93(98315)
S2	237	F	L	L::99.82(98477)
S2	238	F	S	S::99.64(99170)
S2	239	F	P	P::99.89(101186)
S2	240	F	T	T::99.93(103273)
S2	241	F	V	V::99.79(103912)
S2	242	F	W	W::99.83(104539)
S2	243	F	L	L::99.92(106433)
S2	244	F	S	S::99.62(106183)
S2	245	F	V	V::99.64(108494)
S2	246	F	I	I::99.89(109715)
S2	247	F	W	W::99.91(109742)
S2	248	F	M	M::99.86(111090)
S2	249	F	M	M::99.86(110950)
S2	250	F	W	W::99.85(111122)
S2	251	F	Y	Y::99.89(112223)
S2	252	F	W	W::99.79(111765)
S2	253	F	G	G::99.88(112922)
S2	254	F	P	P::99.57(113353)
S2	255	F	S	S::99.57(114018)
S2	256	F	L	L::99.93(112437)
S2	257	F	Y	Y::99.76(112633)
S2	258	F	S	S::99.36(111612)
S2	259	F	I	I::99.93(108386)
S2	260	F	L	L::99.82(110030)
S2	261	F	S	S::99.86(113088)
S2	262	F	P	P::99.90(112832)
S2	264	F	L	L::99.63(110664)
S2	265	F	P	P::99.84(110913)
S2	266	F	L	L::99.94(110467)
S2	267	F	L	L::96.33(104470)
S2	268	F	P	P::99.90(106945)
S2	269	F	I	I::99.90(106435)
S2	272	F	C	C::99.70(103226)

S2	273	F	L	L::99.86(101805)
S2	274	F	W	W::99.87(99959)
S2	275	F	V	V::99.29(97483)
S2	276	F	Y	Y::99.87(96194)
X	1	F	M	M::99.78(8318)
X	2	F	A	A::99.84(8197)
X	3	F	A	A::99.90(8092)
X	4	F	R	R::99.92(7785)
X	5	F	L	L::99.67(7616)
X	6	F	C	C::99.79(7444)
X	7	F	C	C::99.35(7355)
X	8	F	Q	Q::99.77(7381)
X	9	F	L	L::99.97(7441)
X	10	F	D	D::99.88(7431)
X	11	F	P	P::99.88(7398)
X	12	F	A	A::99.67(7256)
X	13	F	R	R::99.88(7261)
X	14	F	D	D::99.90(7191)
X	15	F	V	V::99.80(7104)
X	16	F	L	L::99.77(7093)
X	17	F	C	C::99.93(7105)
X	18	F	L	L::99.97(7116)
X	19	F	R	R::99.74(6965)
X	20	F	P	P::99.93(6921)
X	21	F	V	V::99.80(6925)
X	22	F	G	G::99.12(6791)
X	23	F	A	A::99.76(6923)
X	24	F	E	E::99.74(6868)
X	25	F	S	S::99.99(6858)
X	26	F	R	R::99.75(6742)
X	27	F	G	G::99.92(6658)
X	28	F	R	R::99.76(6614)
X	29	F	P	P::99.94(6673)
X	31	F	S	S::99.64(6287)
X	32	F	G	G::99.95(6585)
X	33	F	P	P::99.88(6599)
X	34	F	L	L::99.66(6652)
X	35	F	G	G::99.91(6814)
X	36	F	T	T::99.59(6799)
X	37	F	L	L::99.55(6930)
X	38	F	S	S::99.44(6870)
X	39	F	S	S::100.00(6839)
X	40	F	P	P::99.97(6930)
X	41	F	S	S::99.96(6863)
X	42	F	P	P::99.90(6811)
X	43	F	S	S::99.87(6726)
X	44	F	A	A::99.73(6719)
X	45	F	V	V::99.81(6847)
X	46	F	S	S::99.91(6657)
X	47	F	T	T::99.71(6628)
X	48	F	D	D::99.65(6534)

