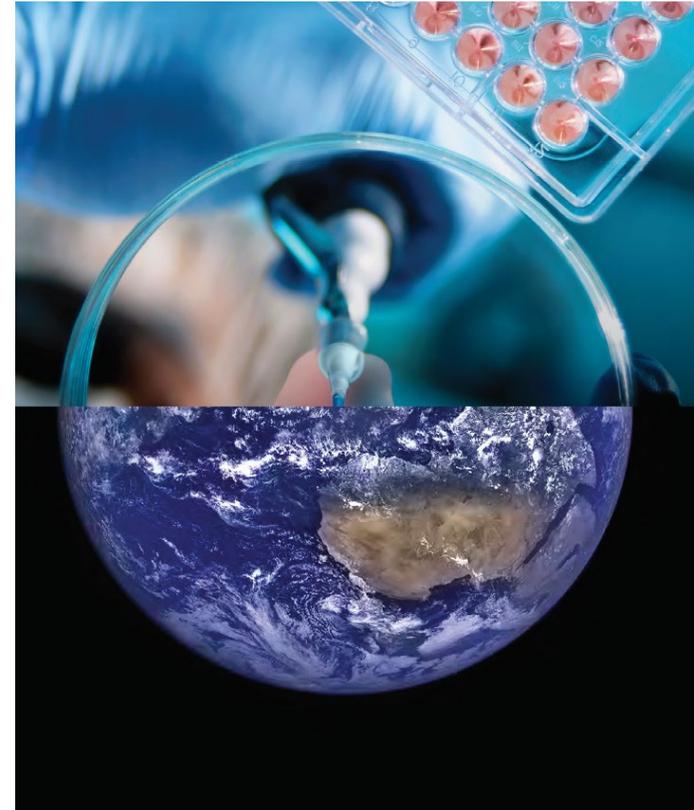
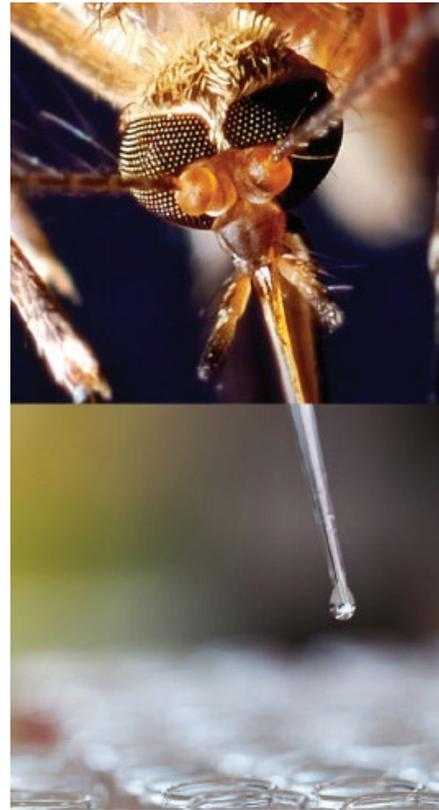
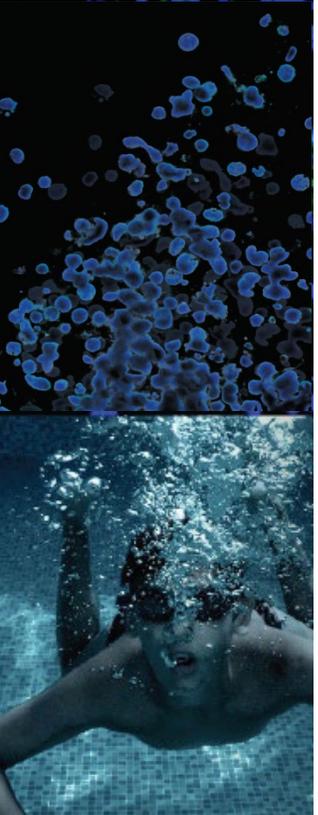




STR Authentication: Using the ATCC public STR Database

Brief Tutorial: Updated JULY 2023

Credible Leads to Incredible[®]



Using ATCC's Public STR Database

STR Profile Background

- The ATCC STR database includes profile standards for all distributed cell lines.
- 13 loci are enough to authenticate a cell line for research and publication purposes.
- ATCC uses STR analysis to screen all human cell lines for authenticity and purity before distribution providing a true baseline for researchers using these cell lines.
- Comparing an STR profile using the ATCC database will provide a measurable relationship between the tested cells and accepted standard cell lines.
- Tumor and transformed cell lines are more prone to genetic drift which can accelerate with passage number, media content and other factors.
- STR profiles assume two alleles; the presence of more than two alleles in DNA from normal cells indicates genomic heterogeneity, which is typically equated with contamination or genetic instability. Some cell lines may have more than 2 alleles at a loci as they are generally not normal cells.

