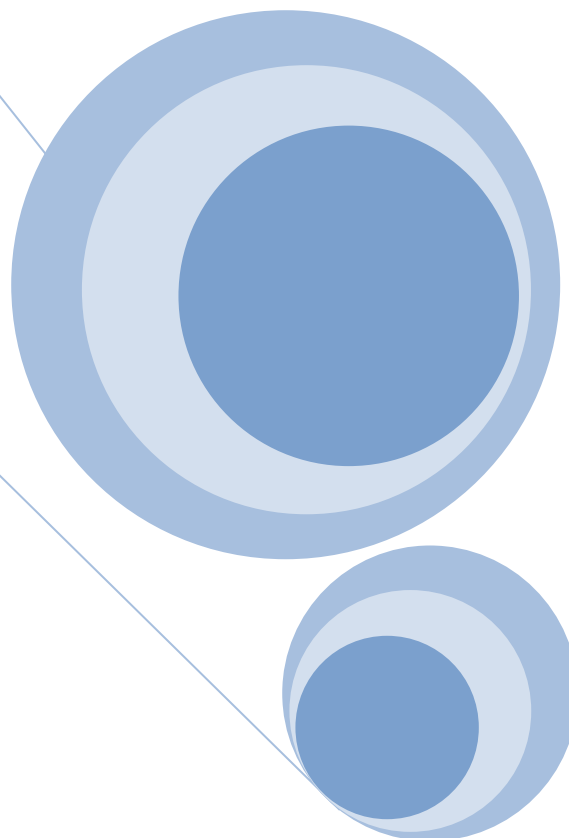
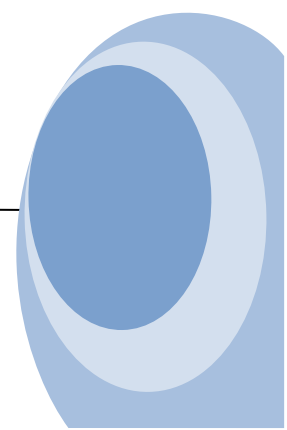




Report of Human Cell Line Authentication

Sample Submitted By: Dr. Jingxue Zhang
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Report of Human Cell Line Authentication

Delivery Date: July 10, 2020

Analysis Date: July 13, 2020

I . Sample

Sample type: cell, labeled as “HTM” ,was received on July 10, 2020.

II . Method and Procedure

1. DNA was extracted by chelex 100 reagent:56.3 ng/ μ L, (A260/280=1.89).
2. DNA is amplified with STR Multi-amplification Kit (Goldeneye™20A ID System).
3. PCR products are assayed with ABI 3730xl DNA Analyzer (Applied Biosystems®).
4. Data were analyzed using GeneMapper3.2 software.