X	49	F	H	H::99.91(6549)
X	50	F	G	G::99.95(6536)
X	51	F	A	A::99.85(6509)
X	52	F	H	H::98.84(6487)
X	53	F	L	L::99.88(6766)
X	54	F	S	S::99.93(6778)
X	55	F	L	L::100.00(6932)
X	56	F	R	R::99.72(7030)
X	57	F	G	G::99.79(6964)
X	58	F	L	L::99.80(6863)
X	59	F	P	P::99.77(6846)
X	60	F	V	V::99.96(6872)
X	61	F	C	C::99.03(6750)
X	62	F	A	A::99.72(6802)
X	64	F	S	S::99.87(6811)
X	65	F	S	S::99.94(6828)
X	66	F	A	A::99.84(6860)
X	67	F	G	G::98.72(6716)
X	68	F	P	P::99.75(6877)
X	69	F	C	C::99.87(7116)
X	70	F	A	A::98.49(6958)
X	71	F	L	L::99.90(7126)
X	72	F	R	R::99.47(7115)
X	74	F	T	T::99.66(7298)
X	75	F	S	S::99.92(8528)
X	76	F	A	A::99.93(20514)
X	77	F	R	R::99.96(91111)
X	78	F	R	R::99.68(125481)
X	79	F	M	M::99.81(128399)
X	80	F	E	E::99.83(132894)
X	81	F	T	T::99.85(135231)
X	82	F	T	T::99.83(135879)
X	83	F	V	V::99.70(138188)
X	84	F	N	N::99.89(139655)
X	85	F	A	A::99.78(141500)
X	86	F	H	H::99.79(143492)
X	87	F	L	L::99.42(142645)
X	89	F	L	L::99.76(146751)
X	90	F	P	P::99.84(150724)
X	91	F	K	K::99.85(151825)
X	92	F	V	V::99.93(153852)
X	93	F	L	L::99.83(153923)
X	94	F	H	H::99.81(157404)
X	95	F	K	K::99.82(159939)
X	96	F	R	R::99.85(161816)
X	97	F	T	T::99.90(164566)
X	98	F	L	L::99.19(164576)
X	99	F	G	G::99.78(170275)
X	100	F	L	L::99.89(171935)
X	101	F	S	S::99.60(171582)
X	102	F	V	V::99.69(172588)

X	103	F	M	M::99.80(181916)
X	104	F	S	S::99.88(183044)
X	105	F	T	T::99.83(185560)
X	106	F	T	T::99.60(186211)
X	107	F	D	D::99.70(189364)
X	108	F	L	L::99.78(191506)
X	109	F	E	E::99.76(193026)
X	110	F	A	A::99.77(194448)
X	111	F	Y	Y::99.87(196495)
X	113	F	K	K::99.79(200036)
X	114	F	D	D::99.68(202204)
X	115	F	C	C::99.60(202611)
X	116	F	L	L::99.87(205918)
X	118	F	K	K::99.80(208294)
X	119	F	D	D::99.53(211303)
X	120	F	W	W::99.70(212094)
X	121	F	E	E::99.89(214410)
X	122	F	E	E::99.90(215192)
X	123	F	L	L::99.79(215088)
X	124	F	G	G::99.91(215211)
X	125	F	E	E::99.89(205772)
X	126	F	E	E::99.91(107718)
X	127	F	I	I::99.68(97811)
X	128	F	R	R::99.78(99948)
X	129	F	L	L:64.79(58672) S::35.11(31792)
X	130	F	K	K::91.11(73234)
X	131	F	V	V::98.54(73090)
X	133	F	V	V::96.93(89747)
X	134	F	L	L::99.91(93799)
X	135	F	G	G::99.87(109612)
X	136	F	G	G::99.93(111500)
X	137	F	C	C::99.71(111818)
X	138	F	R	R::99.74(114070)
X	139	F	H	H::99.63(115434)
X	140	F	K	K::99.94(116294)
X	141	F	L	L::99.83(117194)
X	142	F	V	V::99.86(117555)
X	143	F	C	C::99.84(116220)
X	144	F	A	A::99.69(117924)
X	145	F	P	P::99.82(118972)
X	146	F	A	A::99.78(119269)
X	147	F	P	P::99.86(119701)
X	148	F	C	C::99.70(118902)
X	149	F	N	N::99.93(119397)
X	152	F	T	T::99.09(118140)
X	153	F	S	S::99.82(121630)
C	1	F	M	M::99.80(171769)
C	2	F	D	D::99.73(173074)
C	3	F	I	I::99.93(177309)
C	4	F	D	D::99.76(172881)
C	5	F	P	P::99.73(180431)

