HBV-RYD-42

File name	**HBV-RYD-42.sam**
Ref name	**KX357637.1 Hepatitis B virus isolate MK20ETH, complete genome**
Ref len	**3182**
Program used	**Tanoti Assembler 1.0**
Total reads	**2626016**
Mapped reads	**384129 (14.63%)**
Unmapped reads	**2241887**
Mapped loan pairs	**104**
Average read length	**147nt**
Coverage	**2802nt (88.06%)**
Average depth	**17849 reads/site**
Average insert length	**111nt**

COVERAGE

Coverage by reads

SHANNON ENTROPY

Entropy of the reads

1
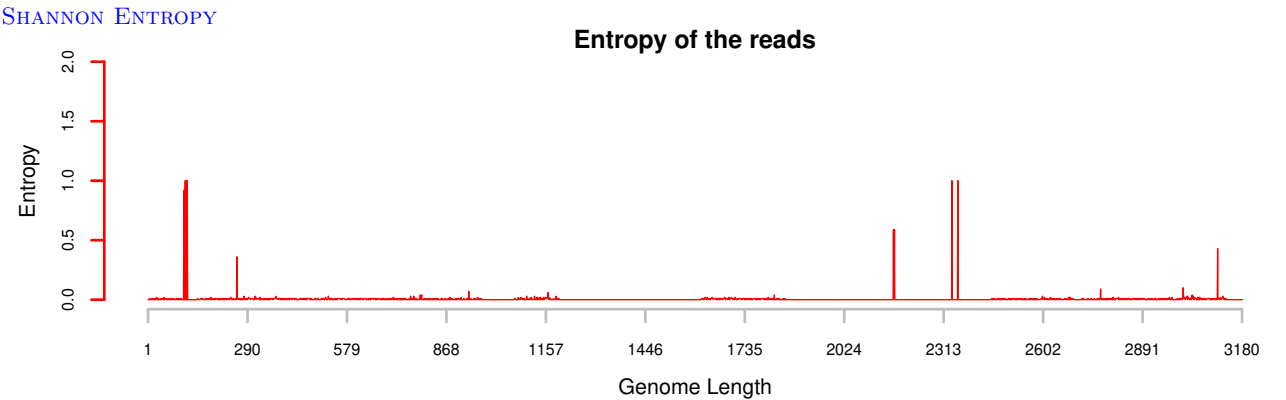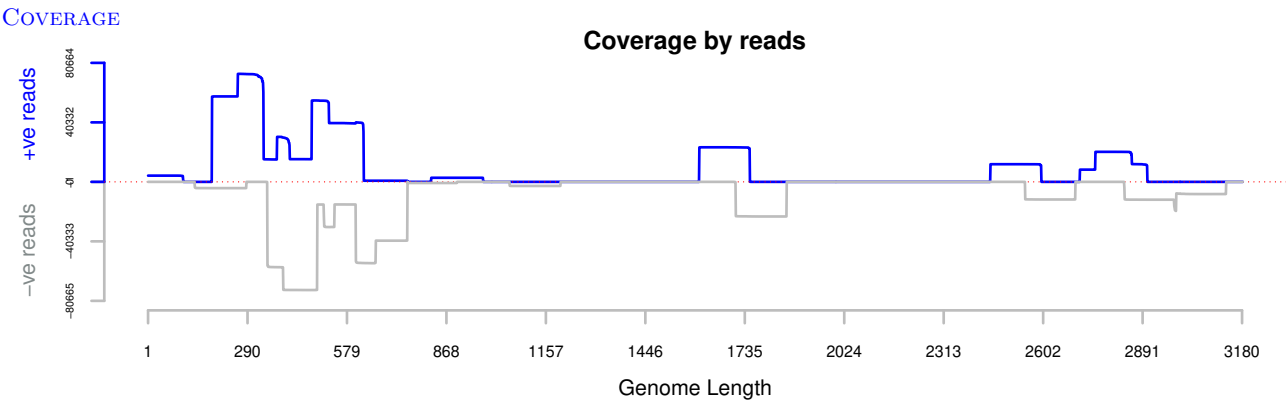
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  70      AGTTCAGGAA CAGTAAACCC TGTTCCGACT ACTGCCTCTC TCATCTCGTC AATCTTCTCG AGGATTGGGG
 140      ACCCTGCGCT GAACATGGAG AACATCACAT CAGGATTCCT AGGACCCCTG CTCGTGTTAC AGGCGGGGTT
 210      TTTCTTGTTG ACAAGAATCC TCACAATACC GCAGAGTCTA GACTCGTGGT GGACTTCTCT 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      TCTTCAACAA CCAGCACGGG ACCATGCAGA ACCTGCACGA CTCCTGCTCA AGGAACCTCT ATGTATCCCT
 560      CCTGTTGCTG TACAAAACCT TCGGATGGAA ACTGCACCTG TATTCCCATC CCATCATCCT GGGCTTTCGG
 630      AAAATTCCTA TGGGAGTGGG CCTCAGCCCG TTTCTCTTGG CTCAGTTTAC TAGTGCCATT TGTTCAGTGG
 700      TTCGTAGGGC TTTCCCCCAC TGTTTGGCTT TCAGTTATAT GGATGATGTG GTATTGGGGG CCAAGTCTGT
 770      ACAGCATCTT GAGTCCCTTT TTACCGCTGT TACCAATTTT CTTTTGTCTT TGGGTATACA TTTAAACACT
 840      AACAAAACAA AGAGATGGGG TTATTCTTTA CATTTCATGG GTTATGTCAT TGGATGTTGG GGATCATTGC
 910      CACAAGATCA TATCAGACAC AAAATCAAAG ACTGTTTCAG AAAACTCCCT GTTAATAGGC CTATTNNNNN
 980      NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
1050      TTAATGCCCT TATATGCATG TATTCAATCT AAGCAGGCTT TCACTTTCTC GCCAACTTAC AAGGCCTTTC
1120      TGTGTAAACA ATACCTGACC CTTTACCCCG TTGCCAGGCA ACGGCCAGGT CTGTGCCAAG TGTTTGCTGA
1190      CGCAACCCCC ACTGGCTGGG GCTTGGTCAT GGGCCATCAG CGCATGCGTG GAACCTTTCT GGCTCCTCTG
1260      CCGATCCATA CTGCGGAACN NNNNNNNNNN NNNNNNNNNC GCAGCAGGTC TGGAGCAAAC ATTCTCGGGA
1330      CGGATAACTC TGTTGTTCTC TCCCGCAAAT ATACATCGTT TCCATGGCTG CTAGGCTGTG CTGCCAACTG
1400      GATCCTGCGC GGGACGTCCT TTGTTTACGT CCCGTCGGCG CTGAATCCCG NNNNNNNNNN NNNNNNNNNN
1470      NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
1540      NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNCGTGT GCACTTCGCT TCACCTCTGC ACGTCGCATG
1610      GAGACCACCG TGAACGCCCA CCAAATCTTG CCCAAGGTCT TACATAAGAG GACTCTTGGA CTCTCTGCAA
1680      TGTCAACGAC CGACCTTGAG GCATACTTCA AAGACTGTTT GTTTAAAGAC TGGGAGGAGT TGGGGGAGGA
1750      GATTAGATTA AAGGTCTTTG TACTAGGAGG CTGTAGGCAT AAATTGGTCT GCGCACCAGC ACCATGCAAC
1820      TTTTTCACCT CTGCCTAATC ATCTCTTGTT CATGTCCTAC TGTTCAAGCC TCCAAGCTGT GCCTTGGGTG
1890      GCTTTNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
1960      NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
2030      NNNNNNNNNN NNGTTCACCT CACCATACTG CACTCAGGCA AGCAATTCTT TGCTGGGGGG ACCTAATGAC
2100      TCTAGCCACC TGGGTGGGTG GTAATTTGGA AGATCCAATA TCCAGGGACC TAGTAGTCAG TTATGTCAAT
2170      ACTAATATGG GCCTAAAGTT CAGGCAACTA TTGTGGTTTC ACATTTCTTG TCTCACTTTT GGAAGAGAAA
2240      CCGTCATAGA GTATTTGGTG TCTTTTGGAG TGTGGATTCG CACTCCTCCA GCTTATAGAC CACCAAATGC
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2380      CCCTCGCCTC GCAGACGAAG GTCTCAATCG CCGCGTCGCT GAAGATCTCA ATCTCGGGAA TCTCAATGTT
2450      AGTATTCCTT GGACTCATAA GGTGGGAAAT TTTACGGGGC TTTATTCTTC TACTGTACCT GTCTTTAACC
2520      CTCATTGGAA AACACCCTCT TTTCCTAATA TACATTTACA CCAAGACATT ATCAAAAAAT GTGAACAGTT
2590      TGTAGGCCCG CTCACAGTTA ATGAGAAAAG AAGGTTGAAA TTGATTATGC CTGCTAGGTT TTATCCAAAT
2660      TTTACCAAAT ATTTGCCCTT GGACAAGGGT ATTAANNNNN NNNNNNNNGA ACATCTAGTT AATCATTACT
2730      TCCAAACTAG ACACTATTTA CACACTCTAT GGAAGGCGGG TATTTATAT AAGAGAGAAT CAACACATAG
2800      CGCCTCATTT TGTGGGTCAC CATATTCTTG GGAACAAGAG CTACAGCATG GGGCAGAATC TTTCCACCAG
2870      CAATCCTCTG GGATTCTTTC CCGACCACCA GTTGGATCCA GCCTTCAGAG CAAACACCAC AAATCCAGAT
2940      TGGGACTTCA ATCCCAACAA GGACACCTGG CCAGACGCCA ACAAGGTAGG AGCTGGAGCA TTCGGGCTGG
3010      GGTTCACCCC ACCGCACGGA GGCCTTTTGG GGTGGAGCCC TCAGGCTCAG GGCATAATAC AAAACCTTGCC
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3150      AGAAACACTC ATCCTCAGGC CATGCAGTGG AA
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2

