

Supplemental information

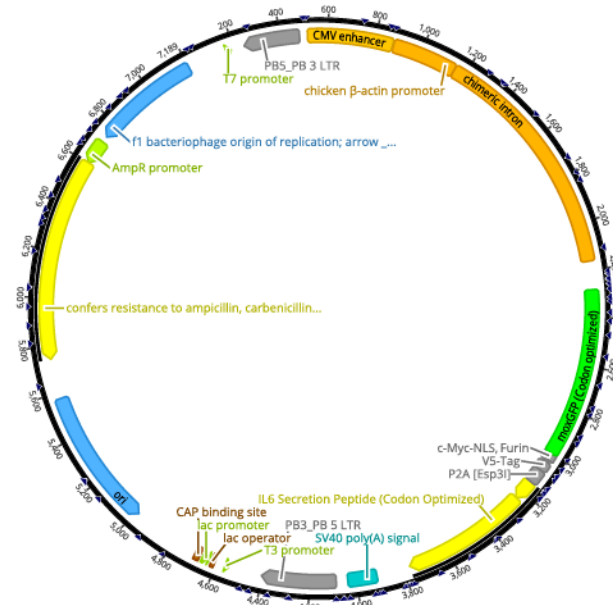
**Rapid, accurate mapping of transgene integration
in viable rhesus macaque embryos using
enhanced-specificity tagmentation-assisted PCR**

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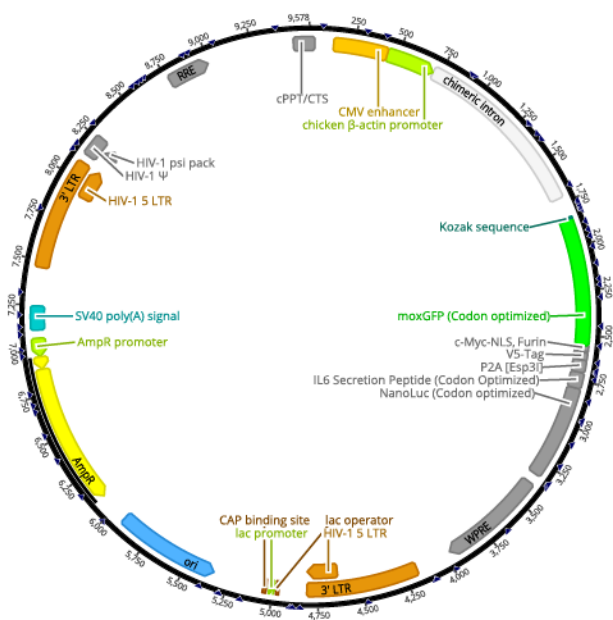
Supplemental Text

Supplemental Figure 1. A) Vector map of plasmid pB-CAG_moxGFP-P2A-NanoLuc (#20). **B)** Vector map of plasmid pLV-CAG_moxGFP-P2A-NanoLuc (#53).

A. Plasmid map of pB-CAG_moxGFP-P2A-NanoLuc (#020)



B. Plasmid map of pLV-CAG_moxGFP-P2A-NanoLuc (#053)



Supplemental Table I. Table of primers used for esTag-PCR amplification.