C	6	F	Y	Y::99.91(181116)
C	7	F	K	K::99.90(185015)
C	8	F	E	E::99.84(187107)
C	10	F	G	G::99.91(188100)
C	11	F	A	A::99.88(190475)
C	12	F	T	T::99.78(192415)
C	13	F	V	V::99.91(195077)
C	14	F	E	E::99.80(196205)
C	15	F	L	L::99.86(196323)
C	16	F	L	L::99.92(198486)
C	17	F	S	S::99.86(196722)
C	19	F	L	L::99.91(197069)
C	20	F	P	P::99.81(199068)
C	21	F	S	S::99.90(197638)
C	22	F	D	D::99.90(200169)
C	25	F	P	P::99.73(199352)
C	26	F	S	S::99.83(195902)
C	27	F	V	V::99.93(196138)
C	28	F	R	R::99.74(189416)
C	29	F	D	D::88.02(166435) H::9.33(17640)
C	30	F	L	L::99.92(188160)
C	31	F	L	L::99.88(183513)
C	32	F	D	D::99.91(187933)
C	33	F	T	T::99.85(185783)
C	34	F	A	A::99.81(184709)
C	35	F	S	S::99.86(181988)
C	36	F	A	A::99.86(183720)
C	37	F	L	L::99.94(174960)
C	38	F	Y	Y::99.87(180072)
C	39	F	R	R::99.69(179052)
C	40	F	E	E::99.84(176770)
C	41	F	A	A::99.79(165188)
C	42	F	L	L::99.90(169700)
C	43	F	E	E::99.80(171179)
C	44	F	S	S::99.92(170109)
C	45	F	P	P::99.39(168751)
C	46	F	E	E::99.90(167367)
C	47	F	H	H::99.80(168440)
C	48	F	C	C::99.76(166508)
C	49	F	S	S::99.82(164681)
C	50	F	P	P::99.16(164386)
C	51	F	H	H::99.90(155615)
C	52	F	H	H::99.82(160756)
C	53	F	T	T::99.92(160626)
C	54	F	A	A::99.58(159052)
C	55	F	L	L::99.82(160623)
C	56	F	R	R::99.85(159839)
C	57	F	Q	Q::99.77(157124)
C	58	F	A	A::99.82(157630)
C	59	F	I	I::99.81(158274)
C	60	F	L	L::99.87(155630)

C	61	F	C	C::99.83(153422)
C	62	F	W	W::99.73(147218)
C	63	F	G	G::99.80(152507)
C	64	F	E	E::96.48(139363)
C	65	F	L	L::99.94(148497)
C	66	F	M	M::97.96(153396)
C	67	F	T	T::99.89(157104)
C	68	F	L	L::99.94(155197)
C	69	F	A	A::99.82(143335)
C	70	F	T	T::99.91(143455)
C	71	F	W	W::99.80(154024)
C	72	F	V	V::99.93(156988)
C	73	F	G	G::99.91(156462)
C	74	F	G	G::99.82(150066)
C	75	F	N	N::99.86(158276)
C	76	F	L	L::99.90(158131)
C	77	F	E	E::99.85(156892)
C	78	F	D	D::99.88(156888)
C	79	F	P	P::99.81(154694)
C	80	F	I	I::99.79(138824)
C	81	F	S	S::99.81(138885)
C	82	F	R	R::99.82(138920)
C	83	F	D	D::99.83(158487)
C	84	F	L	L::99.92(161159)
C	85	F	V	V::99.90(162428)
C	86	F	V	V::99.91(164113)
C	87	F	S	S::99.52(164121)
C	88	F	Y	Y::99.92(164070)
C	89	F	V	V::99.91(158522)
C	90	F	N	N::99.90(164167)
C	91	F	T	T::99.84(165893)
C	92	F	N	N::97.08(159813)
C	93	F	M	M::99.66(147516)
C	94	F	G	G::99.83(147776)
C	95	F	L	L::99.90(147839)
C	96	F	K	K::99.72(162819)
C	98	F	R	R::99.86(160073)
C	99	F	Q	Q::99.64(165568)
C	100	F	L	L::99.77(167090)
C	101	F	L	L::99.75(167928)
C	102	F	W	W::99.54(168736)
C	104	F	H	H::99.88(170047)
C	105	F	I	I::99.88(169852)
C	106	F	S	S::99.91(169060)
C	107	F	C	C::99.84(161325)
C	108	F	L	L::99.89(166187)
C	109	F	T	T::99.87(168450)
C	111	F	G	G::99.83(165230)
C	112	F	R	R::99.75(164051)
C	113	F	E	E::99.77(165409)
C	114	F	T	T::99.84(166023)