Cell authentication services are available from ATCC

www.atcc.org/str

Using the Public STR Database

Search the STR Database

As part of our continuing efforts to characterize and authenticate the cell lines in the Cell Biology collection, ATCC has developed a comprehensive database of short tandem repeat (STR) DNA profiles for all of our human cell lines. [Download our guide before starting.](#)

1. [STR Profiling Analysis](#)
2. [Matching Algorithm](#)
3. [Interrogating the Database](#)

Search by ATCC Number:

OR

Search by Amelogenin (AMEL) + at least 7 loci:

There are two ways to fill in allele entries for search. You can either enter allele entries in below table or populate a file with the information and upload the file. Please separate each allele entry with a comma (e.g., CSF1PO = 11, 12). Note that currently only one single sample is supported.

[DOWNLOAD TEMPLATE](#)

AMEL ⓘ	<input type="text"/>	D7S820	<input type="text"/>
D3S1358	<input type="text"/>	D16S539	<input type="text"/>
TH01	<input type="text"/>	CSF1PO	<input type="text"/>
D21S11	<input type="text"/>	vWA	<input type="text"/>
D18S51	<input type="text"/>	D8S1179	<input type="text"/>
D5S818	<input type="text"/>	TPOX	<input type="text"/>
D13S317	<input type="text"/>	FGA	<input type="text"/>

Filters

Match %

Algorithm

[UPLOAD TEMPLATE](#)

Go to the STR service landing page or directly to the database

https://www.atcc.org/STR_Database.aspx?slp=1

There is a very simple registration required to access the database.

Using the Public STR Database

There are multiple choices:

Search the STR Database

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[DOWNLOAD TEMPLATE](#)

AMEL	<input type="text"/>	D7S820	<input type="text"/>
D3S1358	<input type="text"/>	D16S539	<input type="text"/>
TH01	<input type="text"/>	CSF1PO	<input type="text"/>
D21S11	<input type="text"/>	vWA	<input type="text"/>
D18S51	<input type="text"/>	D8S1179	<input type="text"/>
D5S818	<input type="text"/>	TPOX	<input type="text"/>
D13S317	<input type="text"/>	FGA	<input type="text"/>

Filters

Match %
Matches >= 80%

Algorithm
Tanabe

[UPLOAD TEMPLATE](#)

1. Search by ATCC number to obtain an STR profile



2. Input a profile into the loci fields to compare it against the ATCC public database



3. Upload data in .csv format to populate the loci fields



1. Search by ATCC Number

to obtain an STR Profile

Search the STR Database

As part of our continuing efforts to characterize and authenticate the cell lines in the Cell Biology collection, ATCC has developed a comprehensive database of short tandem repeat (STR) DNA profiles for all of our human cell lines. [Download our guide before starting.](#)

1. [STR Profiling Analysis](#)
2. [Matching Algorithm](#)
3. [Interrogating the Database](#)

Search by ATCC Number:

Example: ATCC Catalog CCL-2 are HeLa cells

Click the search button

2. Search by STR Profile

to Match Against Other Profiles in the Database

Input a profile to compare to the ATCC public database:

Search by Amelogenin (AMEL) + at least 7 loci:

There are two ways to fill in allele entries for search. You can either enter allele entries in below table or populate a file with the information and upload the file. Please separate each allele entry with a comma (e.g., CSF1PO = 11, 12). Note that currently only one single sample is supported.

[DOWNLOAD TEMPLATE](#)

Profile from CCL-2
HeLa cell line

Separate alleles using a
comma

For homozygous use a
single number and NOT
"7,7" for example.

AMEL	x	D7S820	8,12	Filters
D3S1358	15,18	D16S539	9,10	Match %
TH01	7	CSF1PO	9,10	Matches >= 80%
D21S11	27,28	vWA	16,18	Algorithm
D18S51	16	D8S1179	12,13	Tanabe
D5S818	11,12	TPOX	8,12	UPLOAD TEMPLATE
D13S317	12,13.3	FGA	18,21	SEARCH
				CLEAR

Click the search button

To limit the
number of
results:
select
either 80%
match and
higher OR
56% match
or higher

Select
matching
algorithm:
Tanabe or
Masters

3. Search by uploading a file

to Match Against Other Profiles in the Database

Download .CSV
TEMPLATE

Search by Amelogenin (AMEL) + at least 7 loci:

There are two ways to fill in allele entries for search. You can either enter allele entries in below table or populate a file with the information and upload the file. Please separate each allele entry with a comma (e.g., CSF1PO = 11, 12). Note that currently only one single sample is supported.