Name	Assay	Purpose	Sequence
PB-3TR-Outer	esTag-PCR/piggyBac	piggyBac Integration, PCR1	GCGACGGATTTCGCGCTATTT
PB-5TR-Outer	esTag-PCR/piggyBac	piggyBac Integration, PCR1	GACCGATAAAACACATGCGTCA
LV-3TR-Outer	esTag-PCR/Lentivirus	Lentiviral Integration, PCR1	GAGAGCTGCATCCGGAGTAC
LV-5TR-Outer	esTag-PCR/Lentivirus	Lentiviral Integration, PCR1	TCCTCTGGTTTCCCTTTTCGC
PB-3TR-Inner-P5-TruSeq-R1	esTag-PCR/piggyBac	piggyBac Integration, PCR2	AATGATACGGCGACCAACCGAGATCTACACTCTTTCCCTACACGACGCTCTCCGATCT ATTTCAAGAAATGCATGCGTCA
PB-5TR-Inner-P5-TruSeq-R1	esTag-PCR/piggyBac	piggyBac Integration, PCR2	AATGATACGGCGACCAACCGAGATCTACACTCTTTCCCTACACGACGCTCTCCGATCT CACATGATTATCTTTAACGTACGTCAC
LV-3TR-Inner-P5-TruSeq-R1	esTag-PCR/Lentivirus	Lentiviral Integration, PCR2	AATGATACGGCGACCAACCGAGATCTACACTCTTTCCCTACACGACGCTCTCCGATCT TAGTGTGTGCCCCGTCTGTTG
LV-5TR-Inner-P5-TruSeq-R1	esTag-PCR/Lentivirus	Lentiviral Integration, PCR2	AATGATACGGCGACCAACCGAGATCTACACTCTTTCCCTACACGACGCTCTCCGATCT AAGCAGTGGGTCCCTAGTT
P7-N721-NexteraR2	esTag-PCR	Nested/Index PCR	CAAGCAGAAGACGGCATAACGAGAT GCAGCGTA GTCTCGTGGGCTCGGAGATG
P7-N722-NexteraR2	esTag-PCR	Nested/Index PCR	CAAGCAGAAGACGGCATAACGAGAT CTGCGCAT GTCTCGTGGGCTCGGAGATG
P7-N723-NexteraR2	esTag-PCR	Nested/Index PCR	CAAGCAGAAGACGGCATAACGAGAT GAGCGCTA GTCTCGTGGGCTCGGAGATG
P7-N724-NexteraR2	esTag-PCR	Nested/Index PCR	CAAGCAGAAGACGGCATAACGAGAT CGCTCAGT GTCTCGTGGGCTCGGAGATG
P7-N726-NexteraR2	esTag-PCR	Nested/Index PCR	CAAGCAGAAGACGGCATAACGAGAT GTCTTAGG GTCTCGTGGGCTCGGAGATG
P7-N727-NexteraR2	esTag-PCR	Nested/Index PCR	CAAGCAGAAGACGGCATAACGAGAT ACTGATCG GTCTCGTGGGCTCGGAGATG
P7-N728-NexteraR2	esTag-PCR	Nested/Index PCR	CAAGCAGAAGACGGCATAACGAGAT TAGCTGCA GTCTCGTGGGCTCGGAGATG
P7-N729-NexteraR2	esTag-PCR	Nested/Index PCR	CAAGCAGAAGACGGCATAACGAGAT GACGTCGA GTCTCGTGGGCTCGGAGATG
R2-Stub-PB-3TR-Outer	Tn5/Anchor-Seq	piggyBac Integration, PCR1	GTCTCGTGGGCTCGGAGATG-GCGACGGATTTCGCGCTATTT
R2-Stub-PB-5TR-Outer	Tn5/Anchor-Seq	piggyBac Integration, PCR1	GTCTCGTGGGCTCGGAGATG-GACCGATAAAACACATGCGTCA
NTSR1-F1	Tn5/Anchor-Seq	piggyBac Integration, PCR1	TCGTGGCAGCGTCAGAT

Supplemental Table II. Table of vector-genome junctions selected for PCR amplification and Sanger sequence validation. For each junction, the PCR amplification primers are listed, along with the PCR annealing temperature.