C	115	F	V	V::99.86(154379)
C	116	F	I	I::99.70(159914)
C	117	F	E	E::99.88(161333)
C	118	F	Y	Y::99.94(154173)
C	119	F	L	L::99.93(158271)
C	120	F	V	V::99.92(152790)
C	121	F	S	S::99.92(158775)
C	123	F	G	G::99.87(160114)
C	124	F	V	V::99.92(161048)
C	125	F	W	W::99.80(159738)
C	126	F	I	I::99.92(160327)
C	127	F	R	R::99.61(158033)
C	128	F	T	T::99.90(160001)
C	129	F	P	P::99.85(160326)
C	130	F	P	P::99.78(159773)
C	131	F	A	A::99.84(160748)
C	132	F	Y	Y::99.89(159651)
C	133	F	R	R::99.77(160134)
C	134	F	P	P::99.88(154084)
C	135	F	P	P::99.39(159095)
C	136	F	N	N::99.90(162930)
C	137	F	A	A::99.78(162193)
C	138	F	P	P::99.81(163543)
C	139	F	I	I::99.93(163146)
C	140	F	L	L::99.88(161713)
C	141	F	S	S::99.87(162813)
C	142	F	T	T::99.92(164069)
C	143	F	L	L::99.80(164432)
C	144	F	P	P::99.80(165501)
C	145	F	E	E::99.82(164789)
C	146	F	T	T::99.84(166881)
C	147	F	T	T::99.86(168579)
C	148	F	V	V::99.82(169553)
C	149	F	V	V::99.89(170964)
C	150	F	R	R::99.80(169881)
C	151	F	R	R::99.81(171061)
C	152	F	R	R::99.85(171713)
C	153	F	G	G::94.28(165187) C::5.64(9878)
C	154	F	R	R::99.75(175754)
C	155	F	S	S::99.52(177363)
C	156	F	P	P::99.63(180019)
C	157	F	R	R::99.81(181496)
C	158	F	R	R::99.82(183392)
C	159	F	R	R::99.90(186689)
C	160	F	T	T::99.93(190898)
C	161	F	P	P::99.76(194552)
C	162	F	S	S::99.92(194593)
C	163	F	P	P::99.88(198669)
C	164	F	R	R::99.77(202995)
C	165	F	R	R::99.81(207635)
C	166	F	R	R::99.88(209682)

C	167	F	R	R::99.80(207102)
C	168	F	S	S::99.86(215072)
C	169	F	Q	Q::99.77(217724)
C	170	F	S	S::99.91(219014)
C	171	F	P	P::99.83(222409)
C	172	F	R	R::99.79(224089)
C	173	F	R	R::99.61(226308)
C	174	F	R	R::98.72(227614)
C	175	F	R	R::99.88(234699)
C	176	F	S	S::99.88(236562)
C	177	F	Q	Q::98.99(238498)
C	178	F	S	S::99.74(242318)
C	179	F	R	R::99.88(247843)
C	180	F	E	E::99.30(249939)
C	181	F	S	S::99.49(252580)
C	182	F	Q	Q::78.10(199975) *::21.14(54139)
P1	1	F	M	M::99.91(162298)
P1	2	F	P	P::99.76(162721)
P1	3	F	L	L::99.84(162632)
P1	4	F	S	S::99.90(162830)
P1	5	F	Y	Y::99.85(162926)
P1	6	F	Q	Q::99.86(163817)
P1	7	F	H	H::99.76(164993)
P1	9	F	R	R::99.81(165247)
P1	10	F	R	R::99.63(164822)
P1	11	F	L	L::99.94(166392)
P1	12	F	L	L::99.94(168096)
P1	13	F	L	L::99.90(168941)
P1	14	F	L	L::99.89(168201)
P1	15	F	D	D::99.78(170314)
P1	16	F	D	D::99.78(173045)
P1	17	F	E	E::94.23(163779) D::5.69(9882)
P1	18	F	A	A::99.79(174102)
P1	19	F	G	G::99.89(177353)
P1	20	F	P	P::99.75(179286)
P1	21	F	L	L::99.92(178168)
P1	22	F	E	E::99.89(180637)
P1	23	F	E	E::99.87(183328)
P1	24	F	E	E::99.90(187471)
P1	25	F	L	L::99.90(191379)
P1	26	F	P	P::99.90(195920)
P1	27	F	R	R::99.89(197157)
P1	28	F	L	L::99.92(200206)
P1	29	F	A	A::99.76(203091)
P1	30	F	D	D::99.85(209104)
P1	31	F	E	E::99.86(211575)
P1	32	F	G	G::99.76(207013)
P1	33	F	L	L::99.83(215308)
P1	34	F	N	N::99.92(219573)
P1	35	F	R	R::99.74(221527)
P1	36	F	R	R::99.78(223261)