[DOWNLOAD TEMPLATE](#)

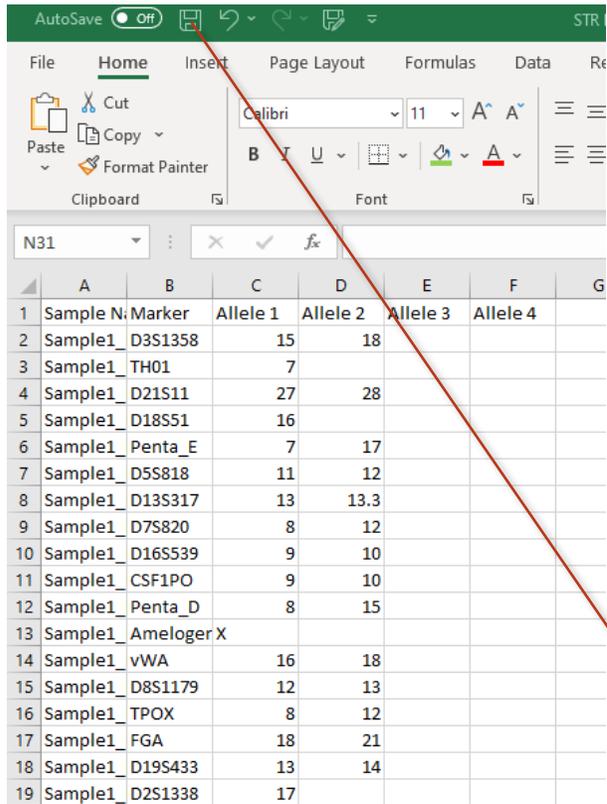
The screenshot shows the STR Database Search interface. At the top, there are input fields for 'AMEL' (with a dropdown arrow) and 'D7S820'. Below these is a 'Filters' section with a 'Match %' dropdown set to 'Matches >= 80%' and an 'Algorithm' dropdown set to 'Masters'. At the bottom of the filters are 'UPLOAD TEMPLATE', 'SEARCH', and 'CLEAR' buttons. In the center, a Microsoft Excel spreadsheet is overlaid, titled 'STR Database Search Sample CSV'. The spreadsheet has columns labeled 'Sample Name', 'Marker', 'Allele 1', 'Allele 2', 'Allele 3', and 'Allele 4'. Red arrows point from the text 'Enter: Sample Name', 'Marker/Locus', and 'Alleles (1 allele/cell)' to the corresponding cells in the spreadsheet. The spreadsheet shows 'Sample N' in the 'Sample Name' cell, and the 'Allele' columns are currently empty.

Enter:
Sample Name
Marker/Locus
Alleles (1 allele/cell)

