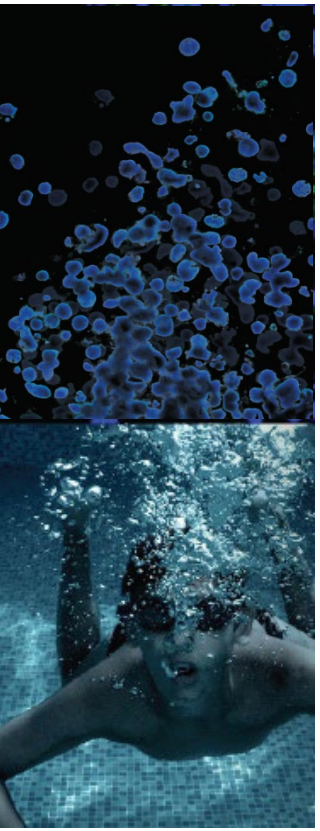
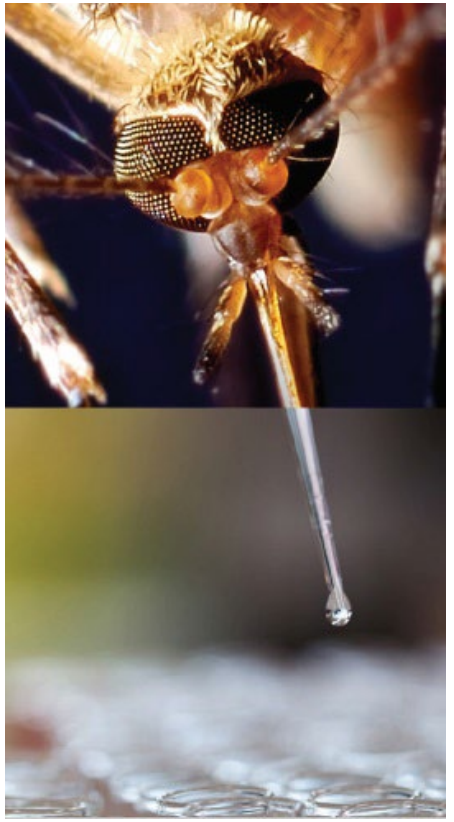
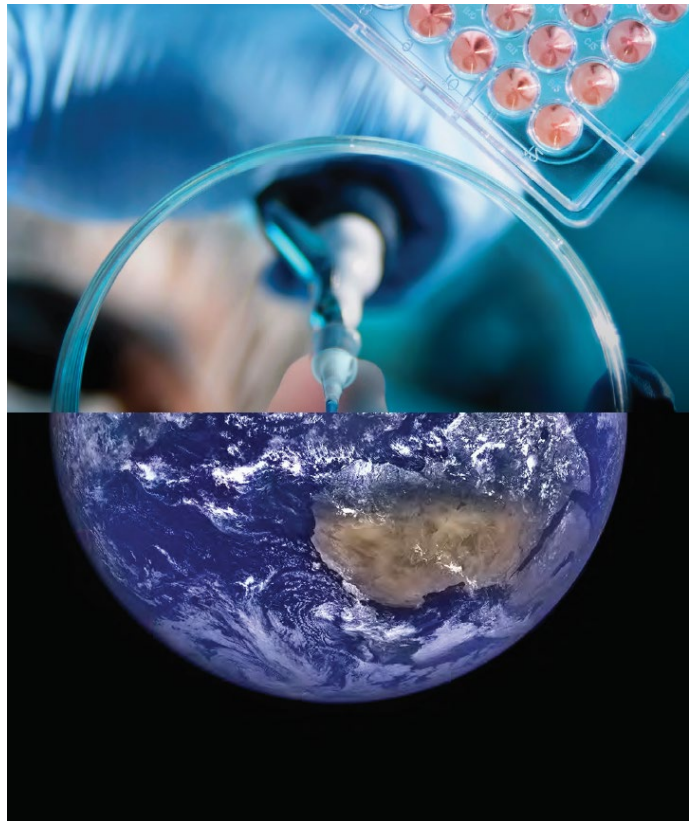
STR Authentication: Using the ATCC public STR Database