P1	37	F	V	V::99.88(225639)
P1	38	F	A	A::99.70(224904)
P1	39	F	E	E::99.89(231225)
P1	40	F	D	D::99.88(235170)
P1	41	F	L	L::99.86(236986)
P1	42	F	N	N::99.82(243555)
P1	43	F	L	L::99.81(244528)
P1	44	F	G	G::99.86(248877)
P1	45	F	N	N::99.89(253767)
P1	46	F	L	L::99.45(251973)
P1	47	F	N	N::99.83(260314)
P1	48	F	V	V::99.84(262981)
P1	49	F	S	S::99.81(263648)
P1	50	F	I	I::99.94(265001)
P1	51	F	P	P::99.91(265545)
P1	52	F	W	W::99.84(264689)
P1	53	F	T	T::99.92(270848)
P1	54	F	H	H::99.86(272679)
P1	55	F	K	K::99.85(275863)
P1	56	F	V	V::99.87(277529)
P1	57	F	G	G::99.79(267994)
P1	58	F	N	N::99.93(277429)
P1	60	F	T	T::99.84(280855)
P1	61	F	G	G::99.92(279646)
P1	62	F	L	L::99.92(279429)
P1	63	F	Y	Y::99.90(278615)
P1	64	F	S	S::99.89(279649)
P1	65	F	S	S::99.82(277239)
P1	66	F	T	T::99.83(280119)
P1	67	F	V	V::99.90(269295)
P1	68	F	P	P::99.82(277124)
P1	69	F	V	V::99.78(277214)
P1	71	F	N	N::99.91(275585)
P1	72	F	P	P::99.91(272535)
P1	73	F	H	H::99.72(271008)
P1	74	F	W	W::99.78(268135)
P1	75	F	K	K::99.87(266534)
P1	76	F	T	T::99.80(265608)
P1	77	F	P	P::99.84(265284)
P1	78	F	S	S::99.90(261746)
P1	80	F	P	P::99.83(258731)
P1	81	F	N	N::99.72(246326)
P1	82	F	I	I::99.90(254154)
P1	83	F	H	H::99.91(255679)
P1	84	F	L	L::99.94(251330)
P1	85	F	H	H::99.77(250180)
P1	86	F	Q	Q::99.70(245125)
P1	87	F	D	D::99.85(246863)
P1	88	F	I	I::99.95(244412)
P1	89	F	I	I::99.84(227764)
P1	90	F	K	K::99.51(233526)

P1	91	F	K	K::99.59(234500)
P1	92	F	C	C::99.90(233722)
P1	93	F	E	E::99.87(228273)
P1	94	F	Q	Q::99.85(226038)
P1	96	F	V	V::99.90(217757)
P1	97	F	G	G::99.83(207731)
P1	98	F	P	P::99.90(213871)
P1	99	F	L	L::99.90(214742)
P1	100	F	T	T::99.86(207018)
P1	101	F	V	V::99.87(188541)
P1	102	F	N	N::99.91(200213)
P1	103	F	E	E::99.83(203097)
P1	104	F	K	K::99.92(200823)
P1	105	F	R	R::99.88(193698)
P1	106	F	R	R::99.89(202718)
P1	107	F	L	L::99.95(192401)
P1	108	F	Q	Q::99.03(197451)
P1	109	F	L	L::99.90(198333)
P1	110	F	I	I::99.90(198364)
P1	111	F	M	M::99.82(197551)
P1	112	F	P	P::99.76(196744)
P1	113	F	A	A::99.89(196749)
P1	114	F	R	R::99.85(195012)
P1	116	F	Y	Y::99.88(193444)
P1	117	F	P	P::99.80(192495)
P1	118	F	N	N::99.56(182830)
P1	119	F	V	V::99.13(187791)
P1	120	F	T	T::99.87(190436)
P1	121	F	K	K::99.93(190826)
P1	122	F	Y	Y::99.94(190480)
P1	123	F	L	L::99.84(187707)
P1	124	F	P	P::99.82(186613)
P1	125	F	L	L::99.90(175309)
P1	126	F	D	D::99.81(180091)
P1	127	F	K	K::99.78(181382)
P1	128	F	G	G::99.82(180923)
P1	129	F	I	I::99.94(180120)
P1	130	F	K	K::99.92(177208)
P1	131	F	P	P::99.90(177798)
P1	132	F	Y	Y::99.91(175049)
P1	133	F	Y	Y::99.94(175168)
P1	134	F	P	P::99.89(173493)
P1	135	F	E	E::99.89(172739)
P1	136	F	H	H::99.90(172115)
P1	137	F	L	L::99.83(167617)
P1	138	F	V	V::99.90(168731)
P1	139	F	N	N::99.79(168296)
P1	140	F	H	H::99.83(166489)
P1	141	F	Y	Y::99.88(163454)
P1	143	F	Q	Q::99.84(159132)
P1	144	F	T	T::99.95(157573)