3. Search by uploading a file (continued)

to Match Against Other Profiles in the Database

1. Add the data on table and save as a CSV file

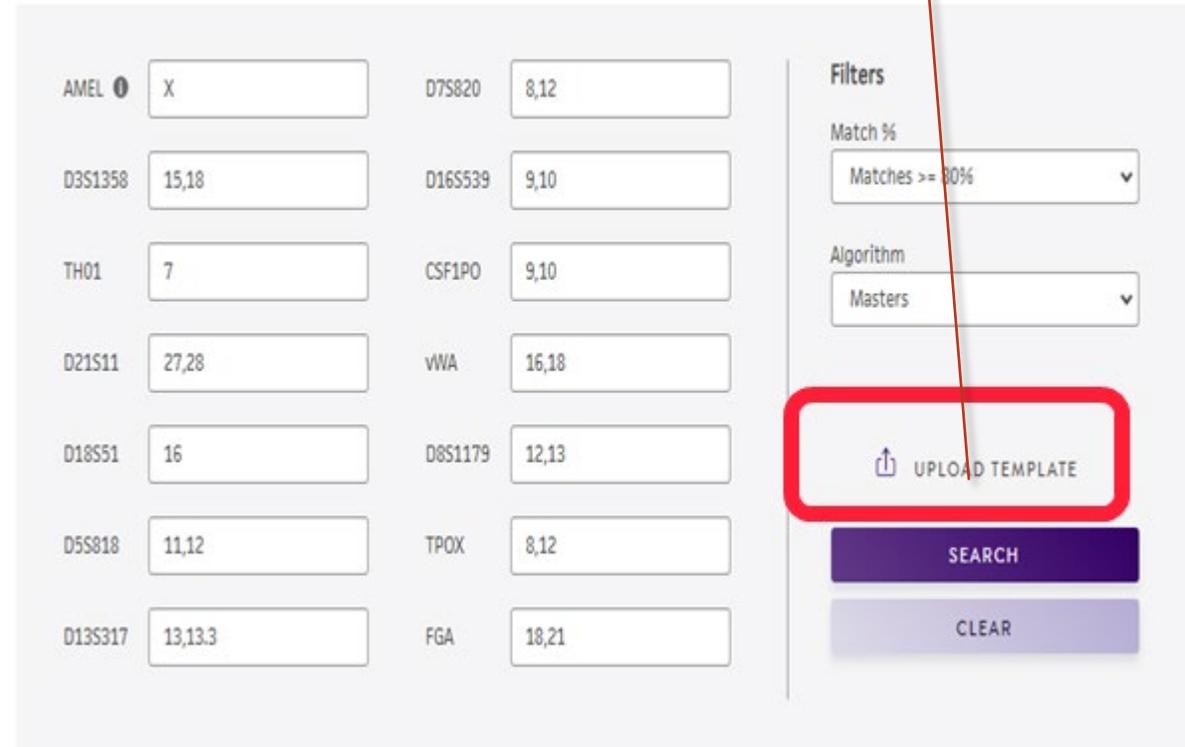


	A	B	C	D	E	F	G
1	Sample N:	Marker	Allele 1	Allele 2	Allele 3	Allele 4	
2	Sample1_	D3S1358	15	18			
3	Sample1_	TH01	7				
4	Sample1_	D21S11	27	28			
5	Sample1_	D18S51	16				
6	Sample1_	Penta_E	7	17			
7	Sample1_	D5S818	11	12			
8	Sample1_	D13S317	13	13.3			
9	Sample1_	D7S820	8	12			
10	Sample1_	D16S539	9	10			
11	Sample1_	CSF1PO	9	10			
12	Sample1_	Penta_D	8	15			
13	Sample1_	Amelogen X					
14	Sample1_	vWA	16	18			
15	Sample1_	D8S1179	12	13			
16	Sample1_	TPOX	8	12			
17	Sample1_	FGA	18	21			
18	Sample1_	D19S433	13	14			
19	Sample1_	D2S1338	17				

2. Click on UPLOAD TEMPATE and open the saved CSV file. The data will populate in the loci fields. Filters are then selected, and SEARCH is clicked to query the database.



File name: STR Database Search Sample CSV.csv All files (*.*)
Open Cancel



AMEL	X	D7S820	8,12
D3S1358	15,18	D16S539	9,10
TH01	7	CSF1PO	9,10
D21S11	27,28	vWA	16,18
D18S51	16	D8S1179	12,13
D5S818	11,12	TPOX	8,12
D13S317	13,13.3	FGA	18,21

Filters
Match %
Matches >= 80%
Algorithm
Masters
SEARCH
CLEAR



STR Database Search Sample CSV
CSV (Comma delimited) (*.csv)
Save

Viewing Results

to Match Against Other Profiles in the Database

Searching STR Database...



This process will take a few seconds. Please Wait.

Results are displayed after Processing ~30 seconds

Showing 1-6 of 21

Show Per Page

6

Add to Cart	%Match	ATCC® Number	Designation	D5S818	D13S317	D7S820	D16S539	vWA	TH01	AMEL	TPOX	CSF1PO	D3S
<input type="checkbox"/>	100.0	CCL-2	HeLaCervical AdenocarcinomaHuman	11,12	12,13.3	8,12	9,10	16,18	7	X	8,12	9,10	1
<input type="checkbox"/>	100.0	CCL-5	L132Cervical carcinomaHuman	11,12	12,13.3	8,12	9,10	16,18	7	X	8,12	9,10	
<input type="checkbox"/>	100.0	CCL-6	Intestine 407HeLa ContaminantHuman	11,12	12,13.3	8,12	9,10	16,18	7	X	8,12	9,10	
<input type="checkbox"/>	100.0	CCL-13	Chang LiverHELa ContaminantHuman	12	12,13.3	8,12	9,10	16,18	7	X	8,12	10	
<input type="checkbox"/>	100.0	CCL-17	KBHeLa ContaminantHuman	11,12	12,13.3	8,12	9,10	16,18	7	X	8,12	9,10	
<input type="checkbox"/>	100.0	CCL-21	AV-3AmnionHuman	11,12	13.3	12	9,10	16,18	7	X	8,12	9,10	