Sample	Chr	Position	Orientation	JunctionName	Primer-F-Name	Primer-F-Seq	Primer-R-Name	Primer-R-Seq	Expected Size	Annealing Temp	Status
Clone-6	3	171,771,812	+	PB-3TR	Tag-PCR-21	CATTGACAAGCAGCCCTCAGC	Tag-PCR-13	ATCCTCTTGAGCCCTGACCT	862	70	Verified Integration
Clone-6	3	171,771,812	+	PB-5TR	Tag-PCR-05	AAGGGGATACAGCTCGCCCT	Tag-PCR-63	AGACCGATAAAACACATGGGTCA	269	68	Verified Integration
Clone-6	4	77,863,325	+	PB-3TR	Tag-PCR-21	CATTGACAAGCAGCCCTCAGC	Tag-PCR-49	TGCACAAGAAAGGGCTGTCA	279	65-68	Verified Integration
Clone-6	4	77,863,325	+	PB-5TR	Tag-PCR-19	CATTCTGGAGAGCTGCACCC	Tag-PCR-5TR	CAAAATTAATAAAACCTCGATATACAGACCGATAAAACACAT	375	70	Verified Integration
Clone-6	21	41,732,490	-	PB-3TR	Tag-PCR-24	CCACCAGCAGACCCCAACA	Tag-PCR-3TR	GCATGCGTCAATTTTACGCAGACTATCTTTCTAG	451	70	Verified Integration
Clone-6	21	41,732,490	-	PB-5TR	Tag-PCR-5TR	CAAAATTAATAAAACCTCGATATACAGACCGATAAAACACATG	Tag-PCR-54	TGCTTTACAGTGGAGGTGCAA	221	68	Verified Integration
Clone-6	X	130,165,194	+	PB-3TR	Tag-PCR-22	CATTTTGACTCAGCGCGTTCG	Tag-PCR-27	CCTTTTCCCGGAGCGTT	329	68	Verified Integration
Clone-6	X	130,165,194	+	PB-5TR	Tag-PCR-23	CCACCAGAAGTACACGGCT	Tag-PCR-62	ACACATGATTAATCTTTAACGTACGTCA	272	62	Verified Integration
Clone-16	2	42,485,324	-	PB-3TR	Tag-PCR-44	TCACGACAGACACAAAGC	Tag-PCR-34	GCATTTGACAGCAGCGCTCAC	290	68	Verified Integration
Clone-16	2	42,485,324	-	PB-5TR	Tag-PCR-63	AGACCCGATAAAACACATCGGTCA	Tag-PCR-02	AAATGCTCTTTGCTGGCAGC	210	68	Verified Integration
Clone-16	6	167,123,583	-	PB-3TR	Tag-PCR-50	TGCACCTGGAGCTTCGGTG	Tag-PCR-29	CTCAGGGAGCTCCAAGC	262	75	Verified Integration
Clone-16	6	167,123,583	-	PB-5TR	Tag-PCR-5TR	CAAAATTAATAAAACCTCGATATACAGACCGATAAAACACATG	Tag-PCR-25	CCCTCACAAAGCTCTTCTCTG	214	70	Verified Integration
Clone-16	7	30,289,372	-	PB-3TR	Tag-PCR-32	GATGCAGCAGGATGGGGTA	Tag-PCR-3TR	GCATGCGTCAATTTTACGCAGACTATCTTTCTAG	434	68	Verified Integration
Clone-16	7	30,289,372	-	PB-5TR	Tag-PCR-5TR	CAAAATTAATAAAACCTCGATATACAGACCGATAAAACACATG	Tag-PCR-35	GCCACTCCCCATAAAAGCCT	251	68	Verified Integration
Clone-16	8	120,860,954	-	PB-3TR	Tag-PCR-36	GCCAGCTACCCGTGAACCA	Tag-PCR-3TR	GCATGCGTCAATTTTACGCAGACTATCTTTCTAG	452	70	Verified Integration
Clone-16	8	120,860,954	-	PB-5TR	Tag-PCR-5TR	CAAAATTAATAAAACCTCGATATACAGACCGATAAAACACATG	Tag-PCR-37	GGAGCAGCAGGATTCACAGT	455	70	Verified Integration
Clone-16	9	66,315,816	-	PB-3TR	Tag-PCR-55	TGGCTTCATTGCAAAAGGTTG	Tag-PCR-3TR	GCATGCGTCAATTTTACGCAGACTATCTTTCTAG	284	68	Verified Integration