P1	145	F	R	R::99.85(156611)
P1	146	F	H	H::99.92(156102)
P1	147	F	Y	Y::99.90(154511)
P1	148	F	L	L::99.93(151323)
P1	149	F	H	H::99.82(149772)
P1	150	F	T	T::99.85(149374)
P1	151	F	L	L::99.95(145990)
P1	152	F	W	W::99.79(143863)
P1	153	F	K	K::99.89(141865)
P1	154	F	A	A::99.81(139687)
P1	155	F	G	G::99.81(138441)
P1	156	F	I	I::99.67(136549)
P1	157	F	L	L::99.93(134270)
P1	158	F	Y	Y::99.93(133011)
P1	159	F	K	K::99.80(129882)
P1	160	F	R	R::99.88(128058)
P1	161	F	E	E::99.82(127196)
P1	162	F	T	T::99.80(125350)
P1	163	F	T	T::99.91(123096)
P1	164	F	H	H::96.73(117376)
P1	165	F	S	S::99.89(114307)
P1	166	F	A	A::99.89(117218)
P1	167	F	S	S::99.89(116606)
P1	169	F	C	C::99.86(112461)
P1	170	F	G	G::99.82(110745)
P1	171	F	S	S::99.87(108718)
P1	172	F	P	P::99.78(108732)
P1	173	F	Y	Y::99.91(107760)
P1	174	F	S	S::99.93(105946)
P1	175	F	W	W::99.82(103248)
P1	176	F	E	E::99.83(104400)
P1	177	F	Q	Q::99.87(101381)
P1	178	F	E	E::99.71(100466)
P1	179	F	L	L::99.58(98976)
P1	180	F	Q	Q::99.83(96836)
P1	181	F	H	H::99.81(95552)
P1	182	F	G	G::99.85(93248)
P1	183	F	A	A::99.72(90992)
P1	184	F	E	E::99.78(91067)
P1	185	F	S	S::99.91(90013)
P1	187	F	H	H::99.92(88123)
P1	188	F	Q	Q::99.84(87270)
P1	189	F	Q	Q::99.81(85905)
P1	190	F	S	S::99.92(84917)
P1	191	F	S	S::99.61(83518)
P1	192	F	G	G::99.80(83205)
P1	193	F	I	I::99.95(82765)
P1	194	F	L	L::99.69(80860)
P1	195	F	S	S::99.83(78996)
P1	196	F	R	R::99.79(77707)
P1	197	F	P	P::99.17(76465)