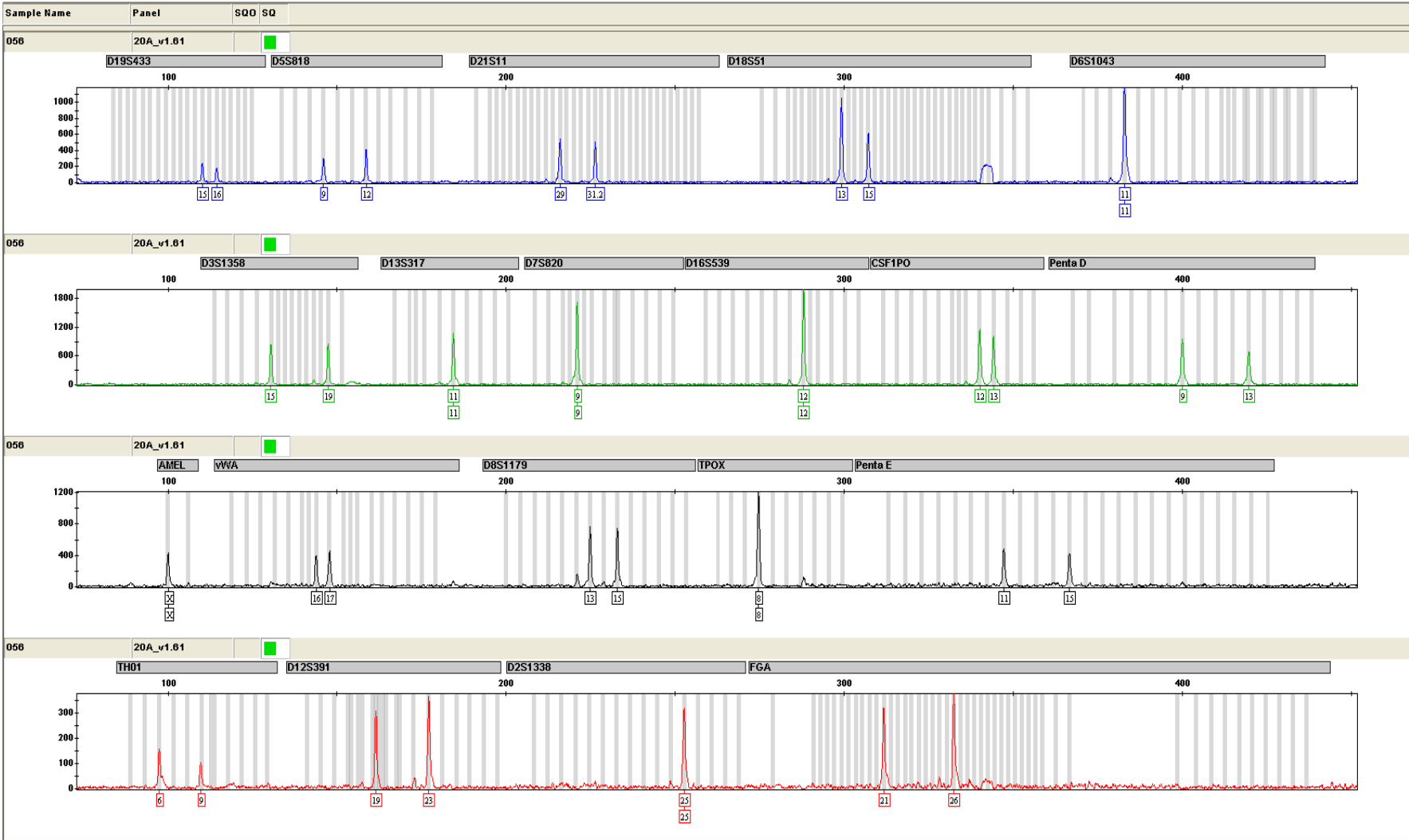
III. Results

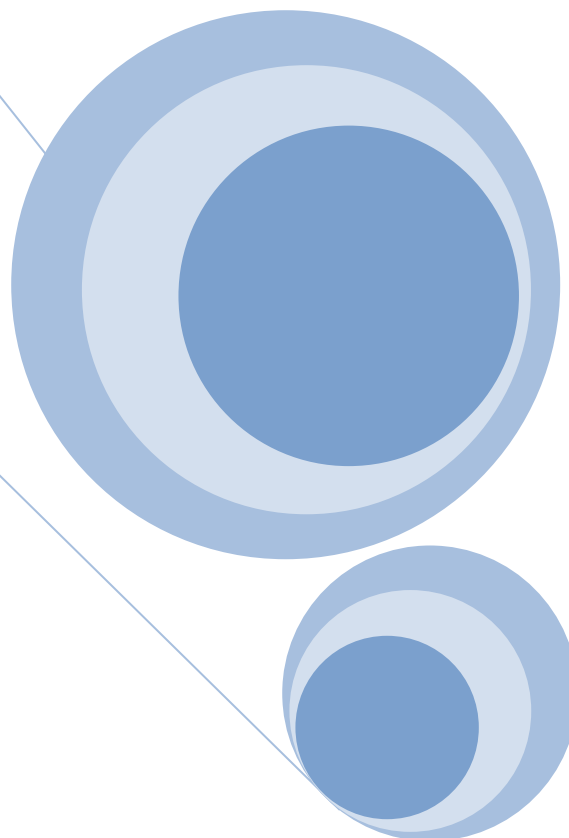
1. The STR profiles of the negative and positive control match expectations.
2. The STR profiles of the cell strain is in the attached table and figure.
3. The results analysis:
 - 1) This sample (Label on Tube: HTM) defines the STR profile of the human cell strain HTM comprising 32 allelic polymorphisms across the 19 STR loci analyzed.
 - 2) In addition to STR polymorphisms corresponding to human HTM cell strain, no other STR polymorphisms were detected, and the DNA concentration required to achieve acceptable STR genotype (signal/noise) was comparable to that required by the standard procedure for human genomic DNA (~1 ng/ amplification reaction).This result indicates that the HTM samples submitted correspond to HTM cell strain and are not contaminated with any other human cells.
 - 3) Sensitivity to detect STR polymorphisms specific to this or other human cell lines is limited to 2-5%.