Brief Tutorial: Updated JULY 2023





Credible Leads to Incredible®

Using ATCC's Public STR Database

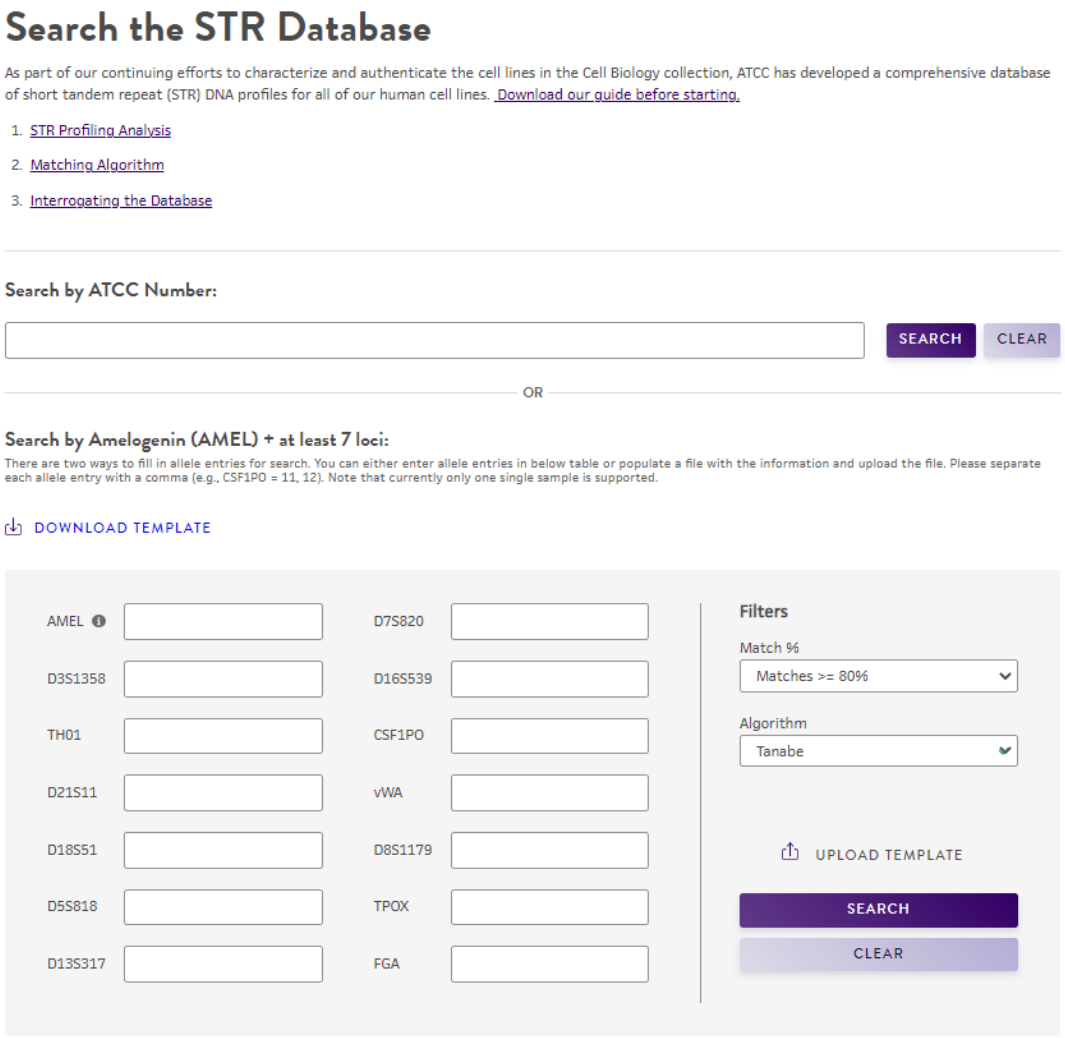
STR Profile Background

- 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

ATCC®

Using the Public STR Database



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

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