P1	198	F	P	P::99.62(76457)
P1	199	F	V	V::99.85(75746)
P1	200	F	G	G::99.92(74828)
P1	201	F	S	S::99.77(74097)
P1	202	F	S	S::99.87(73155)
P1	203	F	L	L::99.86(72316)
P1	204	F	Q	Q::99.83(70518)
P1	205	F	S	S::99.83(69703)
P1	206	F	K	K::99.73(68701)
P1	207	F	H	H::99.52(67720)
P1	208	F	R	R::99.37(66817)
P1	209	F	K	K::99.86(65842)
P1	210	F	S	S::99.94(65213)
P1	211	F	R	R::99.90(63896)
P1	212	F	L	L::99.91(63379)
P1	213	F	G	G::99.73(62190)
P1	214	F	L	L::99.36(61161)
P1	215	F	Q	Q:99.87(60204)
P1	216	F	S	S::99.89(59528)
P1	217	F	Q	Q::99.68(58350)
P1	218	F	Q	Q::99.67(57482)
P1	219	F	G	G::99.55(56846)
P1	220	F	H	H::99.59(56028)
P1	221	F	L	L::99.81(55284)
P1	222	F	A	A::99.72(53893)
P1	223	F	G	G::99.18(50593)
P1	224	F	R	R::99.52(52789)
P1	225	F	Q	Q::99.79(52701)
P1	226	F	Q	Q::99.72(52135)
P1	227	F	G	G::99.90(51881)
P1	228	F	R	R::99.89(51071)
P1	229	F	S	S::99.83(50498)
P1	230	F	W	W::99.75(49795)
P1	231	F	S	S::99.81(49163)
P1	232	F	I	I::99.89(48765)
P1	233	F	R	R::99.64(47780)
P1	234	F	A	A::99.51(44551)
P1	235	F	G	G::99.63(46038)
P1	236	F	I	I::99.81(46391)
P1	237	F	H	H::99.74(45892)
P1	238	F	P	P::99.80(46011)
P1	239	F	T	T::99.86(45960)
P1	240	F	A	A::99.56(43883)
P1	241	F	R	R::99.86(46164)
P1	242	F	R	R::99.87(46268)
P1	243	F	P	P::99.80(46124)
P1	245	F	G	G::99.80(46096)
P1	246	F	V	V::99.05(45748)
P1	247	F	E	E::99.08(45389)
P1	248	F	P	P::99.81(45921)
P1	249	F	S	S::99.87(45672)

P1	250	F	G	G::99.72(46591)
P1	251	F	S	S::99.89(46779)
P1	252	F	G	G::98.61(47085)
P1	253	F	H	H::99.83(47171)
P1	254	F	T	T::99.78(44000)
P1	255	F	T	T::99.86(44040)
P1	256	F	N	N::99.71(49150)
P1	257	F	L	L::99.54(49352)
P1	258	F	A	A::99.68(49685)
P1	259	F	S	S::99.54(49847)
P1	260	F	K	K::99.87(49993)
P1	261	F	S	S::99.64(50219)
P1	262	F	A	A::99.31(50112)
P1	263	F	S	S::99.94(50859)
P1	264	F	C	C::99.55(50648)
P1	265	F	L	L::99.35(48998)
P1	266	F	H	H::99.66(52175)
P1	267	F	Q	Q::99.78(51314)
P1	268	F	S	S::98.64(50083)
P1	269	F	P	P::98.85(49312)
P1	270	F	V	V::99.83(48355)
P1	271	F	R	R::99.67(48279)
P1	272	F	K	K::99.80(47291)
P1	273	F	A	A::99.58(45863)
P1	274	F	A	A::99.71(45046)
P1	275	F	Y	Y::99.71(43962)
P1	276	F	P	P::99.53(43296)
P1	277	F	S	S::99.41(41791)
P1	278	F	V	V::99.71(41721)
P1	279	F	S	S::99.80(41007)
P1	280	F	T	T::99.78(40034)
P1	282	F	E	E::99.54(37950)
P1	283	F	K	K::99.05(37115)
P1	284	F	H	H::99.50(36482)
P1	285	F	S	S::99.57(35562)
P1	286	F	S	S::99.90(35105)
P1	287	F	S	S::99.89(33651)
P1	288	F	G	G::99.70(32847)
P1	289	F	H	H::99.78(32012)
P1	290	F	A	A::99.79(30345)
P1	291	F	V	V::99.81(29682)
S1	1	F	M	M::99.84(94855)
S1	2	F	G	G::99.82(92365)
S1	3	F	Q	Q::99.79(90739)
S1	4	F	N	N::99.81(91261)
S1	5	F	L	L::99.90(89682)
S1	6	F	S	S::99.82(88187)
S1	7	F	T	T::99.93(87863)
S1	8	F	S	S::99.72(86743)
S1	9	F	N	N::99.87(85938)
S1	10	F	P	P::99.92(84659)