Clone-16	9	66,315,816	-	PB-5TR	Tag-PCR-5TR	CAAAATTAATAAAACCTCGATATACAGACCGATAAAACACATG	Tag-PCR-38	GGCAGTAGGCTTTGTGACCT	316	68	Verified Integration
Clone-16	11	65,556,905	+	PB-3TR	Tag-PCR-20	CATTGACAAGCAGCCCTCAC	Tag-PCR-12	AGGAGGAGCTAAGGTCAAGG	411	72	Verified Integration
Clone-16	11	65,556,905	+	PB-5TR	Tag-PCR-33	GCACACCCCATCTCATGACA	Tag-PCR-5TR	CAAAATTAATAAAACCTCGATATACAGACCGATAAAACACAT	330	68	Verified Integration
Clone-16	13	23,753,309	-	PB-3TR	Tag-PCR-06	ACACGCTGTACACACACCC	Tag-PCR-3TR	GCATGCGTCAATTTTACGCAGACTATCTTTCTAG	477	70	Verified Integration
Clone-16	13	23,753,309	-	PB-5TR	Tag-PCR-5TR	CAAAATTAATAAAACCTCGATATACAGACCGATAAAACACATG	Tag-PCR-11	AGCTAGAGGGCAACACCTTA	512	70	Verified Integration
Clone-16	14	54,325,742	-	PB-3TR	Tag-PCR-17	CAGCCGGTGGAGGTTGATG	Tag-PCR-29	CTCAGGGAGGCTCCAAAGC	295	70	Verified Integration
Clone-16	14	54,325,742	-	PB-5TR	Tag-PCR-5TR	CAAAATTAATAAAACCTCGATATACAGACCGATAAAACACATG	Tag-PCR-07	ACCTAGCTCTGTTGGCATCC	388	68	Verified Integration
Clone-16	20	57,699,496	+	PB-3TR	Tag-PCR-3TR	GCATGCGTCAATTTTACGCAGACTATCTTTCTAG	Tag-PCR-14	CACCAGCGACATCCGACC	411	70	Verified Integration
Clone-16	20	57,699,496	+	PB-5TR	Tag-PCR-43	TACCATCGGCACCAACCTC	Tag-PCR-5TR	CAAAATTAATAAAACCTCGATATACAGACCGATAAAACACAT	307	68	Verified Integration
Clone-16	3	4,927,456	+	PB-3TR	Tag-PCR-3TR	GCATGCGTCAATTTTACGCAGACTATCTTTCTAG	Tag-PCR-40	GGGTGTGGCCTGGTTCTC	472	70	Verified Integration
Clone-16	3	4,927,456	+	PB-5TR	Tag-PCR-01	AAACCTTGGGCCAGAGAAG	Tag-PCR-5TR	CAAAATTAATAAAACCTCGATATACAGACCGATAAAACACAT	370	70	Verified Integration
Clone-16	17	507,201,24	+	PB-3TR	PB-3TR-Nested	ATTTCAGAATGCATGCGCTGA	Clone-16 413-R	TCCCGTATAAGCGTCAATGC	219	60	Verified Integration
Clone-16	17	507,201,24	+	PB-5TR	Clone-16 413-F	TAGGAGGGATTTCGGCCTGA	PB-5TR-Nested	CACATGATTATCTTTAACGTACGTCA	554	60	Verified Integration
Clone-16	7	33060938	-	PB-3TR	PB-3TR-Nested	ATTTCAGAATGCATGCGCTGA	Clone-16 14-R	GATGGGCAGAGCAGACCTAC	243	60	Verified Integration
Clone-16	7	33060938	-	PB-5TR	Clone-16 14-F	CACCTCAGCCTGGGAAACAT	PB-5TR-Nested	CACATGATTATCTTTAACGTACGTCA	562	60	Verified Integration
Clone-13	1	121,201,016	-	PB-3TR	Tag-PCR-48	TCTGGGTTGTTCCGGGAAGTG	Tag-PCR-3TR	GCATGCGTCAATTTTACGCAGACTATCTTTCTAG	594	68	Verified Integration
Clone-13	1	121,201,016	-	PB-5TR	Tag-PCR-5TR	CAAAATTAATAAAACCTCGATATACAGACCGATAAAACACATG	Tag-PCR-04	AAGAGCTGGCCCTTCTGGAC	551	68	Verified Integration
Clone-13	2	151,750,189	-	PB-3TR	Tag-PCR-42b	AGCCCTTTCTGCTATCTGCTT	Tag-PCR-3TR	GCATGCGTCAATTTTACGCAGACTATCTTTCTAG	400	68	Verified Integration