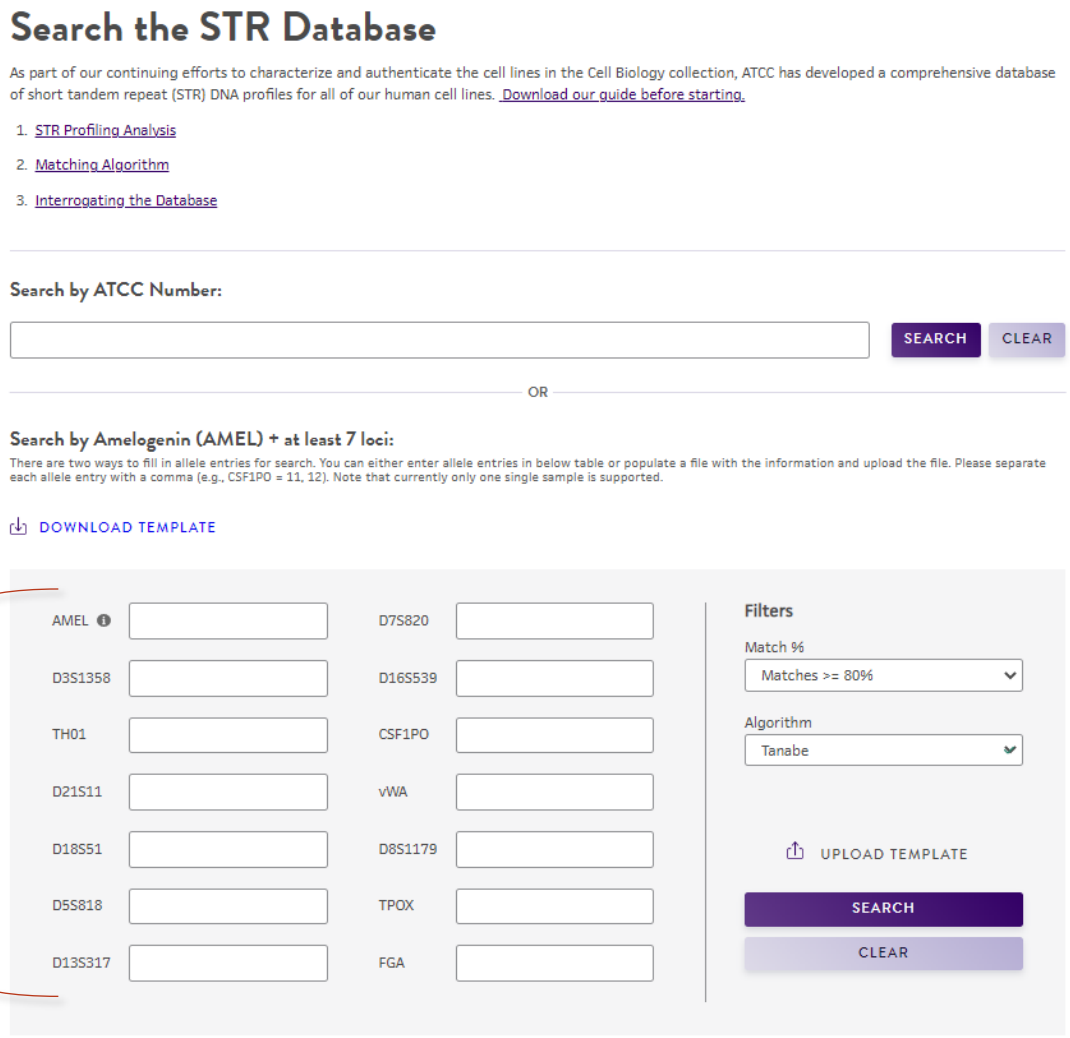
There is a very simple registration required to access the database.

Using the Public STR Database

There are multiple choices:

1. Search by ATCC number to obtain an STR profile

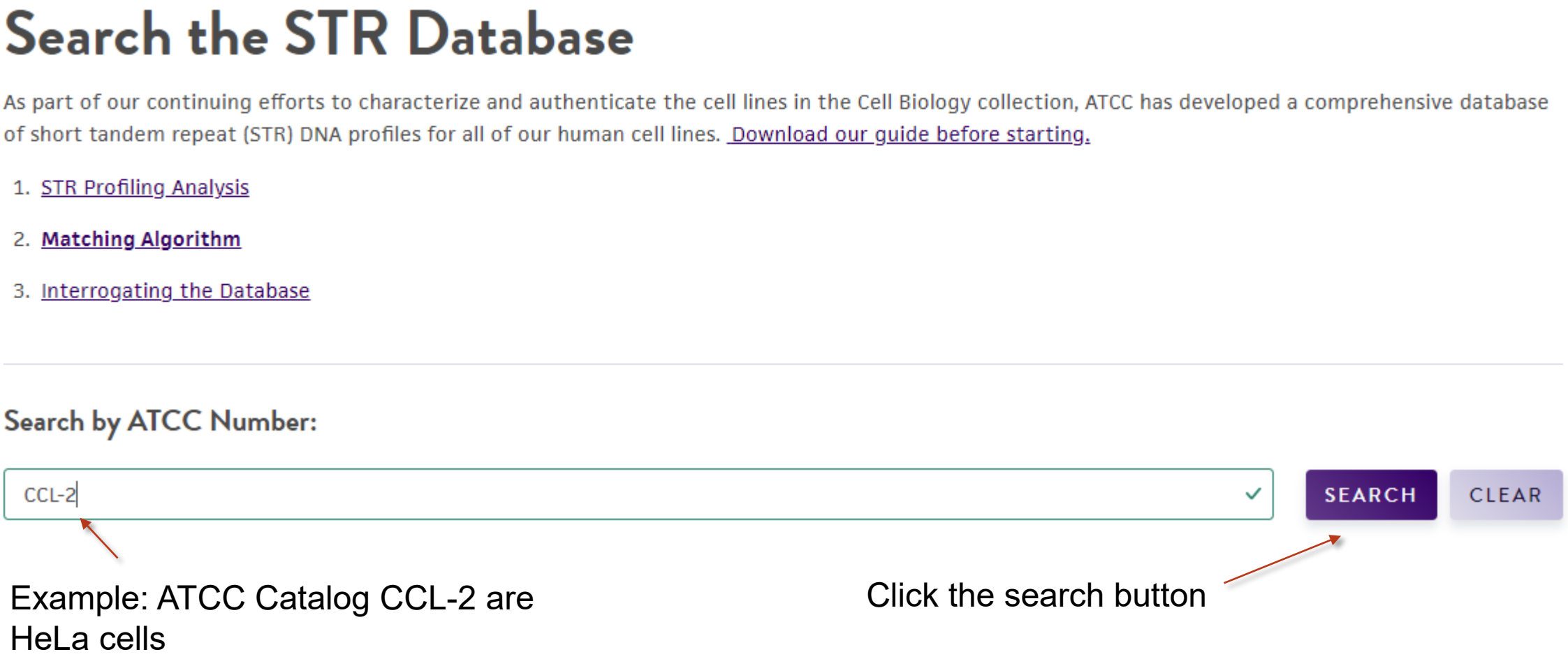
2. Input a profile into the loci fields to compare it against the ATCC public database