Genome Composition	
A	664 (20.87%)
T	786 (24.70%)
G	607 (19.08%)
C	745 (23.41%)
N	380 (11.94%)
Total Nucleotides	3182
GC%	48.25

Read quality
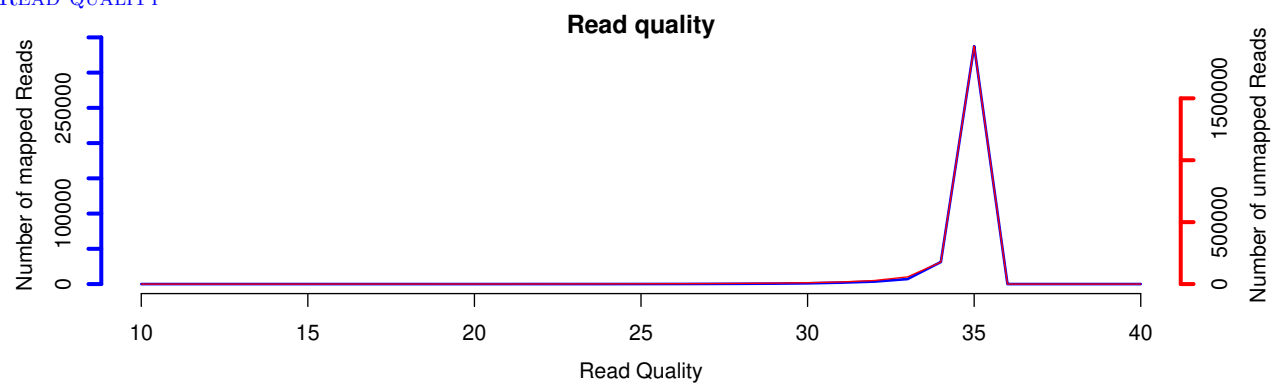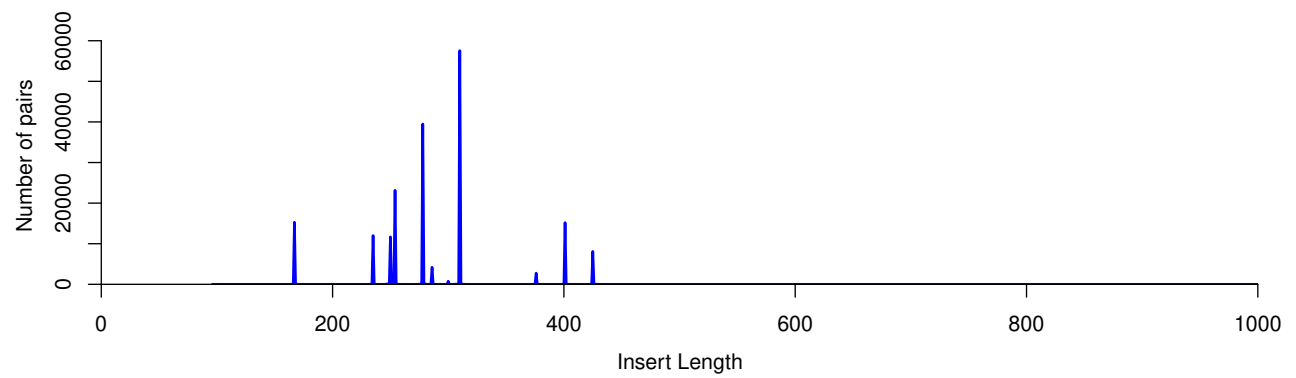
Amino acid variations

Protein	Position	Ref AA	Consensus AA	All AAs
P2	1	F	H	H::99.95(4224)
P2	2	F	N	N::99.98(4226)
P2	3	F	L	L::100.00(4227)
P2	4	F	P	P::99.91(4223)
P2	5	F	P	P::100.00(4227)
P2	6	F	N	N::99.95(4224)
P2	7	F	S	S::99.91(4223)
P2	8	F	A	A::99.79(4218)
P2	9	F	R	R::99.91(4222)
P2	10	F	S	S::99.95(4225)
P2	11	F	Q	Q::99.98(4225)
P2	12	F	S	S::99.91(4223)
P2	13	F	E	E::99.81(4219)
P2	14	F	R	R::99.95(4225)
P2	15	F	P	P::99.95(4225)
P2	16	F	V	V::99.93(4224)
P2	18	F	P	P::99.91(4224)
P2	19	F	C	C::99.98(4227)
P2	20	F	W	W::99.95(4227)
P2	21	F	W	W::99.93(4226)
P2	22	F	L	L::99.98(4228)
P2	23	F	Q	Q::99.93(4226)
P2	25	F	R	R::99.93(4226)
P2	26	F	N	N::99.98(4228)
P2	27	F	S	S::99.88(4222)
P2	28	F	K	K::99.91(4219)
P2	29	F	P	P::99.93(4208)
P2	30	F	C	C::99.95(4201)
P2	31	F	S	S::99.90(4156)
P2	32	F	D	D::99.90(4060)
P2	33	F	Y	Y::100.00(3997)
P2	34	F	C	C::100.00(3)
P2	35	F	L	L::100.00(2)
P2	36	F	S	T::50.00(1) S::50.00(1)
P2	37	F	H	H::100.00(2)
P2	38	F	L	L::50.00(1) I::50.00(1)
P2	39	F	V	V::100.00(2)
P2	40	F	N	N::100.00(2)
P2	41	F	L	L::100.00(2)
P2	42	F	L	L::100.00(2)
P2	43	F	E	E::100.00(2)
P2	44	F	D	D::100.00(2)
P2	45	F	W	W::100.00(2)
P2	46	F	G	G::100.00(4084)
P2	47	F	P	P::100.00(4195)
P2	48	F	C	C::99.91(4208)

P2	49	F	A	A::99.98(4224)
P2	50	F	E	E::99.88(4227)
P2	51	F	H	H::99.86(4228)
P2	52	F	G	G::99.79(4225)
P2	53	F	E	E::99.88(4230)
P2	54	F	H	H::99.95(4234)
P2	55	F	H	H::99.95(4236)
P2	56	F	I	I::99.93(4236)
P2	57	F	R	R::99.76(4231)
P2	58	F	I	I::99.88(4237)
P2	59	F	P	P::99.98(4243)
P2	60	F	R	R::99.91(4241)
P2	61	F	T	T::99.81(4237)
P2	62	F	P	P::99.99(62033)
P2	63	F	A	A::99.95(62085)
P2	64	F	R	R::99.94(62130)
P2	65	F	V	V::99.95(62131)
P2	66	F	T	T::99.92(62121)
P2	67	F	G	G::99.96(62149)
P2	68	F	G	G::99.93(62132)
P2	69	F	V	V::99.93(62121)
P2	71	F	L	L::99.94(62133)
P2	72	F	V	V::99.93(62128)
P2	73	F	D	D::99.92(62123)
P2	74	F	K	K::99.91(62113)
P2	75	F	N	N::99.93(62127)
P2	76	F	P	P::99.94(62133)
P2	77	F	H	H::99.91(62115)
P2	78	F	N	N::99.91(62114)
P2	79	F	T	T::99.94(62135)
P2	80	F	A	A:99.76(62023)
P2	81	F	E	E::99.95(62144)
P2	82	F	S	S::99.94(62133)
P2	83	F	R	R::99.94(62138)
P2	84	F	L	L::99.95(62141)
P2	85	F	V	V::99.92(62125)
P2	86	F	V	V::93.10(57875) M::6.84(4251)
P2	87	F	D	D::99.91(77379)
P2	89	F	S	S::99.90(77389)
P2	90	F	Q	Q::99.94(77387)
P2	92	F	S	S::99.95(77370)
P2	93	F	R	R::99.70(77128)
P2	94	F	G	G::99.93(77274)
P2	95	F	N	N::99.90(72997)
P2	96	F	Y	Y::99.90(72979)
P2	97	F	R	R::99.81(72895)
P2	98	F	V	V::99.91(72961)
P2	99	F	S	S::99.91(72953)
P2	100	F	W	W::99.79(72853)
P2	101	F	P	P::99.82(72804)
P2	102	F	K	K::99.97(72867)