Clone-13	2	151,750,189	-	PB-5TR	Tag-PCR-5TR	CAAAATTAATAAAACCTCGATATACAGACCGATAAAACACATG	Tag-PCR-15	CACCCTGCAGGAAAGCCTAA	343	68	Verified Integration
Clone-13	11	66,620,830	-	PB-3TR	Tag-PCR-45b	GGAGGGAAACAGACAGTGGG	Tag-PCR-3TR	GCATGCGTCAATTTTACGCAGACTATCTTTCTAG	155	68	Verified Integration
Clone-13	11	66,620,830	-	PB-5TR	Tag-PCR-5TR	CAAAATTAATAAAACCTCGATATACAGACCGATAAAACACATG	Tag-PCR-41	GTGGAAGGATGGCTTGAGCT	398	70	Verified Integration
Clone-13	14	55,102,774	-	PB-3TR	Tag-PCR-57	TGCTTGGCAAGCAGCT	Tag-PCR-3TR	GCATGCGTCAATTTTACGCAGACTATCTTTCTAG	446	68	Verified Integration
Clone-13	14	55,102,774	-	PB-5TR	Tag-PCR-5TR	CAAAATTAATAAAACCTCGATATACAGACCGATAAAACACATG	Tag-PCR-61b	ACCTGCTTCTCTGTTGCTT	420	68	Verified Integration
Clone-13	17	80,019,664	-	PB-3TR	Tag-PCR-03	AACCTCGACGGGTGAGAC	Tag-PCR-3TR	GCATGCGTCAATTTTACGCAGACTATCTTTCTAG	345	70	Verified Integration
Clone-13	17	80,019,664	-	PB-5TR	Tag-PCR-5TR	CAAAATTAATAAAACCTCGATATACAGACCGATAAAACACATG	Tag-PCR-30	CTTGCTGTAGTGGTCATCA	553	68	Verified Integration
Clone-13	12	44,243,842	+	PB-3TR	Tag-PCR-34	GCATTGACAAGCAGCCTCAC	Tag-PCR-46	TCAGGCGCAGAAAACAAAT	205	70	Verified Integration
Clone-13	12	44,243,842	+	PB-5TR	Tag-PCR-08	ACTGTGCTGTGCCATTCTGA	Tag-PCR-5TR	CAAAATTAATAAAACCTCGATATACAGACCGATAAAACACAT	258	68	Verified Integration
Clone-13	9	83093891	-	PB-3TR	PB-3TR-Nested	ATTTCAGAATGCATGCGCTCA	Clone-13 28-R	CAAGCTGAGGGATCTGGCTC	233	60	Verified Integration
Clone-13	9	83093891	-	PB-5TR	Clone-13 28-F	TGTGGAACAGGAATGGCATCT	PB-5TR-Nested	CACATGATTATCTTTAACGTACGTCA	338	60	Verified Integration
E1118	2	127,571,832	+	PB-3TR	Tag-PCR-3TR	GCATGCGTCAATTTTACGCAGACTATCTTTCTAG	Tag-PCR-18	CAGCTCACTGCAAGGCGATTC	152	69	Verified Integration
E1118	2	127,571,832	+	PB-5TR	Tag-PCR-16	CAGCAGAGAGGGAGACATGG	Tag-PCR-5TR	CAAAATTAATAAAACCTCGATATACAGACCGATAAAACACAT	275	68	Verified Integration
E1118	1	218,457,763	-	PB-3TR	Tag-PCR-31	GAACCATATGGGCCCCCG	Tag-PCR-5TR	GCATGCGTCAATTTTACGCAGACTATCTTTCTAG	461 if no integration	68	Verified Lack of Integration
E1118	1	218,457,763	-	PB-5TR	Tag-PCR-5TR	CAAAATTAATAAAACCTCGATATACAGACCGATAAAACACATG	Tag-PCR-56	TGGTCAGTGGCGTTGATTCA	461 if no integration	68	Verified Lack of Integration
E1118	3	61,259,373	-	PB-3TR	Tag-PCR-58b	GGCTCCTAGAAGGTGTTGGC	Tag-PCR-3TR	GCATGCGTCAATTTTACGCAGACTATCTTTCTAG	216	68	Verified Integration
E1118	3	61,259,373	-	PB-5TR	Tag-PCR-5TR	CAAAATTAATAAAACCTCGATATACAGACCGATAAAACACATG	Tag-PCR-26	CCTCTGAGTAGAAGGGCCT	423	68	Verified Integration

Supplemental Table III. Table of SRA datasets with raw sequence reads for each sample.