Table 1: STR profiles of the cell line

Cell Strain HTM (Fig. HTM)		
STR Locus	STR Genotype Repeat #	STR Genotype
FGA	16-18,18.2,19,19.2,20,20.2,21,21.2,22, 22.2, 23, 23.2, 24, 24.2, 25, 25.2, 26-30, 31.2, 43.2,44.2,45.2, 46.2	21,26
TPOX	6-13	8,8
D8S1179	7-18	13,15
vWA	10-22	16,17
Amelogenin	X,Y	X,X
Penta_D	2.2, 3.2, 5, 7-17	9,13
CSF1PO	6-15	12,13
D16S539	5, 8-15	12,12
D7S820	6-14	9,9
D13S317	7-15	11,11
D5S818	7-16	9,12
Penta_E	5-24	11,15
D18S51	8-10, 10.2, 11-13, 13.2, 14-27	13,15
D21S11	24,24.2,25,25.2,26-28,28.2,29,29.2, 30, 30.2,31, 31.2,32,32.2,33,33.2, 34,34.2,35,35.2,36-38	29,31.2
TH01	4-9,9.3,10-11,13.3	6,9
D3S1358	12-20	15,19
D19S433	9-12,12.2,13,13.2,14,14.2,15,15.2,16,16.2,17,17.2	15,16
D6S1043	9-21,21.3	11,11
D12S391	14-19,19.3,20-27	19,23
D2S1338	15-28	25,25

Figure1: STR profiles of HTM cell strain

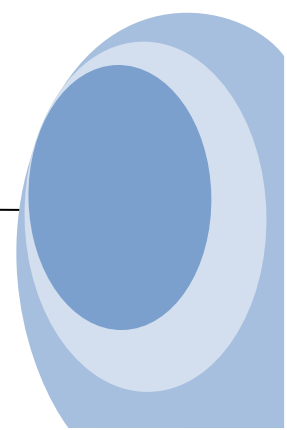




Report of Human Cell Line Authentication

Sample Submitted By: Dr. Jingxue Zhang
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Report of Human Cell Line Authentication

Delivery Date: July 2, 2020

Analysis Date: July 3, 2020

I . Sample

Sample type: cell, labeled as “HEK 293T” , was received on July 2, 2020.

II . Method and Procedure

1. DNA was extracted by chelex 100 reagent.
2. DNA is amplified with STR Multi-amplification Kit (Goldeneye™20A ID System);
3. PCR products are assayed with ABI 3730xl DNA Analyzer (Applied Biosystems®).
4. Data were analyzed using GeneMapper3.2 software and then compared with the ATCC and DSMZ databases for reference matching.

III. Results

1. The STR profiles of the negative and positive control match expectations.
2. The STR profiles of the cell line, and the matching results in two cell databases are in the attached tables and figure.
3. The results analysis:
 - 1) No cross-contamination of other human cell lines is found.
 - 2) 100% matched cell lines are found in ATCC data bank. And the cell lines named as 293T Embryonic Kidney Cells Human。 Inferred this cell line should be 293T Embryonic Kidney Cells Human。
 - 3) The submitted profile has an 92% match with the following DSMZ human cell line(s) in the DSMZ STR database (8 core loci plus Amelogenin): 293 [HEK-293T].