P2	104	F	A	A::99.65(72307)
P2	105	F	V	V::99.90(72409)
P2	106	F	P	P::99.86(71987)
P2	107	F	N	N::99.83(71172)
P2	108	F	L	L::99.79(71012)
P2	109	F	Q	Q::99.93(70308)
P2	110	F	S	S::99.93(68075)
P2	111	F	L	L::99.97(60771)
P2	112	F	T	T::99.90(15288)
P2	113	F	N	N::99.79(15269)
P2	114	F	L	L::99.91(15271)
P2	115	F	L	L::99.87(15322)
P2	116	F	S	S::99.98(71863)
P2	117	F	S	S::99.90(72805)
P2	118	F	N	N::99.80(72799)
P2	119	F	L	L::99.91(72878)
P2	120	F	S	S::99.90(72902)
P2	121	F	W	W::99.89(72884)
P2	122	F	L	L::99.86(72868)
P2	123	F	S	S::99.90(72920)
P2	124	F	L	L::99.92(72920)
P2	125	F	D	D::99.88(88234)
P2	126	F	V	V::99.93(88283)
P2	127	F	S	S::99.86(88219)
P2	128	F	A	A::99.87(88237)
P2	129	F	A	A::99.91(88240)
P2	131	F	Y	Y::99.92(103051)
P2	132	F	H	H::99.90(102949)
P2	133	F	L	L::99.91(102672)
P2	134	F	P	P::99.94(102438)
P2	135	F	L	L::99.94(101567)
P2	136	F	H	H::99.89(99743)
P2	137	F	P	P::99.95(88645)
P2	138	F	A	A::99.93(88617)
P2	139	F	A	A::99.92(88612)
P2	140	F	M	M::99.86(88563)
P2	141	F	P	P::99.93(88623)
P2	142	F	H	H::99.90(88603)
P2	143	F	L	L::99.94(88644)
P2	144	F	L	L::99.95(88653)
P2	145	F	V	V::99.96(88666)
P2	146	F	G	G::99.95(88655)
P2	147	F	S	S::99.92(88632)
P2	148	F	S	S::99.95(88663)
P2	149	F	G	G::99.93(88651)
P2	150	F	L	L::99.95(88667)
P2	151	F	S	S::99.94(88662)
P2	152	F	R	R::99.88(88587)
P2	153	F	Y	Y::99.90(88623)
P2	154	F	V	V::99.94(88653)
P2	155	F	A	A::99.88(88592)

P2	156	F	R	R::99.86(88567)
P2	157	F	L	L::99.95(88648)
P2	158	F	S	S::99.95(88627)
P2	159	F	S	S::99.96(128388)
P2	160	F	N	N::99.93(128424)
P2	161	F	S	S::99.93(128401)
P2	162	F	R	R::99.84(128263)
P2	163	F	I	I::99.97(128380)
P2	165	F	N	N::99.93(70457)
P2	166	F	N	N::99.94(70355)
P2	167	F	Q	Q::99.92(70344)
P2	168	F	H	H::99.88(70304)
P2	169	F	G	G::99.90(70313)
P2	170	F	T	T::99.93(70331)
P2	171	F	M	M::99.87(85321)
P2	172	F	Q	Q::99.78(85262)
P2	173	F	N	N::99.94(85366)
P2	174	F	L	L::99.93(84525)
P2	175	F	H	H::99.88(70402)
P2	176	F	D	D::99.93(70437)
P2	177	F	S	S::99.93(70365)
P2	178	F	C	C::99.87(70349)
P2	179	F	S	S::99.94(70410)
P2	180	F	R	R::99.89(55105)
P2	181	F	N	N::99.93(55125)
P2	182	F	L	L::99.92(55122)
P2	183	F	Y	Y::99.90(55112)
P2	184	F	V	V::99.90(55113)
P2	185	F	S	S::99.91(55114)
P2	186	F	L	L::99.90(55113)
P2	187	F	L	L::99.93(55124)
P2	188	F	L	L::99.90(55108)
P2	189	F	L	L::99.93(55125)
P2	190	F	Y	Y::99.90(55097)
P2	191	F	K	K::99.95(55078)
P2	192	F	T	T::99.96(55075)
P2	194	F	G	G::99.94(55024)
P2	195	F	W	W::99.88(54973)
P2	196	F	K	K::99.95(55002)
P2	197	F	L	L::99.89(54942)
P2	198	F	H	H::99.86(54924)
P2	199	F	L	L::99.89(54892)
P2	200	F	Y	Y::99.88(54887)
P2	201	F	S	S::99.88(54837)
P2	202	F	H	H::99.93(94897)
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P2	204	F	I	I::99.90(94989)
P2	205	F	I	I::99.91(94975)
P2	206	F	L	L::99.90(94874)
P2	207	F	G	G::99.93(94853)
P2	209	F	R	R::99.85(55721)

P2	210	F	K	K::99.89(55757)
P2	211	F	I	I::99.92(55784)
P2	212	F	P	P::99.95(55814)
P2	213	F	M	M::99.89(55792)
P2	214	F	G	G::99.94(55834)
P2	215	F	V	V::99.92(55829)
P2	216	F	G	G::99.89(55826)
P2	217	F	L	L::99.89(55833)
P2	218	F	S	S::99.90(55844)
P2	219	F	P	P::99.91(55836)
P2	221	F	L	L::99.94(40578)
P2	222	F	L	L::99.94(40578)
P2	223	F	A	A::99.87(40568)
P2	224	F	Q	Q::99.89(40582)
P2	226	F	T	T::99.94(40617)
P2	227	F	S	S::99.92(40610)
P2	228	F	A	A::99.88(40593)
P2	229	F	I	I::99.93(40601)
P2	230	F	C	C::99.94(40619)
P2	231	F	S	S::99.93(40615)
P2	232	F	V	V::99.92(40609)
P2	233	F	V	V::99.95(40620)
P2	234	F	R	R::99.90(40602)
P2	235	F	R	R::99.91(40599)
P2	236	F	A	A::99.89(40592)
P2	238	F	P	P::99.92(40608)
P2	239	F	H	H::99.93(40610)
P2	240	F	C	C::99.91(40594)
P2	241	F	L	L::99.95(40613)
P2	242	F	A	A::99.91(40599)
P2	244	F	S	S::99.89(40586)
P2	245	F	Y	Y::99.95(40609)
P2	246	F	M	M::99.91(40593)
P2	247	F	D	D::99.92(40599)
P2	248	F	D	D::99.88(40581)
P2	249	F	V	V::99.97(40618)
P2	250	F	V	V::100.00(40569)
P2	251	F	L	L::100.00(2)
P2	252	F	G	G::100.00(712)
P2	253	F	A	A::99.87(746)
P2	254	F	K	K::99.60(753)
P2	255	F	S	S::100.00(761)
P2	256	F	V	V::99.74(763)
P2	257	F	Q	Q::99.74(764)
P2	258	F	H	H::100.00(766)
P2	259	F	L	L::99.74(764)
P2	260	F	E	E::99.87(766)
P2	261	F	S	S::100.00(767)
P2	262	F	L	L::100.00(767)
P2	264	F	T	T::99.87(769)
P2	265	F	A	A::99.61(767)

P2	266	F	V	V::100.00(771)
P2	267	F	T	T::99.87(770)
P2	268	F	N	N::99.74(770)
P2	270	F	L	L::99.87(771)
P2	271	F	L	L::100.00(772)
P2	272	F	S	S::99.87(771)
P2	273	F	L	L::99.87(771)
P2	274	F	G	G::99.74(770)
P2	275	F	I	I::99.94(3541)
P2	276	F	H	H::99.94(3543)
P2	277	F	L	L::99.97(3544)
P2	278	F	N	N::99.86(3539)
P2	279	F	T	T::99.94(3541)
P2	280	F	N	N::99.94(3541)
P2	281	F	K	K::99.94(3541)
P2	282	F	T	T::100.00(3543)
P2	283	F	K	K::99.97(3542)
P2	284	F	R	R::99.94(3543)
P2	285	F	W	W::99.83(3539)
P2	286	F	G	G::99.94(3543)
P2	287	F	Y	Y::99.89(3541)
P2	288	F	S	S::99.92(3542)
P2	289	F	L	L::100.00(3544)
P2	290	F	H	H::99.92(3542)
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P2	295	F	V	V::99.92(3542)
P2	296	F	I	I::99.97(3544)
P2	297	F	G	G::99.94(3543)
P2	298	F	C	C::99.89(3541)
P2	299	F	W	W::99.93(2772)
P2	300	F	G	G::99.93(2774)
P2	301	F	S	S::99.89(2773)
P2	302	F	L	L::99.86(2771)
P2	303	F	P	P::99.86(2771)
P2	304	F	Q	Q::99.93(2773)
P2	305	F	D	D::100.00(2775)
P2	306	F	H	H::99.93(2773)
P2	307	F	I	I::99.96(2774)
P2	308	F	R	R::99.93(2772)
P2	309	F	H	H::99.89(2771)
P2	310	F	K	K::99.93(2772)
P2	311	F	I	I::99.96(2773)
P2	312	F	K	K::99.89(2770)
P2	313	F	D	D::99.93(2771)
P2	314	F	C	C::100.00(2773)
P2	316	F	R	R::99.89(2767)
P2	317	F	K	K::99.89(2767)
P2	318	F	L	L::99.96(2768)
P2	319	F	P	P::99.78(2764)