Sample	Type	SRA Run(s)
Clone-6	esTag-PCR	SRR15289274, SRR15289282, SRR15289287
Clone-6	Tag-PCR	SRR15289268, SRR15289271, SRR15289290, SRR16766766
Clone-6	Tn5/Anchor-Seq	SRR16766761
Clone-10	esTag-PCR	SRR15289284
Clone-11	esTag-PCR	SRR15289283
Clone-13	esTag-PCR	SRR15289273, SRR15289286, SRR15289294
Clone-13	Tag-PCR	SRR15289270, SRR15289289, SRR15289292
Clone-13	Tn5/Anchor-Seq	SRR16766760
Clone-16	esTag-PCR	SRR15289272, SRR15289285, SRR15289293
Clone-16	Tag-PCR	SRR15289269, SRR15289288, SRR15289291, SRR16766765
Clone-16	Tn5/Anchor-Seq	SRR16766759
Clone-18	esTag-PCR	SRR15289281
Clone-21	esTag-PCR	SRR15289280
Clone-22	esTag-PCR	SRR15289279
E1118	esTag-PCR	SRR15289161
E1119	esTag-PCR	SRR15289160
E2164	esTag-PCR	SRR15289149
E2165	esTag-PCR	SRR15289138
E2166	esTag-PCR	SRR15289127
E2167	esTag-PCR	SRR15289169
E2168	esTag-PCR	SRR15289165
E2169	esTag-PCR	SRR15289164
E2170	esTag-PCR	SRR15289163
E2171	esTag-PCR	SRR15289162
E2172	esTag-PCR	SRR15289159
E2173	esTag-PCR	SRR15289158
E2174	esTag-PCR	SRR15289157
E2175	esTag-PCR	SRR15289156
E2204	esTag-PCR	SRR15289151
E2205	esTag-PCR	SRR15289154
E2207	esTag-PCR	SRR15289153
E2208	esTag-PCR	SRR15289152
E2209	esTag-PCR	SRR15289148
E2210	esTag-PCR	SRR15289155
E2211	esTag-PCR	SRR15289150
E2224	esTag-PCR	SRR15289147
E2225	esTag-PCR	SRR15289145
E2235	esTag-PCR	SRR15289146
E2301	esTag-PCR	SRR15289137
E2302	esTag-PCR	SRR15289136
E2304	esTag-PCR	SRR15289139
E2306	esTag-PCR	SRR15289134
E2307	esTag-PCR	SRR15289133
E2308	esTag-PCR	SRR15289135
E2309	esTag-PCR	SRR15289132
E2310	esTag-PCR	SRR15289130
E2311	esTag-PCR	SRR15289131
E2312	esTag-PCR	SRR15289123
E2314	esTag-PCR	SRR15289121
E2316	esTag-PCR	SRR15289126
E2317	esTag-PCR	SRR15289129
E2318	esTag-PCR	SRR15289122
E2374	esTag-PCR	SRR15289167
E2376	esTag-PCR	SRR15289117
E2377	esTag-PCR	SRR15289166
E2378	esTag-PCR	SRR15289168
HEK293	esTag-PCR-LV	SRR15289277, SRR15289278
HepG2	esTag-PCR-LV	SRR15289275, SRR15289276
NHDF	esTag-PCR-LV	SRR16028388, SRR16028387
Clone-6 Clone-13 Dilution Step 1	esTag-PCR Dilution Expt	SRR16775679
Clone-6 Clone-13 Dilution Step 2	esTag-PCR Dilution Expt	SRR16775678