Notes:

1. Based on the ANSI Standard, cell lines with $\geq 80\%$ match are considered to be related; i.e. derived from a common ancestry. Cell lines with between a 55% to 80% match require further profiling for authentication of relatedness.

2. This data and analysis are for research use only.

Table 1: STR profiles of the cell line

Cell line HEK 293T (Fig. HEK 293T)				
Marker	Allele 1	Allele 2	Allele 3	Allele 4
D19S433	17	18		
D5S818	8	9		
D21S11	28	30.2		
D18S51	17	18	19	
D6S1043	11	11		
D3S1358	14	15	16	17
D13S317	11	12	13	14
D7S820	11	12		
D16S539	9	13		
CSF1PO	11	12	13	
Penta D	9	10		
AMEL	X	X		
vWA	16	19	20	
D8S1179	11	12		
TPOX	11	11		
Penta E	7	15		
TH01	7	9.3		
D12S391	19	20	21	
D2S1338	19	19		
FGA	22	23	24	

Figure: STR profiles of HEK 293T cell line

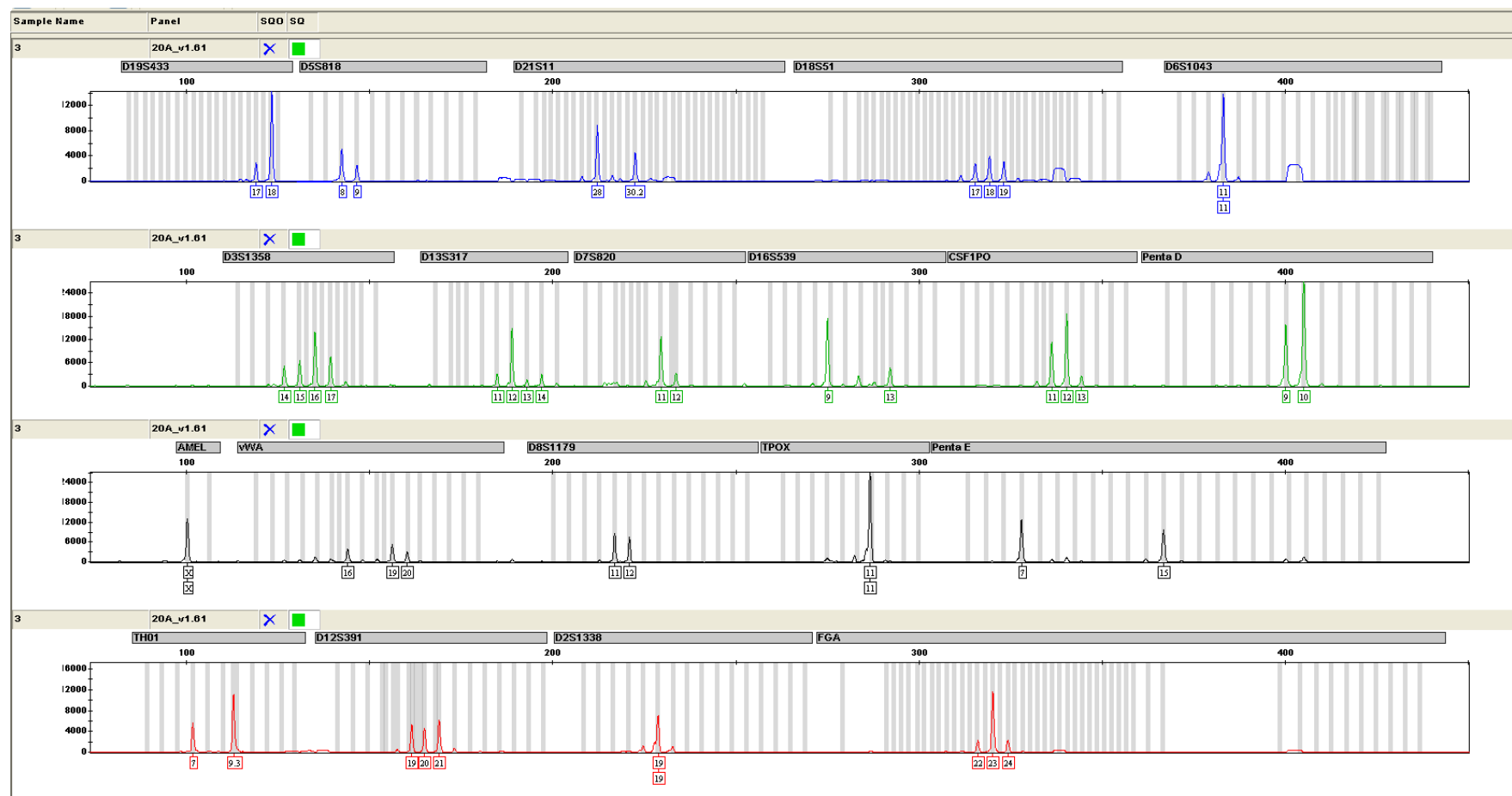


Table 2:The matching results in cell databases of cell line HEK 293T
ATCC

% Match	Sample Count	Matches	Atcc Number	Designation	D5S818	D13S317	D7S820	D16S539	vWA	TH01	AMEL	TPOX	CSF1PO
			Cell line identified	HEK 293T	8, 9	11, 12, 14	11, 12	9, 13	16, 19, 20	7, 9. 3	X	11	11, 12, 13
100	15	15	CRL-3216	293TEmbryonic Kidney CellsHuman	8, 9	12, 14	11	9, 13	16, 19	7, 9. 3	X	11	11, 12
100	15	15	ACS-4500	HEK293T/17 SFSuspension Cells	8, 9	12, 14	11	9, 13	16, 19	7, 9. 3	X	11	11, 12
100	14	14	CRL-1573. 3	HEK-293. 2susEmbryonic KidneyHuman	8	12, 14	11, 12	9, 13	16, 19	7, 9. 3	X	11	12
100	15	15	CRL-3022	HEK293S GnTI-Embryonic KidneyHuman	8, 9	12, 14	11, 12	9	16, 19	7, 9. 3	X	11	11, 12
100	14	14	CRL-2368	293/CHE-Fc Kidney, transfected; Human	8	12, 14	11, 12	9, 13	16, 19	7, 9. 3	X	11	12
