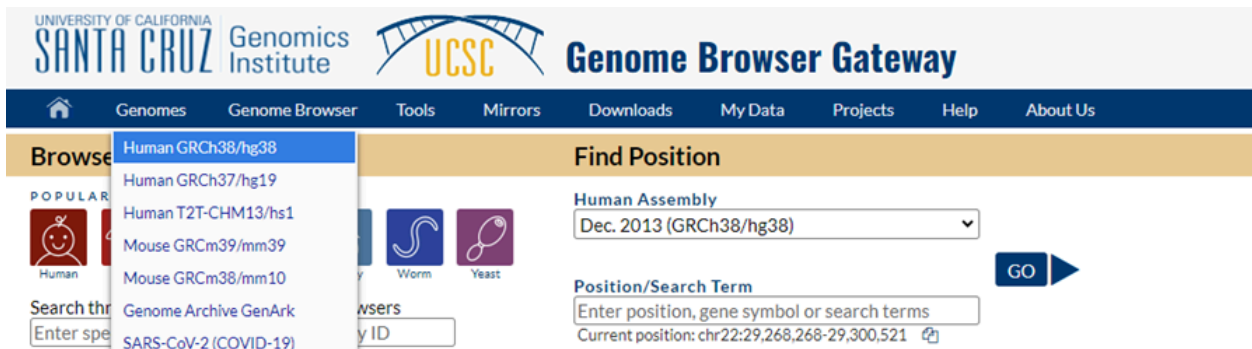


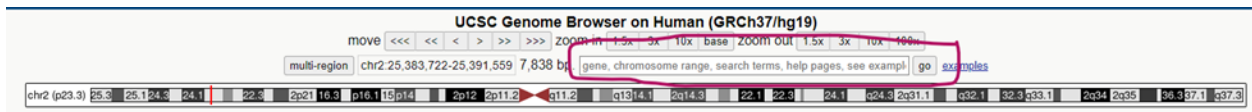
FISH BAC Probe Selection using the UCSC Genome Browser

WebLink: [UCSC Genome Browser](#)

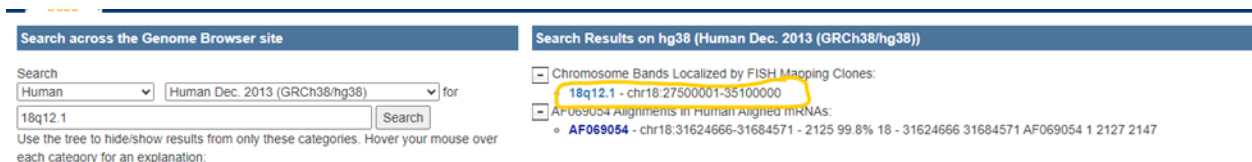
- Once on the genome browser page, hover over the 'Genomes' Tab to reveal available genome builds and select your genome build, most FISH probes currently utilize GRCh37/hg19 build.



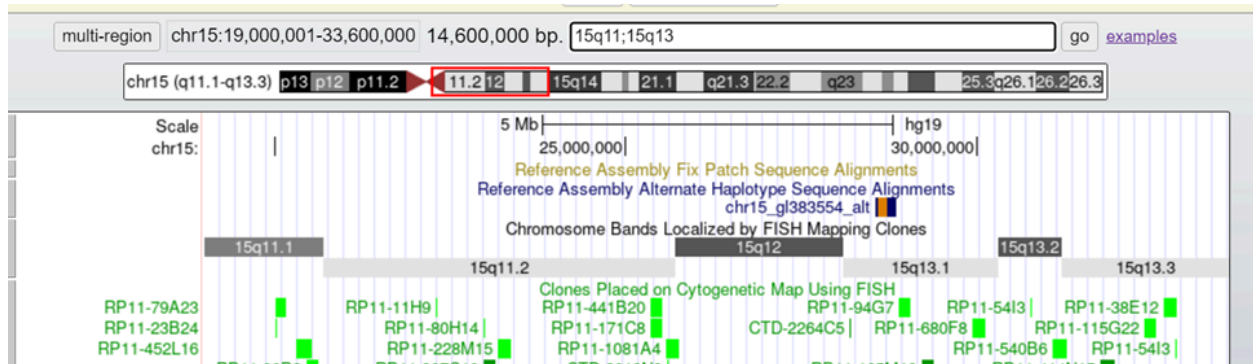
- Enter the chromosome region in the search box below and hit Enter or click on the Go button. For example, type in 18q12.1.