Use the slider to see data for additional loci

ADD TO CART

EXPORT TO EXCEL

Show Per Page

6

< PREV 1 2 3 4 NEXT >

Exporting Results

to Match Against Other Profiles in the Database

Sort results by the column headers, then check off the records you would like to keep:

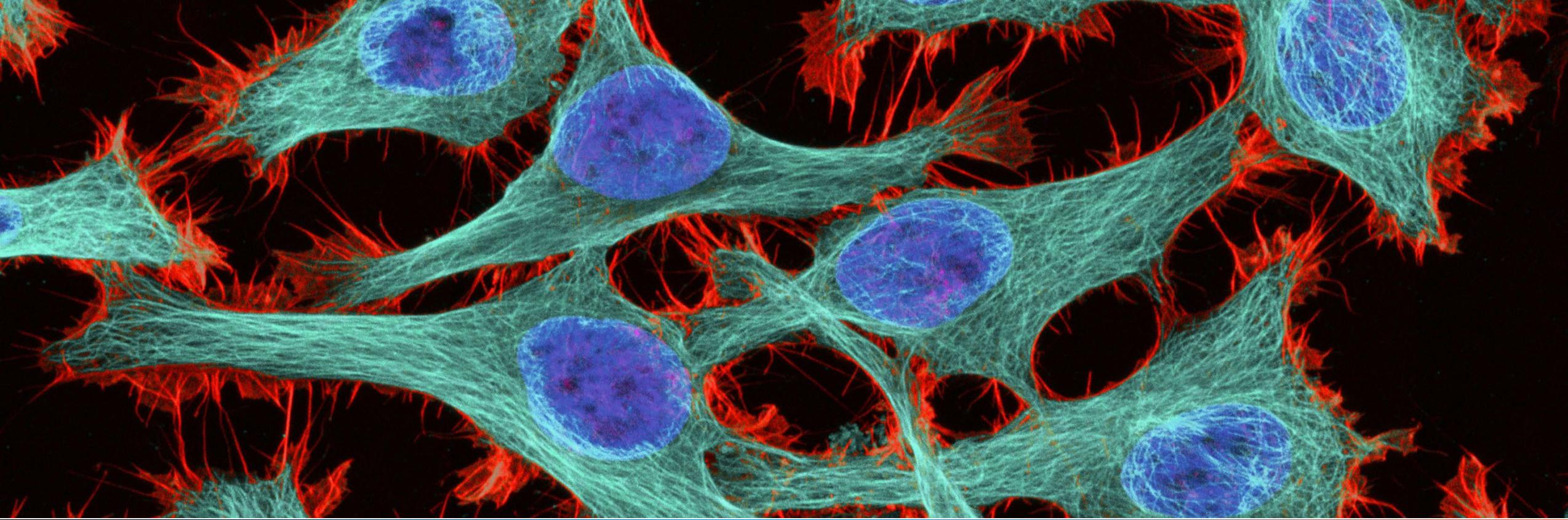
Showing 1-6 of 21 Show Per Page

Add to Cart	%Match	ATCC Number	Designation	D5S818	D13S317	D7S820	D16S539	VWA	TH01	AMEL	TPOX	CSF1PO	D3S
<input checked="" type="checkbox"/>	100.0	CCL-2	HeLaCervical AdenocarcinomaHuman	11,12	12,13,3	8,12	9,10	16,18	7	X	8,12	9,10	1
<input type="checkbox"/>	100.0	CCL-5	L132Cervical carcinomaHuman	11,12	12,13,3	8,12	9,10	16,18	7	X	8,12	9,10	
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<input type="checkbox"/>	100.0	CCL-17	KBHeLa ContaminantHuman	11,12	12,13,3	8,12	9,10	16,18	7	X	8,12	9,10	
<input checked="" type="checkbox"/>	100.0	CCL-21	AV-3AmnionHuman	11,12	13,3	12	9,10	16,18	7	X	8,12	9,10	

< PREV **1** 2 3 4 NEXT > Show Per Page

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	
1	% Match	Sample Cc Matches	Atcc Num	Designati	D5S818	D13S317	D7S820	D16S539	VWA	TH01	AMEL	TPOX	CSF1PO	D3S1358	D21S11	D18S51	D8S1179	FGA		
2	100	14	14	CCL-21	AV-3Amnion	11,12	13,3	12	9,10	16,18	7	X	8,12	9,10						
3	100	16	16	CCL-2	HeLaCervi	11,12	12,13,3	8,12	9,10	16,18	7	X	8,12	9,10	15,18	27,28		16	12,13	18,21

Export your data to Excel



Check your cells...Trust your data

Consider ATCC STR Cell Authentication