100	15	15	CRL-10852	293 c18Embryonic KidneyHuman	8, 9	12, 14	11, 12	9	16, 19	7, 9. 3	X	11	11, 12
100	16	16	CRL-1573	293Embryonic KidneyHuman	8, 9	12, 14	11, 12	9, 13	16, 19	7, 9. 3	X	11	11, 12
100	14	14	CRL-2029	WSS-1 (WS-1)KidneyHuman	8	12, 14	11, 12	9, 13	16, 19	7, 9. 3	X	11	12
100	15	15	CRL-12479	PROPAK-A. 52	8, 9	12, 14	11, 12	9	16, 19	7, 9. 3	X	11	11, 12
100	15	15	CRL-12007	ProPak-X. 36Embryonic KidneyHuman	8, 9	12, 14	11, 12	9	16, 19	7, 9. 3	X	11	11, 12
100	14	14	CRL-12006	ProPakA. 6 Embryonic Kidney Human	8	12, 14	11, 12	9, 13	16, 19	7, 9. 3	X	11	12
100	13	13	CRL-12013	2A Embryonic Kidney Human	8, 9	12, 14	11	9	16, 19	7, 9. 3	X	11	12
100	14	14	CRL-2794	GFPu-1Embryonic KidneyHuman	8	12, 14	11, 12	9, 13	16, 19	7, 9. 3	X	11	12
100	15	15	CRL-11654	90. 74, Transfected;Human	8, 9	12, 14	11, 12	9	16, 19	7, 9. 3	X	11	11, 12
100	15	15	CRL-2828	PEAKrapidEmbryonic kidneyHuman	8, 9	12, 14	11, 12	9	16, 19	7, 9. 3	X	11	11, 12
100	15	15	CRL-3215	Phoenix GP Cells	8, 9	12, 14	11	9, 13	16, 19	7, 9. 3	X	11	11, 12
100	15	15	CRL-3249	HEK 293 STFEmbryonic KidneyHuman	8, 9	12, 14	11, 12	9	16, 19	7, 9. 3	X	11	11, 12
100	14	14	CRL-3269	NaV 1. 3 KIR 2. 1Embryonic KidneyHuman	8	12, 14	11, 12	9, 13	16, 19	7, 9. 3	X	11	12
100	15	15	CRL-3275	Tau RD P301S FRET Biosensor EmbryonicKidney Human	8, 9	12, 14	11	9, 13	16, 19	7, 9. 3	X	11	11, 12
94	17	16	CRL-11269	ANJOU 65 Embryonic Kidney Human	8, 9	11, 12, 14	11	9, 13	16, 18, 19	7, 9. 3	X	11	11, 12
94	16	15	CRL-3214	Phoenix-ECOEmbryonic Kidney CellsHuman	8, 9	11, 12, 13	11	9, 13	16, 19	7, 9. 3	X	11	11, 12
94	16	15	CRL-11268	293T/17 Embryonic Kidney Human	8, 9	12, 14	11	9, 13	16, 18, 19	7, 9. 3	X	11	11, 12