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

1. Search by ATCC Number

to obtain an STR Profile



Example: ATCC Catalog CCL-2 are HeLa cells

Click the search button

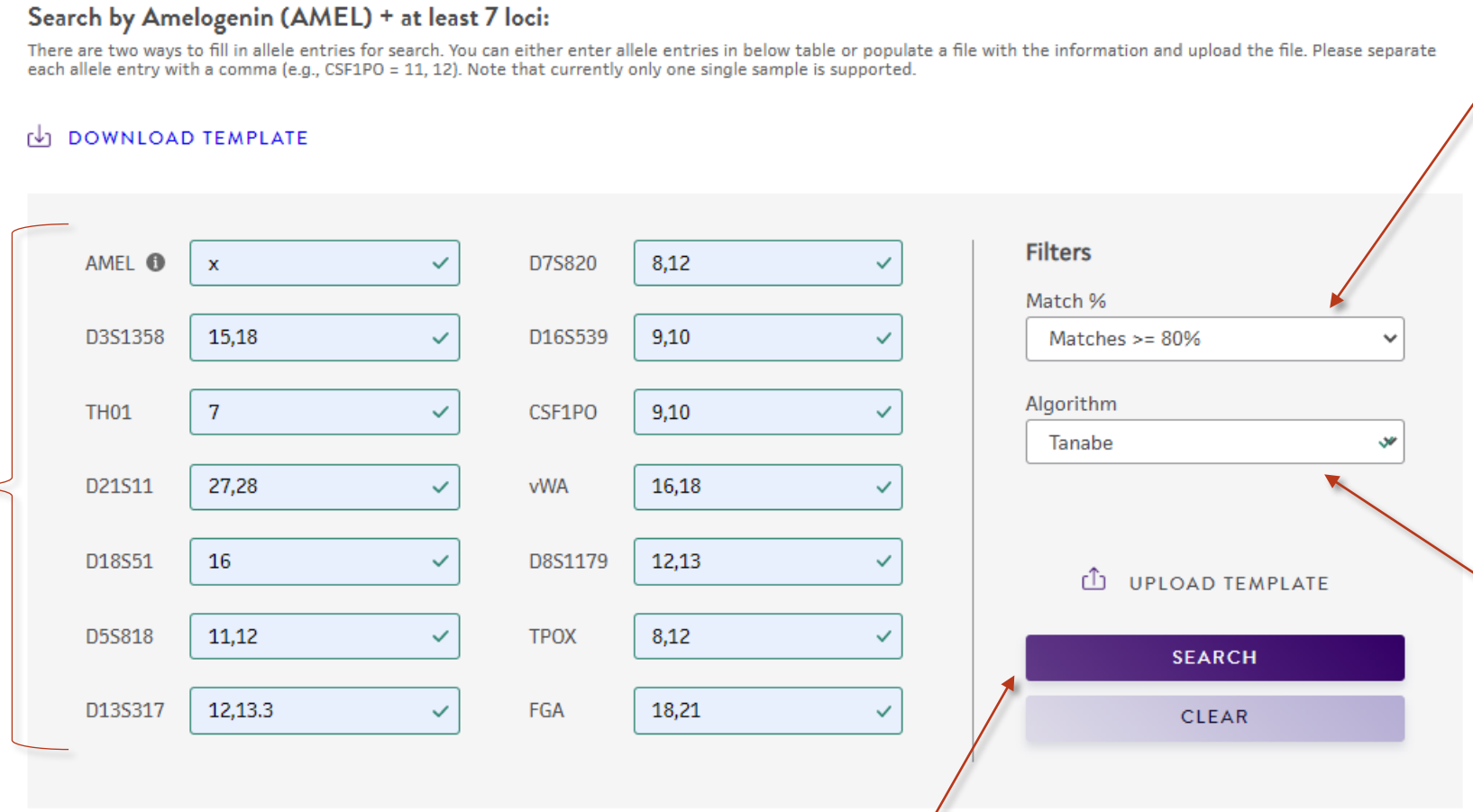
2. Search by STR Profile

to Match Against Other Profiles in the Database

Input a profile to compare to the ATCC public database:

Profile from CCL-2 HeLa cell line

Separate alleles using a comma
For homozygous use a single number and NOT “7,7” for example.