P2	320	F	V	V::99.93(2768)
P2	321	F	N	N::99.93(2763)
P2	322	F	R	R::99.96(2764)
P2	323	F	P	P::99.89(2753)
P2	324	F	I	I::100.00(8)
P2	350	F	L	L::100.00(15)
P2	351	F	M	M::99.96(2724)
P2	352	F	P	P::99.96(2758)
P2	353	F	L	L::100.00(2761)
P2	354	F	Y	Y::99.96(2762)
P2	355	F	A	A::99.82(2759)
P2	356	F	C	C::99.96(2764)
P2	357	F	I	I::100.00(2766)
P2	358	F	Q	Q::99.78(2761)
P2	359	F	S	S::99.89(2765)
P2	360	F	K	K::99.82(2762)
P2	361	F	Q	Q::99.78(2763)
P2	362	F	A	A::99.82(2764)
P2	364	F	T	T::99.89(2768)
P2	366	F	S	S::99.96(2770)
P2	367	F	P	P::99.86(2768)
P2	368	F	T	T::99.89(2769)
P2	369	F	Y	Y::99.93(2772)
P2	370	F	K	K::99.82(2769)
P2	371	F	A	A::99.82(2769)
P2	373	F	L	L::99.93(2772)
P2	374	F	C	C::99.68(2765)
P2	375	F	K	K::99.89(2771)
P2	376	F	Q	Q::99.78(2769)
P2	377	F	Y	Y::99.82(2770)
P2	378	F	L	L::99.89(2772)
P2	379	F	T	T::99.89(2772)
P2	380	F	L	L::99.86(2771)
P2	381	F	Y	Y::99.86(2771)
P2	382	F	P	P::99.82(2770)
P2	383	F	V	V::99.78(2769)
P2	384	F	A	A::99.82(2770)
P2	385	F	R	R::99.82(2769)
P2	386	F	Q	Q::99.78(2769)
P2	387	F	R	R::99.14(2751)
P2	388	F	P	P::99.96(2774)
P2	389	F	G	G::99.78(2769)
P2	390	F	L	L::99.93(2773)
P2	391	F	C	C::99.96(2774)
P2	392	F	Q	Q::99.93(2773)
P2	393	F	V	V::99.89(2772)
P2	395	F	A	A::99.64(2765)
P2	396	F	D	D::99.75(2767)
P2	397	F	A	A::99.93(2772)
P2	398	F	T	T::99.93(2769)
P2	399	F	P	P::100.00(1)

P2	400	F	T	T::100.00(1)
P2	401	F	G	G::100.00(1)
P2	402	F	W	W::100.00(1)
P2	403	F	G	G::100.00(1)
P2	404	F	L	L::100.00(1)
P2	405	F	V	V::100.00(1)
P2	406	F	M	M::100.00(1)
P2	407	F	G	G::100.00(1)
P2	408	F	H	H::100.00(1)
P2	409	F	Q	Q::100.00(1)
P2	410	F	R	R::100.00(1)
P2	411	F	M	M::100.00(1)
P2	412	F	R	R::100.00(1)
P2	413	F	G	G::100.00(1)
P2	414	F	T	T::100.00(1)
P2	416	F	L	L::100.00(1)
P2	417	F	A	A::100.00(1)
P2	418	F	P	P::100.00(1)
P2	419	F	L	L::100.00(1)
P2	420	F	P	P::100.00(1)
P2	421	F	I	I::100.00(1)
P2	422	F	H	H::100.00(1)
P2	423	F	T	T::100.00(1)
P2	424	F	A	A::100.00(1)
P2	425	F	E	E::100.00(1)
P2	433	F	R	R::100.00(1)
P2	434	F	S	S::100.00(1)
P2	435	F	R	R::100.00(1)
P2	436	F	S	S::100.00(1)
P2	437	F	G	G::100.00(1)
P2	438	F	A	A::100.00(1)
P2	439	F	N	N::100.00(1)
P2	440	F	I	I::100.00(1)
P2	441	F	L	L::100.00(1)
P2	442	F	G	G::100.00(1)
P2	443	F	T	T::100.00(1)
P2	444	F	D	D::100.00(1)
P2	445	F	N	N::100.00(1)
P2	446	F	S	S::100.00(1)
P2	447	F	V	V::100.00(1)
P2	448	F	V	V::100.00(1)
P2	449	F	L	L::100.00(1)
P2	450	F	S	S::100.00(1)
P2	451	F	R	R::100.00(1)
P2	452	F	K	K::100.00(1)
P2	453	F	Y	Y::100.00(1)
P2	454	F	T	T::100.00(1)
P2	455	F	S	S::100.00(1)
P2	457	F	P	P::100.00(1)
P2	458	F	W	W::100.00(1)
P2	459	F	L	L::100.00(1)

P2	460	F	L	L::100.00(1)
P2	461	F	G	G::100.00(1)
P2	462	F	C	C::100.00(1)
P2	463	F	A	A::100.00(1)
P2	464	F	A	A::100.00(1)
P2	465	F	N	N::100.00(1)
P2	466	F	W	W::100.00(1)
P2	467	F	I	I::100.00(1)
P2	468	F	L	L::100.00(1)
P2	469	F	R	R::100.00(1)
P2	470	F	G	G::100.00(1)
P2	471	F	T	T::100.00(1)
P2	472	F	S	S::100.00(1)
P2	474	F	V	V::100.00(1)
P2	475	F	Y	Y::100.00(1)
P2	476	F	V	V::100.00(1)
P2	477	F	P	P::100.00(1)
P2	478	F	S	S::100.00(1)
P2	479	F	A	A::100.00(1)
P2	480	F	L	L::100.00(1)
P2	481	F	N	N::100.00(1)
P2	482	F	P	P::100.00(1)
P2	525	F	R	R::100.00(1)
P2	526	F	V	V::100.00(1)
P2	527	F	H	H::100.00(2)
P2	529	F	A	A::100.00(2)
P2	530	F	S	S::100.00(2)
P2	531	F	P	P::100.00(2)
P2	532	F	L	L::100.00(2)
P2	533	F	H	H::100.00(2)
P2	534	F	V	V::100.00(23364)
P2	535	F	A	A::99.98(23398)
P2	536	F	W	W::99.83(23394)
P2	537	F	R	R::99.88(23408)
P2	538	F	P	P::99.88(23407)
S2	1	F	S	S::100.00(4226)
S2	2	F	T	T::99.91(4223)
S2	3	F	T	T::99.98(4226)
S2	5	F	H	H::99.88(4222)
S2	6	F	Q	Q::99.95(4225)
S2	7	F	T	T::100.00(4226)
S2	8	F	L	L::99.95(4225)
S2	9	F	Q	Q::99.83(4219)
S2	10	F	D	D::99.91(4223)
S2	11	F	P	P::100.00(4226)
S2	12	F	R	R::99.88(4222)
S2	13	F	V	V::99.98(4226)
S2	14	F	R	R::99.83(4220)
S2	15	F	G	G::99.95(4225)
S2	16	F	L	L::99.74(4216)
S2	19	F	P	P::99.93(4225)

S2	20	F	A	A::99.98(4228)
S2	21	F	G	G::100.00(4229)
S2	22	F	G	G::99.93(4226)
S2	23	F	S	S::99.95(4227)
S2	24	F	S	S::99.93(4226)
S2	25	F	S	S::99.95(4227)
S2	26	F	G	G::99.98(4228)
S2	27	F	T	T::99.95(4225)
S2	28	F	V	V::99.88(4221)
S2	29	F	N	N::99.91(4220)
S2	30	F	P	P::99.95(4204)
S2	31	F	V	V::99.98(4202)
S2	32	F	P	P::99.93(4139)
S2	33	F	T	T::99.95(4058)
S2	34	F	T	T::100.00(1211)
S2	35	F	A	V::50.00(1) A::50.00(1)
S2	36	F	S	S::100.00(2)
S2	37	F	L	L::50.00(1) H::50.00(1)
S2	38	F	I	I::100.00(2)
S2	39	F	S	S::100.00(2)
S2	40	F	S	S::100.00(2)
S2	41	F	I	I::100.00(2)
S2	43	F	S	S::100.00(2)
S2	44	F	R	R::100.00(2)
S2	45	F	I	I::100.00(2)
S2	46	F	G	G::100.00(3790)
S2	47	F	D	D::100.00(4195)
S2	48	F	P	P::99.88(4190)
S2	49	F	A	A::100.00(4219)
S2	50	F	L	L::99.98(4224)
S2	51	F	N	N::99.86(4227)
S2	52	F	M	M::99.81(4226)
S2	53	F	E	E::99.83(4227)
S2	54	F	N	N::99.93(4232)
S2	55	F	I	I::99.95(4235)
S2	56	F	T	T::99.95(4236)
S2	57	F	S	S::99.98(4238)
S2	58	F	G	G::99.86(4236)
S2	60	F	L	L::99.95(4242)
S2	61	F	G	G::99.95(4243)
S2	62	F	P	P::99.95(4243)
S2	63	F	L	L::100.00(62050)
S2	64	F	L	L::99.92(62115)
S2	65	F	V	V::99.94(62127)
S2	66	F	L	L::99.92(62112)
S2	67	F	Q	Q::99.90(62106)
S2	68	F	A	A::99.94(62133)
S2	69	F	G	G::99.94(62129)
S2	72	F	L	L::99.93(62129)
S2	73	F	L	L::99.91(62115)
S2	74	F	T	T::99.93(62129)