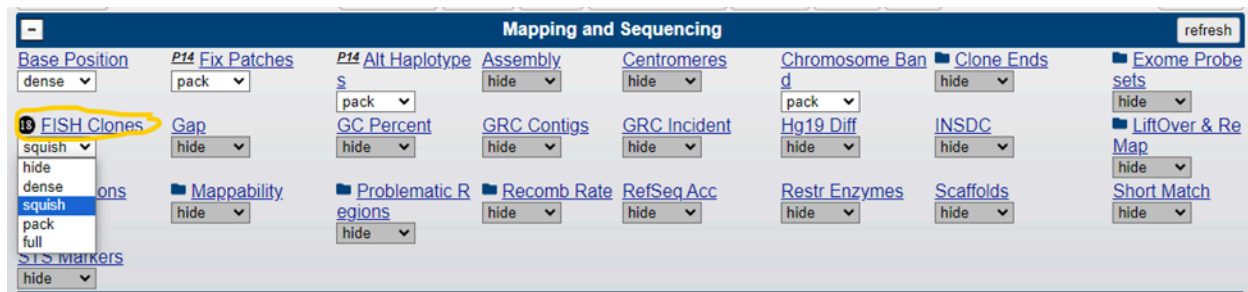
- You may arrive at this page, select your region under the "Chromosome Bands Localized by FISH Mapping Clones" section.



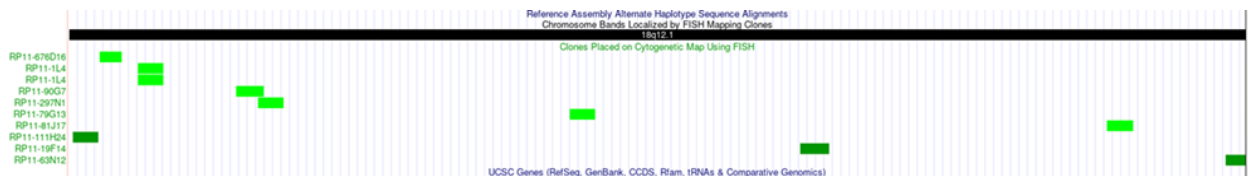
- For a larger region or segment: type in the region of interest with a semicolon (;) separating the proximal and distal segments of the region.



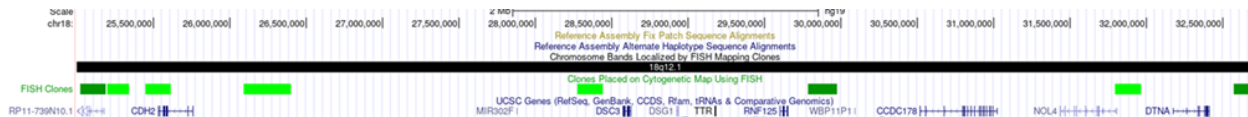
5. Below the Browser track, in the Mapping and Sequencing tab (which is categorized in alphabetical order) unhide the FISH Clones if hidden - select pack, squish, dense or full display and click on the Refresh button in the top right of the Mapping and Sequencing tab.