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

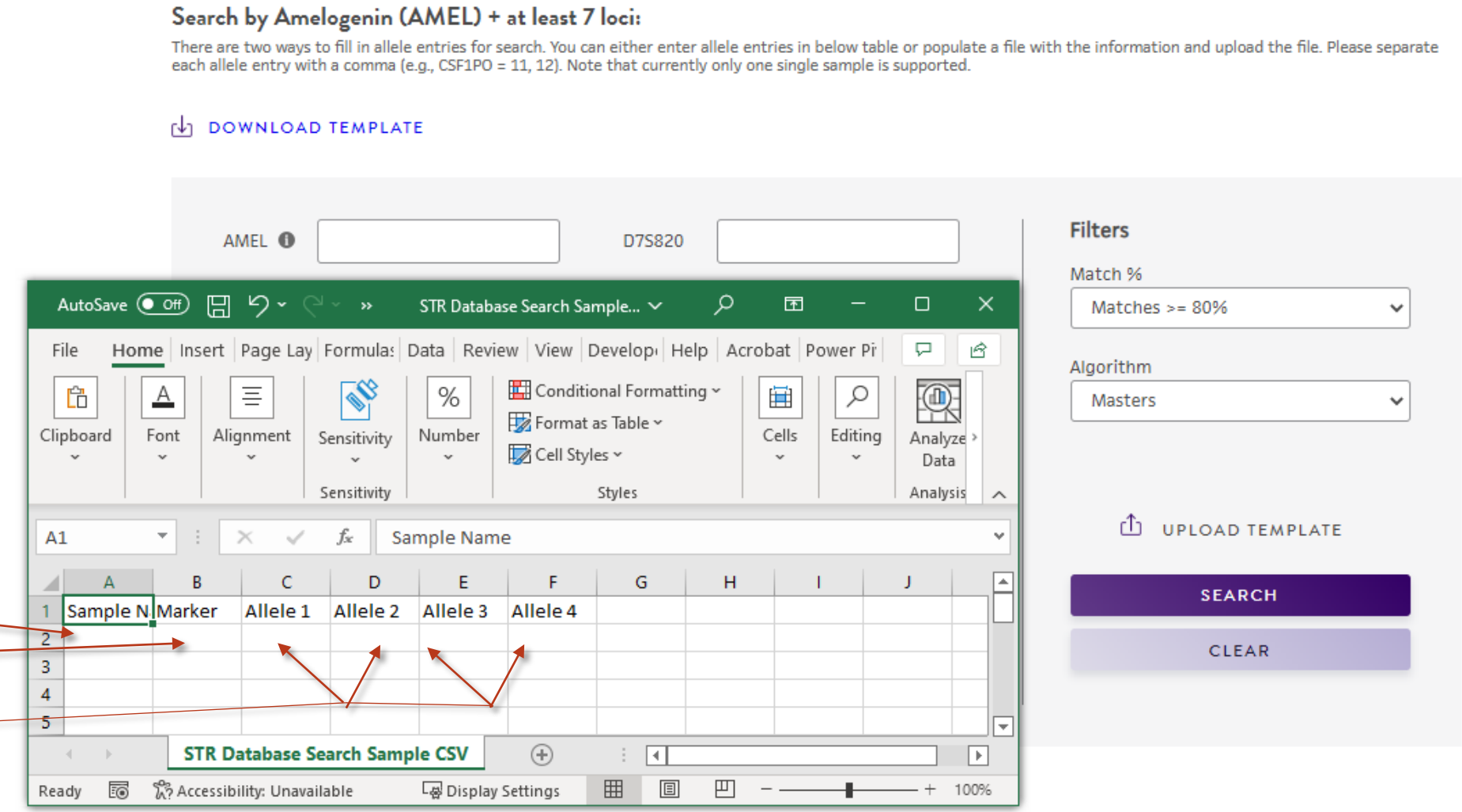
Select matching algorithm: Tanabe or Masters