S2	75	F	R	R::99.91(62115)
S2	76	F	I	I::99.94(62134)
S2	77	F	L	L::99.91(62114)
S2	78	F	T	T::99.93(62127)
S2	79	F	I	I::99.91(62119)
S2	80	F	P	P::99.89(62105)
S2	81	F	Q	Q::99.88(62102)
S2	82	F	S	S::99.92(62127)
S2	83	F	L	L::99.94(62135)
S2	84	F	D	D::99.93(62132)
S2	85	F	S	S::99.92(62123)
S2	86	F	W	W::93.06(57855) *::6.86(4264)
S2	87	F	W	W::99.88(62094)
S2	88	F	T	T::99.94(77410)
S2	89	F	S	S::99.91(77395)
S2	90	F	L	L::99.89(77377)
S2	91	F	N	N::99.89(77346)
S2	93	F	L	L::99.92(77321)
S2	94	F	G	G::99.92(77296)
S2	95	F	G	G::99.88(77207)
S2	96	F	T	T::99.93(73015)
S2	97	F	T	T::99.93(72996)
S2	98	F	V	V::99.79(72880)
S2	99	F	C	C::99.87(72924)
S2	100	F	L	L::99.92(72962)
S2	101	F	G	G::99.84(72887)
S2	102	F	Q	Q::99.87(72835)
S2	103	F	N	N::99.92(72831)
S2	104	F	S	S::99.73(72501)
S2	105	F	Q	Q::99.78(72398)
S2	106	F	S	S::99.90(72193)
S2	107	F	P	P::99.88(71209)
S2	108	F	T	T::99.88(71167)
S2	109	F	S	S::99.80(70948)
S2	110	F	N	N::99.91(70293)
S2	111	F	H	H::99.98(68093)
S2	112	F	S	S::99.87(15345)
S2	113	F	P	P::99.88(15283)
S2	114	F	T	T::99.84(15274)
S2	115	F	S	S::99.91(15268)
S2	116	F	C	C::99.78(15315)
S2	117	F	P	P::99.98(72824)
S2	118	F	P	P::99.90(72855)
S2	119	F	T	T::99.86(72848)
S2	120	F	C	C::99.88(72881)
S2	121	F	P	P::99.92(72915)
S2	122	F	G	G::99.92(72914)
S2	123	F	Y	Y::99.88(72883)
S2	124	F	R	R::99.67(72752)
S2	125	F	W	W::99.87(72884)
S2	126	F	M	M::99.87(88224)

S2	127	F	C	C::99.83(88207)
S2	128	F	L	L::99.92(88269)
S2	129	F	R	R::99.84(88210)
S2	130	F	R	R::99.89(87951)
S2	132	F	I	I::99.91(103060)
S2	133	F	I	I::99.90(102893)
S2	135	F	L	L::99.94(102405)
S2	137	F	I	I::99.90(98029)
S2	138	F	L	L::99.94(88630)
S2	139	F	L	L::99.95(88637)
S2	140	F	L	L::99.95(88642)
S2	141	F	C	C::99.88(88583)
S2	142	F	L	L::99.91(88607)
S2	143	F	I	I::99.90(88606)
S2	145	F	L	L::99.95(88653)
S2	146	F	L	L::99.95(88654)
S2	147	F	V	V::99.94(88646)
S2	148	F	L	L::99.91(88629)
S2	149	F	L	L::99.93(88640)
S2	150	F	D	D::99.90(88630)
S2	151	F	Y	Y::99.91(88634)
S2	152	F	Q	Q::99.86(88569)
S2	153	F	G	G::99.92(88641)
S2	154	F	M	M::99.90(88620)
S2	155	F	L	L::99.91(88623)
S2	156	F	P	P::99.90(88612)
S2	157	F	V	V::99.87(88571)
S2	158	F	C	C::99.93(88625)
S2	159	F	P	P::99.95(88621)
S2	160	F	L	L::99.96(128425)
S2	161	F	I	I::99.94(128438)
S2	162	F	P	P::99.91(128372)
S2	163	F	G	G::99.92(128353)
S2	164	F	S	S::99.93(70462)
S2	165	F	S	S::99.90(70443)
S2	166	F	T	T::99.95(70363)
S2	167	F	T	T::99.96(70371)
S2	168	F	S	S::99.89(70322)
S2	169	F	T	T::99.93(70337)
S2	170	F	G	G::99.92(70320)
S2	171	F	P	P::99.94(79096)
S2	172	F	C	C::99.89(85329)
S2	173	F	R	R::99.92(85393)
S2	174	F	T	T::99.95(85112)
S2	175	F	C	C::99.59(84039)
S2	176	F	T	T::99.88(70399)
S2	177	F	T	T::99.96(70391)
S2	178	F	P	P::99.94(70375)
S2	179	F	A	A::99.93(70395)
S2	180	F	Q	Q::99.93(70402)
S2	181	F	G	G::99.91(55114)

S2	182	F	T	T::99.95(55137)
S2	183	F	S	S::99.92(55121)
S2	184	F	M	M::99.90(55112)
S2	185	F	Y	Y::99.87(55092)
S2	186	F	P	P::99.91(55115)
S2	187	F	S	S::99.90(55115)
S2	188	F	C	C::99.88(55097)
S2	189	F	C	C::99.88(55095)
S2	190	F	C	C::99.86(55084)
S2	191	F	T	T::99.93(55062)
S2	192	F	K	K::99.96(55084)
S2	193	F	P	P::99.98(55067)
S2	194	F	S	S::99.91(55019)
S2	195	F	D	D::99.92(54996)
S2	196	F	G	G::99.93(54995)
S2	197	F	N	N::99.94(54965)
S2	198	F	C	C::99.81(54896)
S2	199	F	T	T::99.92(54913)
S2	200	F	C	C::99.77(54829)
S2	201	F	I	I::99.92(54910)
S2	202	F	P	P::99.84(93965)
S2	203	F	I	I::99.92(94967)
S2	204	F	P	P::99.91(94977)
S2	205	F	S	S::99.91(94970)
S2	206	F	S	S::99.92(94977)
S2	207	F	W	W::99.83(94782)
S2	208	F	A	A::99.95(94492)
S2	210	F	G	G::99.88(55740)
S2	211	F	K	K::99.88(55756)
S2	213	F	L	L::99.97(55827)
S2	214	F	W	W::99.91(55807)
S2	215	F	E	E::99.90(55816)
S2	216	F	W	W::99.87(55801)
S2	217	F	A	A::99.86(55809)
S2	218	F	S	S::99.89(55832)
S2	219	F	A	A::99.90(55846)
S2	220	F	R	R::99.89(55666)
S2	222	F	S	S::99.95(40580)
S2	223	F	W	W::99.84(40553)
S2	224	F	L	L::99.90(40585)
S2	225	F	S	S::99.91(40603)
S2	226	F	L	L::99.95(40620)
S2	227	F	L	L::99.95(40621)
S2	228	F	V	V::99.92(40611)
S2	229	F	P	P::99.92(40606)
S2	231	F	V	V::99.96(40625)
S2	232	F	Q	Q::99.86(40584)
S2	233	F	W	W::99.91(40606)
S2	235	F	V	V::99.93(40610)
S2	236	F	G	G::99.94(40613)
S2	237	F	L	L::99.93(40606)

S2	238	F	S	S::99.87(40558)
S2	239	F	P	P::99.94(40614)
S2	240	F	T	T::99.95(40614)
S2	241	F	V	V::99.90(40587)
S2	242	F	W	W::99.89(40592)
S2	243	F	L	L::99.93(40607)
S2	244	F	S	S::99.96(40616)
S2	245	F	V	V::99.95(40609)
S2	246	F	I	I::99.93(40602)
S2	247	F	W	W::99.93(40601)
S2	248	F	M	M::99.88(40581)
S2	249	F	M	M::99.90(40590)
S2	250	F	W	W::99.93(40586)
S2	251	F	Y	Y::100.00(40534)
S2	252	F	W	W::100.00(4)
S2	253	F	G	G::100.00(717)
S2	254	F	P	P::100.00(752)
S2	255	F	S	S::99.74(758)
S2	256	F	L	L::100.00(761)
S2	257	F	Y	Y::99.87(764)
S2	258	F	S	S::99.61(763)
S2	259	F	I	I::100.00(766)
S2	260	F	L	L::99.87(765)
S2	261	F	S	S::99.87(766)
S2	262	F	P	P::100.00(767)
S2	264	F	L	L::99.61(765)
S2	265	F	P	P::99.87(769)
S2	266	F	L	L::100.00(770)
S2	267	F	L	L::100.00(771)
S2	268	F	P	P::99.87(770)
S2	269	F	I	I::99.87(771)
S2	272	F	C	C::99.87(771)
S2	273	F	L	L::99.87(771)
S2	274	F	W	W::99.74(770)
S2	275	F	V	V::99.97(3542)
S2	276	F	Y	Y::99.94(3542)
X	1	F	M	M::100.00(1)
X	2	F	A	A::100.00(1)
X	3	F	A	A::100.00(1)
X	4	F	R	R::100.00(1)
X	5	F	L	L::100.00(1)
X	6	F	C	C::100.00(1)
X	7	F	C	C::100.00(1)
X	8	F	Q	Q::100.00(1)
X	9	F	L	L::100.00(1)
X	10	F	D	D::100.00(1)
X	11	F	P	P::100.00(1)
X	12	F	A	A::100.00(1)
X	13	F	R	R::100.00(1)
X	14	F	D	D::100.00(1)
X	15	F	V	V::100.00(1)