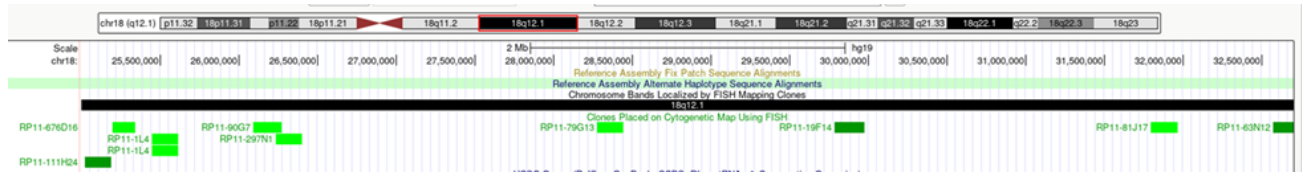
a) Full: aligns each probe on a track as its own entity



b) Dense: aligns all probes in the region on one row/track and you can hover to see the name of each probe.



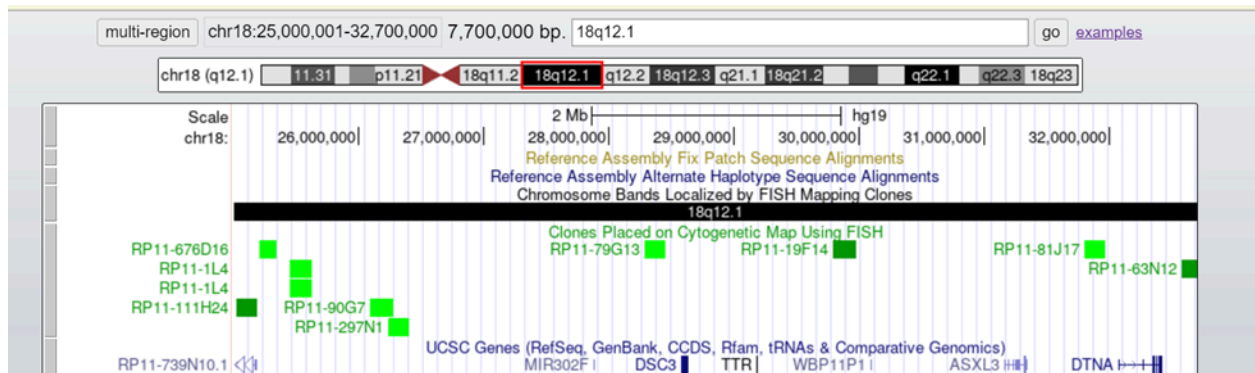
c) Pack: aligns the probes on multiple tracks in overlapping regions, don't need to hover to see the probe name.



d) Squish: similar to dense but displays overlapping probes on a different track, without the probe name.



e) The track displayed below shows the FISH BAC Clones when the 'pack' display is selected, it also shows you the location of each probe relative to your region.



6) Determine which probe is appropriate for your region duplication or deletion by also correlating with the [eFISH](#) website for possible cross-hybridization to other locations in the genome. eFISH is similar to in-silico PCR tool testing using BLAST, the software will display a peak for regions your selected probe can hybridize to. In the example below, I chose RP11-19F14, one of the suggested probes from our search.

a) Upon arrival at the [eFISH](#) website, type in the probe name as shown below.

Search for FISH Probes

Searching: Keyword:

Examples: [Ctd-2089N14 chr7:74,940,080..75,040,079 7p22.2](#)

Submit New

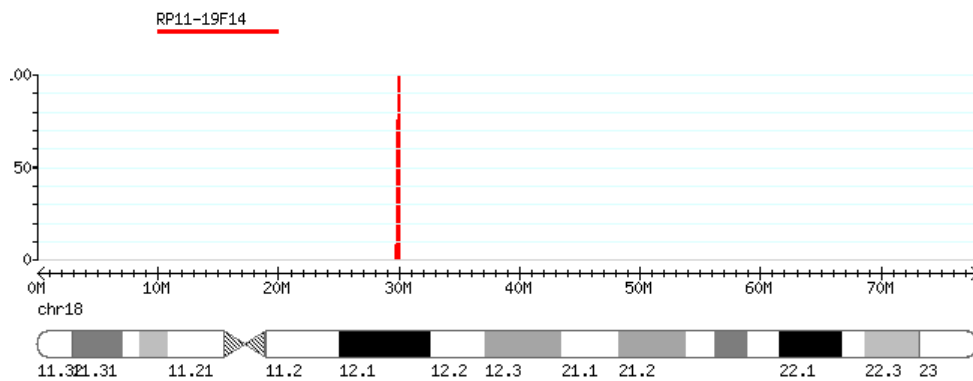
Genome:

Probes: AC073062; [RP11-668D21 chr7:71312607..71482932](#) Not DNA sequence.)"/>

Note: please use the [standardized clone name!](#)

b) Click on the Submit button.

Genome:	Human Genome - Feb. 2009 Assembly (GRCh37/hg19)
Mapped Probes:	RP11-19F14 (chr18:29784362..29973029 BAC_End) DGV UCSC
Show Chromosomes:	<input checked="" type="checkbox"/> chr18 <input type="button" value="Check All"/> <input type="button" value="Uncheck All"/>
Show Probes:	<input checked="" type="checkbox"/> RP11-19F14 [chr18]
Max Score (Y axis):	<input checked="" type="radio"/> 100 <input type="radio"/> 50 <input type="radio"/> 10 <input type="radio"/> 6
Image Width:	<input type="radio"/> 1000 <input checked="" type="radio"/> 2000 <input type="radio"/> 4000
<input type="button" value="Refresh"/>	



7) In the result window, click on the hyperlinked probe name to see the areas that your probe hybridizes to. In the Megablast result window, all the regions are located on chromosome 18, and the peaks are centered at the region of interest.

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Genome: Human Genome - Feb. 2009 Assembly (GRCh37/hg19)
Mapped Probes: RP11-19F14 (chr18:29784362..29973029 | BAC_End) DGV UCSC

Show Chromosomes: chr18
 Check All Uncheck All

Show Probes: RP11-19F14 [chr18]

Max Score (Y axis): 100 50 10 6
Image Width: 1000 2000 4000

RP11-19F14 Megablast Result

subject	target	Perc. Ident.	Length	Mismatch	Gap	Subject Chr.	sStart	sStop	Target Chr.	tStart	tStop	E-value	Score
Probe1	chr18	100	15639	0	0	chr18	29784362	29800000	chr18	29784362	29800000	0.0	1.847e 05
Probe1	chr18	100	65639	0	0	chr18	29784362	29850000	chr18	29784362	29850000	0.0	1.847e 05
Probe1	chr18	100	100000	0	0	chr18	29800001	29900000	chr18	29800001	29900000	0.0	1.847e 05
Probe1	chr18	98.85	86	0	1	chr18	29820142	29820227	chr18	61297445	61297531	3e-34	154
Probe1	chr18	100	100000	0	0	chr18	29850001	29950000	chr18	29850001	29950000	0.0	1.847e 05
Probe1	chr18	100	73029	0	0	chr18	29900001	29973029	chr18	29900001	29973029	0.0	1.847e 05
Probe1	chr18	100	23029	0	0	chr18	29950001	29973029	chr18	29950001	29973029	0.0	1.847e 05
Probe1	chr18	94.17	103	6	0	chr18	29950652	29950754	chr18	29950739	29950841	2e-35	158
Probe1	chr18	94.17	103	6	0	chr18	29950739	29950841	chr18	29950652	29950754	2e-35	158

* Start and Stop coordinates are absolute, based on the actual location on the genome.

8) Finally, when ordering from your lab's preferred vendor, be sure to have selected an appropriate control region with your region's probe for confirmation.

Author Information and Affiliations:

Joie Olayiwola, PhD, FACMG

The Ohio State University Wexner Medical Center

Cytogenetics Division, Pathology Department

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