Click the search button

3. Search by uploading a file

to Match Against Other Profiles in the Database

Download .CSV TEMPLATE

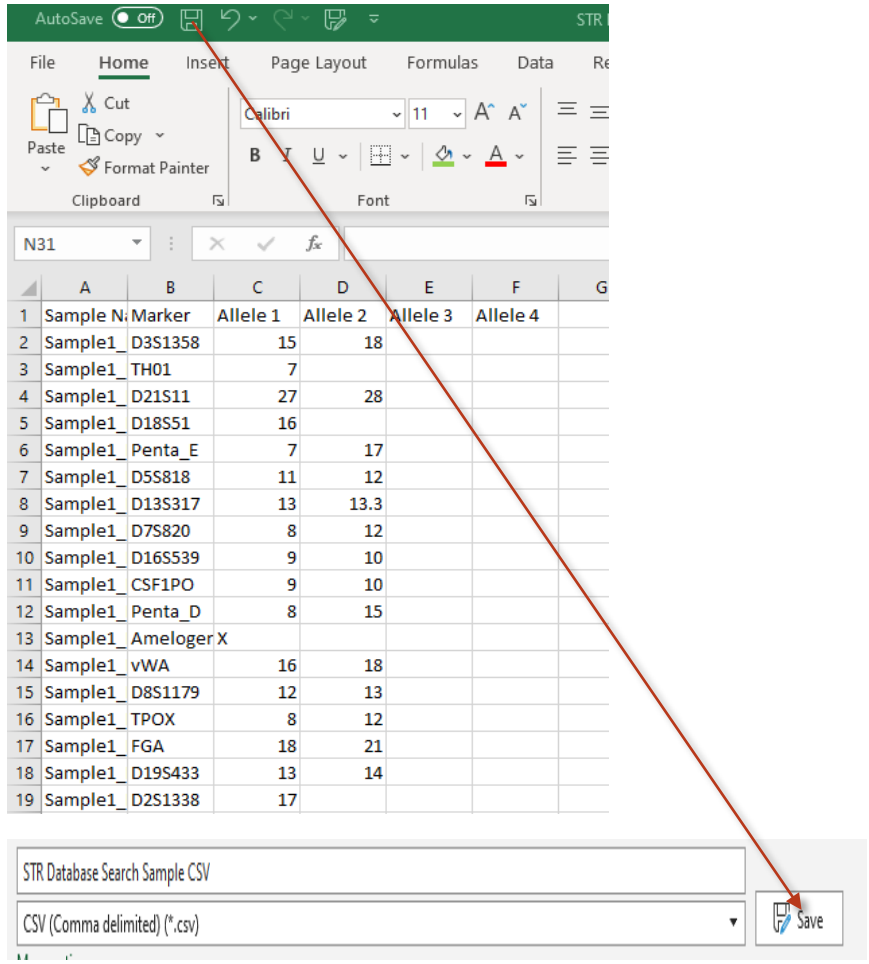


Enter:
Sample Name
Marker/Locus
Alleles (1 allele/cell)

3. Search by uploading a file (continued)

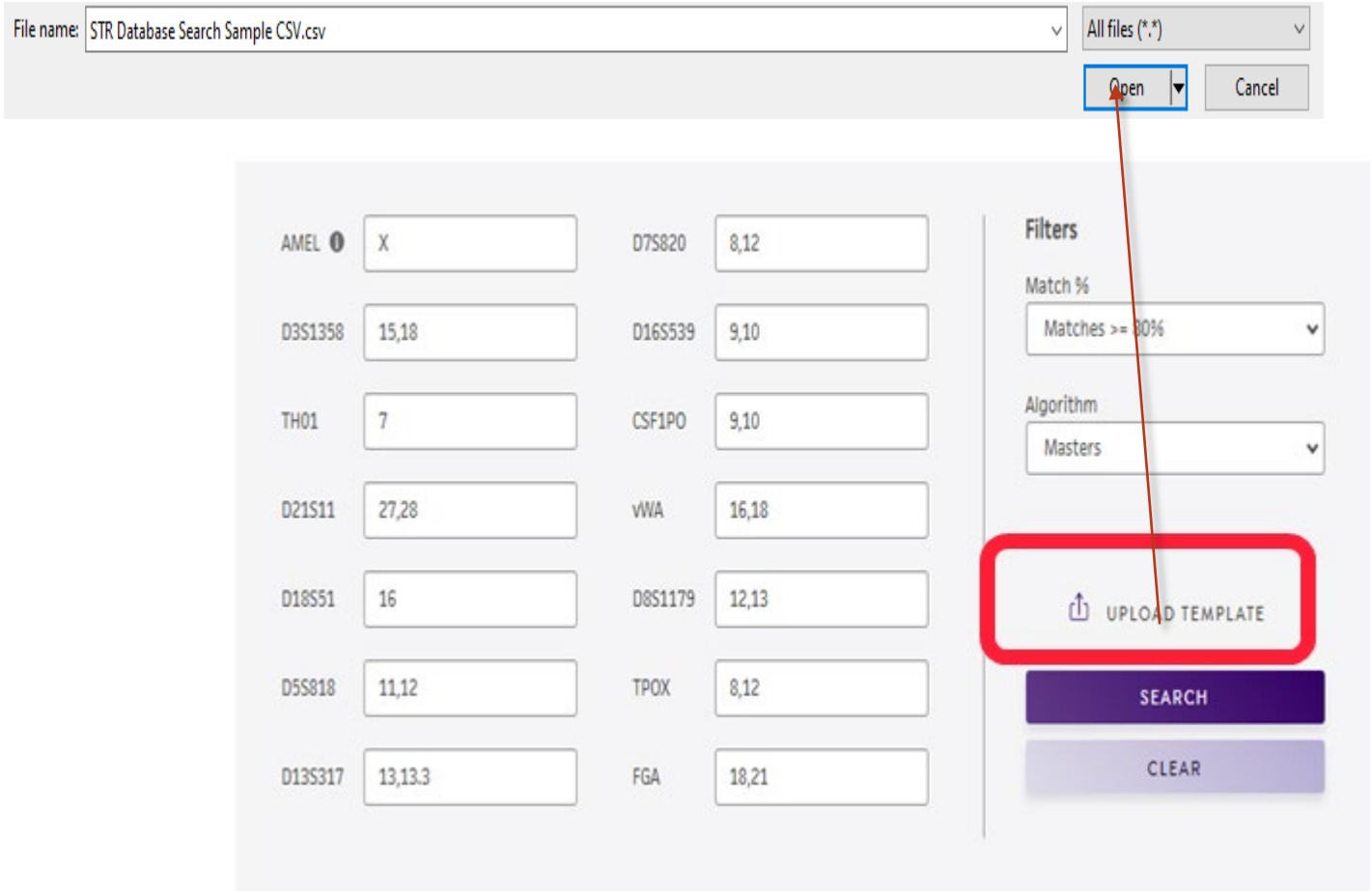
to Match Against Other Profiles in the Database