S1	11	F	L	L::99.90(83133)
S1	12	F	G	G::99.87(83011)
S1	15	F	P	P::99.92(79046)
S1	16	F	D	D::99.05(77071)
S1	17	F	H	H::99.86(77159)
S1	18	F	Q	Q::99.84(76389)
S1	19	F	L	L::99.88(75091)
S1	20	F	D	D::99.89(74983)
S1	21	F	P	P::99.76(73251)
S1	22	F	A	A::99.82(72932)
S1	24	F	R	R::99.74(70119)
S1	25	F	A	A::99.80(69055)
S1	26	F	N	N::99.81(68726)
S1	27	F	T	T::99.63(67246)
S1	28	F	A	A::99.61(66399)
S1	29	F	N	N::99.86(65961)
S1	30	F	P	P::99.85(64014)
S1	31	F	D	D::99.91(63987)
S1	32	F	W	W::99.71(63052)
S1	33	F	D	D::99.87(62269)
S1	35	F	N	N::99.86(60280)
S1	36	F	P	P::99.86(59287)
S1	37	F	N	N::99.65(58480)
S1	38	F	K	K::99.66(57592)
S1	39	F	D	D::99.72(56808)
S1	40	F	T	T::99.58(55876)
S1	41	F	W	W::99.80(54504)
S1	42	F	P	P::99.64(50889)
S1	43	F	D	D::99.59(52372)
S1	44	F	A	A::99.68(52825)
S1	45	F	N	N::99.79(52757)
S1	46	F	K	K::99.81(52155)
S1	47	F	V	V::99.91(51109)
S1	48	F	G	G::99.88(50670)
S1	49	F	A	A::99.81(50248)
S1	50	F	G	G::99.93(49496)
S1	51	F	A	A::99.83(48900)
S1	53	F	G	G::99.78(47549)
S1	54	F	L	L::98.47(44078)
S1	55	F	G	G::99.76(46379)
S1	57	F	T	T::99.72(45962)
S1	58	F	P	P::99.91(45883)
S1	59	F	P	P::99.89(44048)
S1	60	F	H	H::99.92(45935)
S1	61	F	G	G::99.86(45962)
S1	62	F	G	G::99.87(46219)
S1	63	F	L	L::99.42(45947)
S1	64	F	L	L::99.89(45776)
S1	65	F	G	G::99.80(46036)
S1	66	F	W	W::99.13(45625)
S1	67	F	S	S::99.61(45667)

S1	68	F	P	P::99.85(46051)
S1	69	F	Q	Q::99.80(46053)
S1	70	F	A	A::99.87(46846)
S1	71	F	Q	Q::99.79(47455)
S1	72	F	G	G::99.70(47724)
S1	73	F	I	I::99.87(46745)
S1	74	F	L	L::99.88(44049)
S1	75	F	Q	Q::99.66(48198)
S1	76	F	T	T::99.70(49384)
S1	77	F	L	L::99.70(49323)
S1	78	F	P	P::99.85(49525)
S1	79	F	A	A::99.60(49551)
S1	80	F	N	N::99.82(50380)
S1	81	F	P	P::99.61(50045)
S1	82	F	P	P::99.49(50484)
S1	83	F	P	P::99.87(51226)
S1	84	F	A	A::99.55(49071)
S1	85	F	S	S::99.77(51493)
S1	86	F	T	T::99.74(52029)
S1	87	F	N	N::98.58(50609)
S1	88	F	R	R::99.66(50407)
S1	89	F	Q	Q::99.80(49583)
S1	90	F	S	S::99.89(48387)
S1	91	F	G	G::99.84(47715)
S1	92	F	R	R::99.83(47139)
S1	93	F	Q	Q::99.73(45604)
S1	94	F	P	P::99.60(44505)
S1	95	F	T	T::99.78(43768)
S1	96	F	P	P::99.89(41998)
S1	97	F	L	L::99.75(41935)
S1	98	F	S	S::99.88(41423)
S1	99	F	P	P::99.90(40417)
S1	100	F	P	P::99.83(39721)
S1	101	F	L	L::99.76(39009)
S1	102	F	R	R::99.88(37893)
S1	103	F	N	N::98.63(36793)
S1	104	F	T	T::99.89(36241)
S1	105	F	H	H::99.88(35431)
S1	106	F	P	P::99.91(34769)
S1	107	F	Q	Q::99.67(33406)
S1	108	F	A	A::99.76(32641)
S1	109	F	M	M::99.73(31596)
S1	110	F	Q	Q::99.80(30135)

Meta data	
Assembly file:	HBV-RYD-5.sam
Annotation file:	/home3/vatt01s/Work/Project-150-HBV/Data/P150-1/Annotation/HBV.anno
Reference file:	KX357637.fa.
User name	ales01a
Hostname	Alpha
Location	/home2/ales01a/HBV/P150-5/HBV-RYD-5
Date/Time	Mon 25 Mar 16:41:13 GMT 2019