X	16	F	L	L::100.00(1)
X	17	F	C	C::100.00(1)
X	18	F	L	L::100.00(1)
X	19	F	R	R::100.00(1)
X	20	F	P	P::100.00(1)
X	21	F	V	V::100.00(1)
X	22	F	G	G::100.00(1)
X	23	F	A	A::100.00(1)
X	24	F	E	E::100.00(1)
X	25	F	S	S::100.00(1)
X	69	F	C	C::100.00(1)
X	70	F	A	A::100.00(1)
X	71	F	L	L::100.00(2)
X	72	F	R	R::100.00(2)
X	74	F	T	T::100.00(2)
X	75	F	S	S::100.00(2)
X	76	F	A	A::100.00(2)
X	77	F	R	R::100.00(2)
X	78	F	R	R::100.00(23385)
X	79	F	M	M::99.86(23402)
X	80	F	E	E::99.86(23403)
X	81	F	T	T::99.94(23420)
X	82	F	T	T::99.91(23416)
X	83	F	V	V::99.74(23374)
X	84	F	N	N::99.91(23415)
X	85	F	A	A::99.85(23401)
X	86	F	H	H::99.87(23403)
X	87	F	Q	Q::99.90(23413)
X	88	F	I	I::99.92(23418)
X	89	F	L	L::99.74(23377)
X	90	F	P	P::99.90(23410)
X	91	F	K	K::99.85(23399)
X	92	F	V	V::99.93(23411)
X	93	F	L	L::99.91(23414)
X	94	F	H	H::99.86(23405)
X	95	F	K	K::99.94(23424)
X	96	F	R	R::99.87(23410)
X	97	F	T	T::99.92(23422)
X	98	F	L	L::99.86(23407)
X	99	F	G	G::99.88(23411)
X	100	F	L	L::99.90(23418)
X	101	F	S	S::99.90(23416)
X	102	F	A	A::99.70(23368)
X	103	F	M	M::99.87(23409)
X	104	F	S	S::99.87(23403)
X	105	F	T	T::99.87(23395)
X	106	F	T	T::99.80(23370)
X	107	F	D	D::99.77(23359)
X	108	F	L	L::99.78(23355)
X	109	F	E	E::99.83(23363)
X	110	F	A	A::99.82(23360)

X	111	F	Y	Y::99.85(23368)
X	113	F	K	K::99.97(46627)
X	114	F	D	D::99.90(46643)
X	115	F	C	C::99.81(46600)
X	116	F	L	L::99.88(46647)
X	118	F	K	K::99.92(46647)
X	119	F	D	D::99.87(46625)
X	120	F	W	W::99.82(46587)
X	121	F	E	E::99.92(46620)
X	122	F	E	E::99.90(46612)
X	123	F	L	L::99.88(46590)
X	124	F	G	G::99.90(46626)
X	125	F	E	E::99.93(46051)
X	126	F	E	E::99.90(23437)
X	127	F	I	I::99.95(23411)
X	128	F	R	R::99.91(23423)
X	129	F	L	L::99.92(23428)
X	130	F	K	K::99.84(23408)
X	131	F	V	V::99.94(23424)
X	133	F	V	V::99.94(23451)
X	134	F	L	L::99.94(23450)
X	135	F	G	G::99.96(23461)
X	136	F	G	G::99.95(23462)
X	137	F	C	C::99.88(23444)
X	138	F	R	R::99.89(23448)
X	139	F	H	H::99.89(23448)
X	140	F	K	K::99.94(23455)
X	141	F	L	L::99.88(23446)
X	142	F	V	V::99.94(23459)
X	143	F	C	C::99.95(23461)
X	144	F	A	A::99.87(23441)
X	145	F	P	P::99.96(23462)
X	146	F	A	A::99.88(23442)
X	147	F	P	P::99.94(23453)
X	148	F	C	C::99.88(23438)
X	149	F	N	N::99.93(23450)
X	152	F	T	T::99.95(23457)
X	153	F	S	S::99.93(23450)
C	49	F	S	S::100.00(1)
C	50	F	P	P::100.00(1)
C	51	F	H	H::100.00(1)
C	52	F	H	H::100.00(1)
C	53	F	T	T::100.00(1)
C	54	F	A	A::100.00(1)
C	55	F	L	L::100.00(1)
C	56	F	R	R::100.00(1)
C	57	F	Q	Q::100.00(1)
C	58	F	A	A::100.00(1)
C	59	F	I	I::100.00(1)
C	60	F	L	L::100.00(1)
C	61	F	C	C::100.00(1)

C	62	F	W	W::100.00(1)
C	63	F	G	G::100.00(1)
C	64	F	D	D::100.00(1)
C	65	F	L	L::100.00(1)
C	66	F	M	M::100.00(1)
C	67	F	T	T::100.00(1)
C	68	F	L	L::100.00(1)
C	69	F	A	A::100.00(1)
C	70	F	T	T::100.00(1)
C	71	F	W	W::100.00(1)
C	72	F	V	V::100.00(1)
C	73	F	G	G::100.00(1)
C	74	F	G	G::100.00(1)
C	75	F	N	N::100.00(1)
C	76	F	L	L::100.00(1)
C	77	F	E	E::100.00(1)
C	78	F	D	D::100.00(1)
C	79	F	P	P::100.00(1)
C	80	F	I	I::100.00(1)
C	81	F	S	S::100.00(1)
C	82	F	R	R::100.00(1)
C	83	F	D	D::100.00(1)
C	84	F	L	L::100.00(1)
C	85	F	V	V::100.00(1)
C	86	F	V	V::100.00(7)
C	87	F	S	S::100.00(7)
C	88	F	Y	Y::100.00(7)
C	89	F	V	V::100.00(7)
C	90	F	N	N::100.00(7)
C	91	F	T	T::100.00(7)
C	92	F	N	N::100.00(7)
C	93	F	M	M::100.00(7)
C	94	F	G	G::100.00(7)
C	95	F	L	L::100.00(7)
C	96	F	K	K::100.00(7)
C	98	F	R	R::100.00(6)
C	99	F	Q	Q::100.00(6)
C	100	F	L	L::100.00(6)
C	101	F	L	L::100.00(6)
C	102	F	W	W::100.00(6)
C	104	F	H	H::100.00(6)
C	105	F	I	I::100.00(6)
C	106	F	S	S::100.00(6)
C	107	F	C	C::100.00(6)
C	108	F	L	L::100.00(7)
C	109	F	T	T::100.00(7)
C	111	F	G	G::100.00(7)
C	112	F	R	R::100.00(7)
C	113	F	E	E::100.00(7)
C	114	F	T	T::100.00(7)
C	115	F	V	V::100.00(7)

C	116	F	I	I::100.00(7)
C	117	F	E	E::100.00(7)
C	118	F	Y	Y::100.00(1)
C	119	F	L	L::100.00(1)
C	120	F	V	V::100.00(1)
C	121	F	S	S::100.00(1)
C	123	F	G	G::100.00(1)
C	124	F	V	V::100.00(1)
C	125	F	W	W::100.00(1)
C	126	F	I	I::100.00(1)
C	127	F	R	R::100.00(1)
C	128	F	T	T::100.00(1)
C	129	F	P	P::100.00(1)
C	130	F	P	P::100.00(1)
C	131	F	A	A::100.00(1)
C	132	F	Y	Y::100.00(1)
C	133	F	R	R::100.00(1)
C	134	F	P	P::100.00(1)
C	135	F	P	P::100.00(1)
C	136	F	N	N::100.00(2)
C	137	F	A	A::100.00(2)
C	138	F	P	P::100.00(2)
C	139	F	I	I::100.00(2)
C	140	F	L	L::100.00(2)
C	141	F	S	S::100.00(2)
C	142	F	T	T::100.00(2)
C	143	F	L	L::100.00(2)
C	144	F	P	P::100.00(2)
C	145	F	E	E::100.00(2)
C	146	F	T	T::50.00(1) N::50.00(1)
C	147	F	T	T::100.00(2)
C	148	F	V	V::100.00(2)
C	149	F	V	V::100.00(2)
C	150	F	R	R::100.00(2)
C	151	F	R	R::100.00(2)
C	152	F	R	R::100.00(2)
C	153	F	G	G::100.00(2)
C	154	F	R	R::100.00(2)
C	155	F	S	S::100.00(1)
C	156	F	P	P::100.00(1)
C	157	F	R	R::100.00(1)
C	158	F	R	R::100.00(1)
C	159	F	R	R::100.00(1)
C	160	F	T	T::100.00(1)
C	161	F	P	P::100.00(1)
C	162	F	S	S::100.00(1)
C	163	F	P	P::100.00(1)
C	164	F	R	R::100.00(1)
C	165	F	R	R::100.00(1)
C	166	F	R	R::100.00(1)
C	167	F	R	R::100.00(1)