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



	A	B	C	D	E	F
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.



ATCC. Confidential and Proprietary

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

Use the slider to see data for additional loci

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
☐	100.0	CCL-2	HeLaCervical AdenocarcinomaHuman	11,12	12,13.3	8,12	9,10	16,18	7	X	8,12	9,10	1
☐	100.0	CCL-5	L132Cervical carcinomaHuman	11,12	12,13.3	8,12	9,10	16,18	7	X	8,12	9,10	
☐	100.0	CCL-6	Intestine 407HeLa ContaminantHuman	11,12	12,13.3	8,12	9,10	16,18	7	X	8,12	9,10	
☐	100.0	CCL-13	Chang LiverHeLa ContaminantHuman	12	12,13.3	8,12	9,10	16,18	7	X	8,12	10	
☐	100.0	CCL-17	KBHeLa ContaminantHuman	11,12	12,13.3	8,12	9,10	16,18	7	X	8,12	9,10	
☐	100.0	CCL-21	AV-3AmnionHuman	11,12	13.3	12	9,10	16,18	7	X	8,12	9,10	

ADD TO CART | EXPORT TO EXCEL

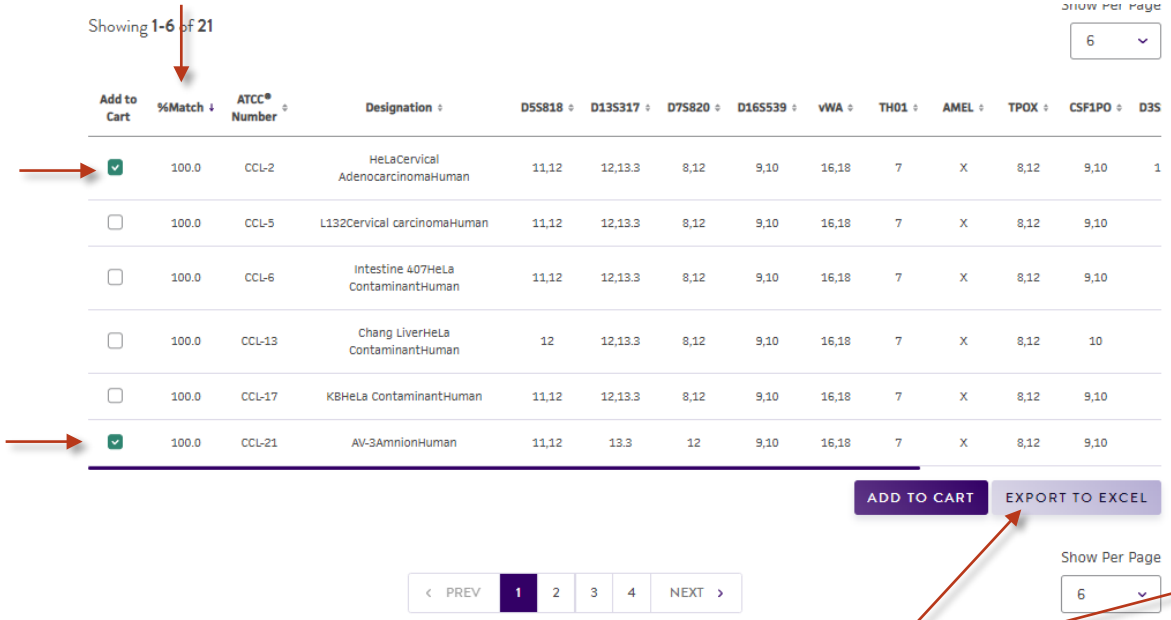
Show Per Page: 6

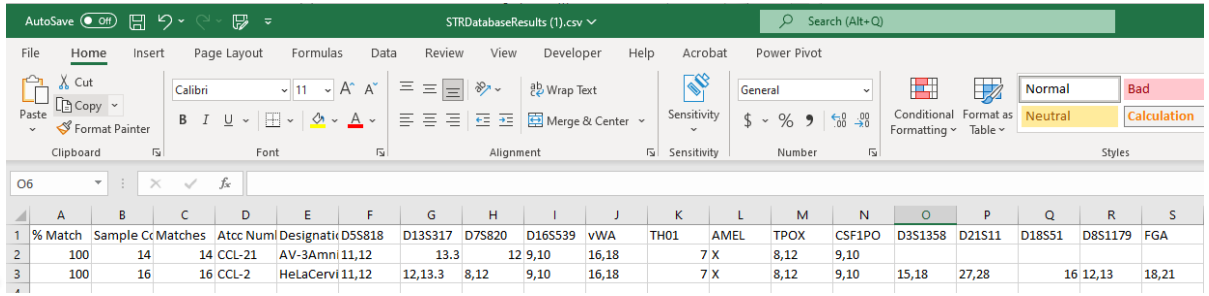
‹ PREV | 1 | 2 | 3 | 4 | NEXT ›

Exporting Results

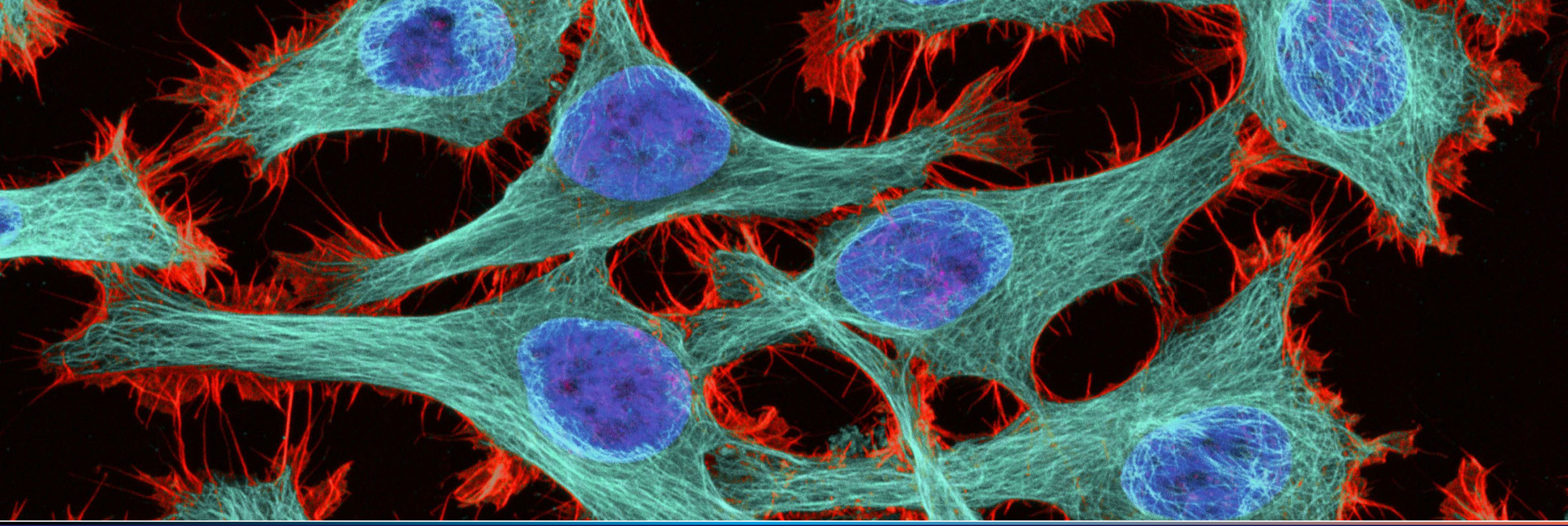
to Match Against Other Profiles in the Database

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





Export your data to Excel



Check your cells…Trust your data

Consider ATCC STR Cell Authentication