93	15	14	NR-9315	HEK-293 TLR4YFP/MD-2	8, 9	12	11	9, 13	16, 19	7, 9. 3	X	11	7, 11, 12
88	17	15	CRL-11554	Bing (CAK8) Embryonic Kidney Human	8, 9	11, 12, 15	11	9, 13	16, 17, 19	7, 9. 3	X	11	11, 12
83	18	15	CRL-3213	Phoenix-AMPHOEmbryonic Kidney CellsHuman	8, 10	11, 12, 13, 14	11	9, 13	16, 18, 19	7, 9. 3	X	11	11, 12

dsmz

			D5S818	D13S317	D7S820	D16S539	VWA	TH01	AM	TPOX	CSF1PO
	<i>Query (HEK 293T)</i>		<i>8, 9</i>	<i>11, 12, 14</i>	<i>11, 12</i>	<i>9, 13</i>	<i>16, 19, 20</i>	<i>7, 9. 3</i>	<i>x, x</i>	<i>11, 11</i>	<i>11, 12, 13</i>
0. 92 (36/39)	CRL-1573	293 [HEK-293]	8, 9	12, 14	11, 12	9, 13	16, 19	7, 9. 3	X, X	11, 11	11, 12
0. 92 (36/39)	RCB1637	293	8, 9	12, 14	11, 12	9, 13	16, 19	7, 9. 3	X, X	11, 11	11, 12
0. 88 (36/41)	CRL-11269	ANJOU 65	8, 9	11, 12, 14	11, 11	9, 13	16, 18, 19	7, 9. 3	X, X	11, 11	11, 12
0. 87 (34/39)	305	293	8, 9	12, 14	11, 12	9, 9	16, 19	7, 9. 3	X, X	11, 11	11, 12
0. 87 (34/39)	635	293T	8, 9	12, 14	11, 11	9, 13	16, 19	7, 9. 3	X, X	11, 11	11, 12
0. 87 (34/39)	ACS-4500	HEK 293T/17	8, 9	12, 14	11, 11	9, 13	16, 19	7, 9. 3	X, X	11, 11	11, 12
0. 87 (34/39)	CRL-10852	293 c18	8, 9	12, 14	11, 12	9, 9	16, 19	7, 9. 3	X, X	11, 11	11, 12
0. 87 (34/39)	CRL-11654	90, 74	8, 9	12, 14	11, 12	9, 9	16, 19	7, 9. 3	X, X	11, 11	11, 12
0. 87 (34/39)	CRL-12007	ProPak-X. 36 [PP-X. 36]	8, 9	12, 14	11, 12	9, 9	16, 19	7, 9. 3	X, X	11, 11	11, 12
0. 87 (34/39)	CRL-12386	SODK1	8, 9	12, 14	11, 12	9, 9	16, 19	7, 9. 3	X, X	11, 11	11, 12
0. 87 (34/39)	CRL-12479	ProPak-A. 52 Clone #52 [PP-A. 52]	8, 9	12, 14	11, 12	9, 9	16, 19	7, 9. 3	X, X	11, 11	11, 12