C	168	F	S	S::100.00(1)
C	169	F	Q	Q::100.00(1)
C	170	F	S	S::100.00(1)
C	171	F	P	P::100.00(1)
C	172	F	R	R::100.00(1)
C	173	F	R	R::100.00(1)
C	174	F	*	variations:*: temp2:temp3 res:temp1 quality:quality.eps map.eps:map
C	175	F	R	R::100.00(1)
C	176	F	S	S::100.00(1)
C	177	F	Q	Q::100.00(1)
C	178	F	S	S::100.00(1)
C	179	F	R	R::100.00(1)
C	180	F	E	E::100.00(1)
C	181	F	S	S::100.00(1)
C	182	F	Q	Q::100.00(1)
P1	1	F	M	M::100.00(2)
P1	2	F	P	P::100.00(2)
P1	3	F	L	L::100.00(2)
P1	4	F	S	S::100.00(2)
P1	5	F	Y	Y::100.00(2)
P1	6	F	Q	Q::100.00(2)
P1	7	F	H	H::100.00(2)
P1	9	F	R	R::100.00(2)
P1	10	F	R	R::100.00(2)
P1	11	F	L	L::50.00(1) I::50.00(1)
P1	12	F	L	L::100.00(2)
P1	13	F	L	L::100.00(2)
P1	14	F	L	L::100.00(2)
P1	15	F	D	D::100.00(2)
P1	16	F	D	E::50.00(1) D::50.00(1)
P1	17	F	E	E::100.00(2)
P1	18	F	A	A::100.00(2)
P1	19	F	G	G::100.00(1)
P1	20	F	P	P::100.00(1)
P1	21	F	L	L::100.00(1)
P1	22	F	E	E::100.00(1)
P1	23	F	E	E::100.00(1)
P1	24	F	E	E::100.00(1)
P1	25	F	L	L::100.00(1)
P1	26	F	P	P::100.00(1)
P1	27	F	R	R::100.00(1)
P1	28	F	L	L::100.00(1)
P1	29	F	A	A::100.00(1)
P1	30	F	D	D::100.00(1)
P1	31	F	E	E::100.00(1)
P1	32	F	G	G::100.00(1)
P1	33	F	L	L::100.00(1)
P1	34	F	N	N::100.00(1)
P1	35	F	R	R::100.00(1)
P1	36	F	R	R::100.00(1)
P1	37	F	V	V::100.00(1)

P1	38	F	A	A::100.00(1)
P1	39	F	E	E::100.00(1)
P1	40	F	D	D::100.00(1)
P1	41	F	L	L::100.00(1)
P1	42	F	N	N::100.00(1)
P1	43	F	L	L::100.00(1)
P1	44	F	G	G::100.00(1)
P1	45	F	N	N::100.00(1)
P1	46	F	L	L::100.00(1)
P1	47	F	N	N::100.00(1)
P1	48	F	V	V::100.00(1)
P1	49	F	S	S::99.97(11950)
P1	50	F	I	I::99.95(11960)
P1	51	F	P	P::99.94(11960)
P1	52	F	W	W::99.88(11953)
P1	53	F	T	T::99.95(11961)
P1	54	F	H	H::99.95(11960)
P1	55	F	K	K::99.84(11946)
P1	56	F	V	V::99.92(11956)
P1	57	F	G	G::99.93(11957)
P1	58	F	N	N::99.92(11954)
P1	60	F	T	T::99.88(11952)
P1	61	F	G	G::100.00(11966)
P1	62	F	L	L::99.97(11961)
P1	63	F	Y	Y::99.92(11956)
P1	64	F	S	S::99.94(11960)
P1	65	F	S	S::99.97(11962)
P1	66	F	T	T::99.93(11959)
P1	67	F	V	V::99.91(11956)
P1	68	F	P	P::99.95(11961)
P1	69	F	V	V::99.96(11962)
P1	71	F	N	N::99.90(11955)
P1	72	F	P	P::99.95(11961)
P1	73	F	H	H::99.90(11955)
P1	74	F	W	W::99.88(11952)
P1	75	F	K	K::99.98(11961)
P1	76	F	T	T::99.91(11954)
P1	77	F	P	P::99.92(11955)
P1	78	F	S	S::99.87(11948)
P1	80	F	P	P::99.95(11973)
P1	81	F	N	N::99.94(11969)
P1	82	F	I	I::99.92(23772)
P1	83	F	H	H::99.95(23800)
P1	84	F	L	L::99.96(23817)
P1	85	F	H	H::99.91(23827)
P1	86	F	Q	Q::99.87(23815)
P1	87	F	D	D::99.89(23823)
P1	88	F	I	I::99.90(23823)
P1	89	F	I	I::99.95(23848)
P1	90	F	K	K::99.94(23853)
P1	91	F	K	K::99.93(23841)

P1	92	F	C	C::99.92(23843)
P1	93	F	E	E::99.85(23828)
P1	94	F	Q	Q::99.91(23817)
P1	96	F	V	V::99.95(23171)
P1	97	F	G	G::99.82(11929)
P1	98	F	P	P::99.88(11938)
P1	99	F	L	L::99.93(11949)
P1	100	F	T	T::99.92(11947)
P1	101	F	V	V::99.96(11951)
P1	102	F	N	N::99.87(11942)
P1	103	F	E	E::99.87(11941)
P1	104	F	K	K::99.92(11948)
P1	105	F	R	R::99.86(11938)
P1	106	F	R	R::99.80(11932)
P1	107	F	L	L::99.92(11946)
P1	108	F	K	K::99.88(11943)
P1	109	F	L	L::99.96(11952)
P1	110	F	I	I::99.93(11949)
P1	111	F	M	M::99.90(11945)
P1	112	F	P	P::99.84(11938)
P1	113	F	A	A::99.89(11944)
P1	114	F	R	R::99.87(11942)
P1	116	F	Y	Y::99.87(11942)
P1	117	F	P	P::99.97(11952)
P1	118	F	N	N::99.94(11949)
P1	120	F	T	T::99.90(11943)
P1	121	F	K	K::99.95(11950)
P1	122	F	Y	Y::99.92(11944)
P1	123	F	L	L::99.92(11946)
P1	124	F	P	P::99.77(11926)
P1	125	F	L	L::99.84(11936)
P1	126	F	D	D::99.92(11945)
P1	127	F	K	K::99.79(11930)
P1	128	F	G	G::99.89(11942)
P1	129	F	I	I::99.97(11948)
P1	135	F	E	E::100.00(8277)
P1	136	F	H	H::99.98(8282)
P1	137	F	L	L::99.93(8279)
P1	138	F	V	V::99.96(8283)
P1	139	F	N	N::99.95(8282)
P1	140	F	H	H::99.96(8283)
P1	141	F	Y	Y::99.96(8283)
P1	143	F	Q	Q::99.94(8281)
P1	144	F	T	T::99.95(8282)
P1	145	F	R	R::99.92(8279)
P1	146	F	H	H::99.90(8278)
P1	147	F	Y	Y::99.94(8281)
P1	148	F	L	L::99.96(8281)
P1	149	F	H	H::99.88(8276)
P1	150	F	T	T::99.98(20333)
P1	151	F	L	L::99.96(20345)

P1	152	F	W	W::99.91(20337)
P1	153	F	K	K::99.91(20338)
P1	154	F	A	A::99.89(20334)
P1	155	F	G	G::98.83(20118)
P1	156	F	I	I::99.97(20345)
P1	157	F	L	L::99.92(20339)
P1	158	F	Y	Y::99.91(20338)
P1	159	F	K	K::99.95(20343)
P1	160	F	R	R::99.96(20349)
P1	161	F	E	E::99.94(20343)
P1	162	F	S	S::99.93(20343)
P1	163	F	T	T::99.91(20337)
P1	164	F	H	H::99.92(20336)
P1	165	F	S	S::99.90(20331)
P1	166	F	A	A::99.93(20337)
P1	167	F	S	S::99.81(20312)
P1	169	F	C	C::99.91(20331)
P1	170	F	G	G::99.88(20314)
P1	171	F	S	S::99.91(20321)
P1	172	F	P	P::99.83(20305)
P1	173	F	Y	Y::99.93(20321)
P1	174	F	S	S::99.89(20313)
P1	175	F	W	W::99.89(20311)
P1	176	F	E	E::99.89(20310)
P1	177	F	Q	Q::99.92(20298)
P1	178	F	E	E::99.95(24138)
P1	179	F	L	L::99.91(32165)
P1	180	F	Q	Q::99.93(32290)
P1	181	F	H	H::99.89(32275)
P1	182	F	G	G::99.93(32270)
P1	183	F	A	A::99.91(31927)
P1	184	F	E	E::99.94(30678)
P1	185	F	S	S::99.98(24092)
P1	187	F	H	H::99.91(24054)
P1	188	F	Q	Q::99.92(24052)
P1	189	F	Q	Q::99.92(24043)
P1	190	F	S	S::99.92(24034)
P1	191	F	S	S::99.90(24016)
P1	192	F	G	G::99.93(24009)
P1	193	F	I	I::99.90(24004)
P1	194	F	L	L::99.87(23990)
P1	195	F	S	S::99.95(23936)
P1	196	F	R	R::99.89(23827)
P1	197	F	P	P::99.95(23817)
P1	198	F	P	P::99.96(23624)
P1	199	F	V	V::99.96(23517)
P1	200	F	G	G::99.97(12079)
P1	201	F	S	S::99.97(12080)
P1	202	F	S	S::99.94(12078)
P1	203	F	L	L::99.96(12079)
P1	204	F	Q	Q::99.90(12074)