Clone-6 Clone-13 Dilution Step 3	esTag-PCR Dilution Expt	SRR16775667
Clone-6 Clone-13 Dilution Step 4	esTag-PCR Dilution Expt	SRR16775666
Clone-6 Clone-13 Dilution Step 5	esTag-PCR Dilution Expt	SRR16775665
Clone-6 Clone-13 Dilution Step 6	esTag-PCR Dilution Expt	SRR16775664
Clone-6 Clone-13 Dilution Step 7	esTag-PCR Dilution Expt	SRR16775663
Clone-6 Clone-13 Dilution Step 8	esTag-PCR Dilution Expt	SRR16775662
Clone-6 Clone-13 Dilution Step 9	esTag-PCR Dilution Expt	SRR16775661
Clone-6 Clone-13 Dilution Step 10	esTag-PCR Dilution Expt	SRR16775660
Clone-6 HepG2 Dilution Step 1	esTag-PCR Dilution Expt	SRR16775677
Clone-6 HepG2 Dilution Step 2	esTag-PCR Dilution Expt	SRR16775676
Clone-6 HepG2 Dilution Step 3	esTag-PCR Dilution Expt	SRR16775675
Clone-6 HepG2 Dilution Step 4	esTag-PCR Dilution Expt	SRR16775674
Clone-6 HepG2 Dilution Step 5	esTag-PCR Dilution Expt	SRR16775673
Clone-6 HepG2 Dilution Step 6	esTag-PCR Dilution Expt	SRR16775672
Clone-6 HepG2 Dilution Step 7	esTag-PCR Dilution Expt	SRR16775671
Clone-6 HepG2 Dilution Step 8	esTag-PCR Dilution Expt	SRR16775670
Clone-6 HepG2 Dilution Step 9	esTag-PCR Dilution Expt	SRR16775669
Clone-6 HepG2 Dilution Step 10	esTag-PCR Dilution Expt	SRR16775668
100ng Arrested Embryo-1	esTag-PCR	SRR15289124
100ng Arrested Embryo-2	esTag-PCR	SRR15289128
100ng Arrested Embryo-3	esTag-PCR	SRR15289125
100ng Arrested Embryo-4	esTag-PCR	SRR15289144
100ng Arrested Embryo-5	esTag-PCR	SRR15289143
100ng Arrested Embryo-6	esTag-PCR	SRR15289142
100ng Arrested Embryo-7	esTag-PCR	SRR15289140
100ng Arrested Embryo-8	esTag-PCR	SRR15289141
30ng Arrested Embryo-1	esTag-PCR	SRR15430997
30ng Arrested Embryo-2	esTag-PCR	SRR15430993
30ng Arrested Embryo-3	esTag-PCR	SRR15430990
30ng Arrested Embryo-4	esTag-PCR	SRR15430998
30ng Arrested Embryo-5	esTag-PCR	SRR15430992
30ng Arrested Embryo-6	esTag-PCR	SRR15430999
30ng Arrested Embryo-7	esTag-PCR	SRR15431000
30ng Arrested Embryo-8	esTag-PCR	SRR15430991
30ng Arrested Embryo-9	esTag-PCR	SRR15430989
30ng Arrested Embryo-10	esTag-PCR	SRR15430996
30ng Arrested Embryo-11	esTag-PCR	SRR15430988