0. 87 (34/39)	CRL-2828	PEAKrapid	8, 9	12, 14	11, 12	9, 9	16, 19	7, 9. 3	X, X	11, 11	11, 12
0. 87 (34/39)	CRL-3022	HEK 293S GnTI-	8, 9	12, 14	11, 12	9, 9	16, 19	7, 9. 3	X, X	11, 11	11, 12
0. 87 (34/39)	JCRB9068	293	8, 9	12, 12	11, 12	9, 13	16, 19	7, 9. 3	X, X	11, 11	11, 12
0. 87 (34/39)	RCB1668	293/CrmA	8, 9	12, 14	11, 12	13, 13	16, 19	7, 9. 3	X, X	11, 11	11, 12
0. 87 (34/39)	RCB2202	293T	8, 9	12, 14	11, 11	9, 13	16, 19	7, 9. 3	X, X	11, 11	11, 12

0. 87 (34/39)	RCB2354	293gp	8, 9	12, 14	11, 12	9, 9	16, 19	7, 9. 3	X, X	11, 11	11, 12
0. 85 (34/40)	CRL-11268	293T/17 [HEK 293T/17]	8, 9	12, 14	11, 11	9, 13	16, 18, 19	7, 9. 3	X, X	11, 11	11, 12
0. 85 (34/40)	CRL-2784	2V6. 11 [JHU-67]	8, 9	12, 14	11, 11	9, 13	16, 19	7, 9. 3	X, X	11, 11	7, 11, 12
0. 83 (34/41)	CRL-11270	BOSC 23	8, 9	11, 12, 15	11, 11	9, 13	16, 18, 19	7, 9. 3	X, X	11, 11	11, 12
0. 83 (34/41)	CRL-11554	Bing	8, 9	11, 12, 15	11, 11	9, 13	16, 17, 19	7, 9. 3	X, X	11, 11	11, 12
0. 82 (32/39)	CRL-12006	ProPakA. 6	8, 8	12, 14	11, 12	9, 13	16, 19	7, 9. 3	X, X	11, 11	12, 12
0. 82 (32/39)	CRL-1573. 3	HEK-293. 2sus	8, 8	12, 14	11, 12	9, 13	16, 19	7, 9. 3	X, X	11, 11	12, 12
0. 82 (32/39)	CRL-2029	WSS-1 [WS-1]	8, 8	12, 14	11, 12	9, 13	16, 19	7, 9. 3	X, X	11, 11	12, 12
0. 82 (32/39)	CRL-2368	293/CHE-Fc	8, 8	12, 14	11, 12	9, 13	16, 19	7, 9. 3	X, X	11, 11	12, 12
0. 82 (32/39)	CRL-2782	293 EcR Shh [JHU-64]	8, 8	12, 14	11, 12	9, 13	16, 19	7, 9. 3	X, X	11, 11	12, 12
0. 82 (32/39)	CRL-2794	GFPu-1	8, 8	12, 14	11, 12	9, 13	16, 19	7, 9. 3	X, X	11, 11	12, 12
0. 82 (32/39)	RCB2253	HKb20	8, 9	12, 12	11, 11	9, 13	16, 19	7, 9. 3	X, X	11, 11	11, 12