P1	205	F	S	S::99.89(12073)
P1	206	F	K	K::99.93(12077)
P1	207	F	H	H::99.95(12079)
P1	208	F	H	H::99.91(12075)
P1	209	F	K	K::99.94(12079)
P1	210	F	S	S::99.97(12081)
P1	211	F	R	R::99.90(12074)
P1	212	F	L	L::99.93(12075)
P1	213	F	G	G::99.90(12074)
P1	214	F	L	L::99.98(12082)
P1	215	F	Q	Q::99.92(12074)
P1	216	F	S	S::99.95(12078)
P1	217	F	Q	Q::99.95(12079)
P1	218	F	Q	Q::99.93(12077)
P1	219	F	G	G::99.93(12077)
P1	220	F	H	H::99.97(12081)
P1	221	F	L	L::99.94(12078)
P1	222	F	A	A::99.89(12072)
P1	223	F	R	R::99.98(12084)
P1	224	F	R	R::99.74(12054)
P1	225	F	Q	Q::99.97(12082)
P1	226	F	Q	Q::99.94(12101)
P1	227	F	G	G::100.00(19230)
P1	228	F	R	R::99.96(7677)
P1	229	F	S	S::99.83(7833)
P1	230	F	W	W::99.87(7863)
P1	231	F	S	S::99.90(8035)
P1	232	F	I	I::99.86(8041)
P1	233	F	R	R::99.86(8078)
P1	234	F	A	A::99.93(8097)
P1	235	F	G	G::98.70(7997)
P1	236	F	V	V::99.83(8085)
P1	237	F	H	H::99.93(8182)
P1	238	F	P	P::99.88(8183)
P1	239	F	T	T::99.91(8213)
P1	240	F	A	A::99.71(8196)
P1	241	F	R	R::99.93(8231)
P1	242	F	R	R::99.88(8240)
P1	243	F	P	P::99.93(8245)
P1	245	F	G	G::99.85(8248)
P1	246	F	V	V::99.93(8240)
P1	247	F	E	E::99.79(8255)
P1	248	F	P	P::99.96(8271)
P1	249	F	S	S::99.75(8255)
P1	250	F	G	G::99.87(8265)
P1	251	F	S	S::99.84(8263)
P1	252	F	G	G::99.83(8262)
P1	253	F	H	H::99.89(8267)
P1	254	F	N	N::99.94(8267)
P1	255	F	T	T::99.87(8265)
P1	256	F	N	N::99.82(8261)

P1	257	F	L	L::99.96(8273)
P1	258	F	A	A::99.81(8260)
P1	259	F	S	S::99.76(8256)
P1	260	F	K	K::99.83(8262)
P1	261	F	S	S::99.96(8273)
P1	262	F	A	A::99.92(8268)
P1	263	F	S	S::99.94(8269)
P1	264	F	C	C::99.81(8257)
P1	265	F	L	L::99.96(8271)
P1	266	F	Y	Y::99.93(8268)
P1	267	F	Q	Q::99.85(8262)
P1	268	F	S	S::91.39(7560) L::8.57(709)
P1	269	F	S	S::99.93(8266)
P1	270	F	V	V::99.98(8270)
P1	271	F	R	R::99.78(8254)
P1	272	F	K	K::99.85(8259)
P1	273	F	A	A::99.61(8240)
P1	274	F	A	A::99.82(8257)
P1	275	F	Y	Y::99.92(8256)
P1	276	F	P	H::100.00(4)
P1	277	F	A	A::100.00(4)
P1	278	F	V	V::100.00(4)
P1	279	F	S	S::100.00(4)
P1	280	F	T	T::100.00(4)
P1	281	F	S	S::100.00(4)
P1	282	F	E	E::100.00(4)
P1	283	F	K	K::100.00(4)
P1	284	F	H	H::100.00(4)
P1	285	F	S	S::100.00(4)
P1	286	F	S	S::100.00(4)
P1	287	F	S	S::100.00(4)
P1	288	F	G	G::100.00(4)
P1	289	F	H	H::100.00(4)
P1	290	F	A	A::100.00(4)
P1	291	F	V	V::100.00(4)
S1	1	F	M	M::99.92(32277)
S1	2	F	G	G::99.89(32262)
S1	3	F	Q	Q::99.89(31923)
S1	4	F	N	N::99.95(30684)
S1	5	F	L	L::99.94(24081)
S1	6	F	S	S::99.92(24061)
S1	7	F	T	T::99.91(24052)
S1	8	F	S	S::99.91(24049)
S1	9	F	N	N::99.96(24052)
S1	10	F	P	P::99.92(24034)
S1	11	F	L	L::99.93(24014)
S1	12	F	G	G::99.91(24002)
S1	15	F	P	P::99.91(23890)
S1	16	F	D	D::99.88(23823)
S1	17	F	H	H::99.90(23808)
S1	18	F	Q	Q::99.96(23623)

S1	19	F	L	L::99.94(23025)
S1	20	F	D	D::99.94(12077)
S1	21	F	P	P::99.93(12078)
S1	22	F	A	A::99.88(12070)
S1	24	F	R	R::99.90(12074)
S1	25	F	A	A::99.88(12072)
S1	26	F	N	N::99.95(12080)
S1	27	F	T	T::99.95(12079)
S1	28	F	T	T::99.91(12075)
S1	29	F	N	N::99.96(12081)
S1	30	F	P	P::99.97(12081)
S1	31	F	D	D::99.93(12077)
S1	32	F	W	W::99.84(12066)
S1	33	F	D	D::99.89(12073)
S1	35	F	N	N::99.94(12077)
S1	36	F	P	P::99.95(12078)
S1	37	F	N	N::99.93(12077)
S1	38	F	K	K::99.90(12074)
S1	39	F	D	D::99.93(12077)
S1	40	F	T	T::99.91(12075)
S1	41	F	W	W::99.77(12057)
S1	42	F	P	P::99.90(12073)
S1	43	F	D	D::99.96(12081)
S1	44	F	A	A::99.76(12057)
S1	45	F	N	N::99.97(12082)
S1	46	F	K	K::99.96(16391)
S1	47	F	V	V::99.99(19402)
S1	48	F	G	G::99.96(7804)
S1	49	F	A	A::99.91(7866)
S1	50	F	G	G::99.92(7987)
S1	51	F	A	A::99.90(8040)
S1	53	F	G	G::99.90(8095)
S1	54	F	L	L::99.78(8085)
S1	55	F	G	G::99.84(8086)
S1	57	F	T	T::99.85(8185)
S1	58	F	P	P::99.90(8188)
S1	59	F	P	P::99.88(8210)
S1	60	F	H	H::99.82(8220)
S1	61	F	G	G::100.00(8246)
S1	62	F	G	G::99.96(8247)
S1	63	F	L	L::99.59(8217)
S1	64	F	L	L::99.92(8228)
S1	65	F	G	G::99.88(8234)
S1	66	F	W	W::99.81(8249)
S1	67	F	S	S::99.87(8261)
S1	68	F	P	P::99.95(8272)
S1	69	F	Q	Q::99.81(8260)
S1	70	F	A	A::99.87(8265)
S1	71	F	Q	Q::99.86(8264)
S1	72	F	G	G::99.78(8258)
S1	73	F	I	I::99.90(8264)

S1	74	F	I	I::99.92(8269)
S1	75	F	Q	Q::99.87(8265)
S1	76	F	T	T::99.89(8267)
S1	77	F	L	L::99.94(8271)
S1	78	F	P	P::99.86(8264)
S1	79	F	A	A::99.82(8261)
S1	80	F	N	N::99.88(8266)
S1	81	F	P	P::99.96(8272)
S1	82	F	P	P::99.96(8273)
S1	83	F	P	P::99.96(8270)
S1	84	F	A	A::99.76(8254)
S1	85	F	S	S::99.96(8271)
S1	86	F	T	T::99.94(8269)
S1	87	F	N	N::99.92(8267)
S1	88	F	R	R::91.36(7557) C::8.56(708)
S1	89	F	Q	Q::99.85(8260)
S1	90	F	S	S::99.93(8266)
S1	91	F	G	G::99.94(8266)
S1	92	F	R	R::99.88(8262)
S1	93	F	Q	Q::99.55(8235)
S1	94	F	P	P::99.84(8259)
S1	95	F	T	T::100.00(8260)
S1	96	F	P	T::100.00(4)
S1	97	F	L	L::100.00(4)
S1	98	F	S	S::100.00(4)
S1	99	F	P	P::100.00(4)
S1	100	F	P	P::100.00(4)
S1	101	F	L	L::100.00(4)
S1	102	F	R	R::100.00(4)
S1	103	F	N	N::100.00(4)
S1	104	F	T	T::100.00(4)
S1	105	F	H	H::100.00(4)
S1	106	F	P	P::100.00(4)
S1	107	F	Q	Q::100.00(4)
S1	108	F	A	A::100.00(4)
S1	109	F	M	M::100.00(4)
S1	110	F	Q	Q::100.00(4)

Meta data	
Assembly file:	HBV-RYD-42.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-42
Date/Time	Mon 25 Mar 10:55:07 GMT 2019