Chordoma Foundation Cell Line Validation

UM-Chor5

Cell Line Phenotype and Expression Analysis Report April 20, 2018



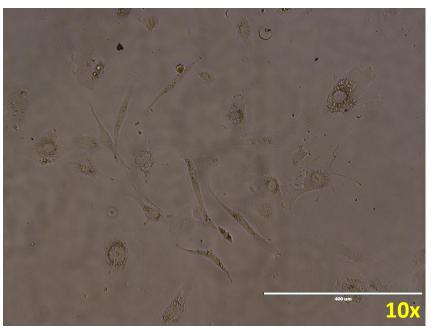
Cell Line Receiving

| Format Received | Date Received | Condition | Quantity | Passage | Initial Cell Count | Initial Cell Viability |
|-----------------|----------------|-----------|----------|---------|--------------------|------------------------|
| | | | | | | |
| Live Cells | March 13, 2018 | N/A | 2 | 17 | n/a | n/a |

Growth Conditions

Media:

4:1 IMDM/RPMI + 20% FBS + 1X Non Essential Amino Acids + Pen/Strep + 1X Anti-anti →Passage when ~80-90% confluent →Change media every 2-3 days

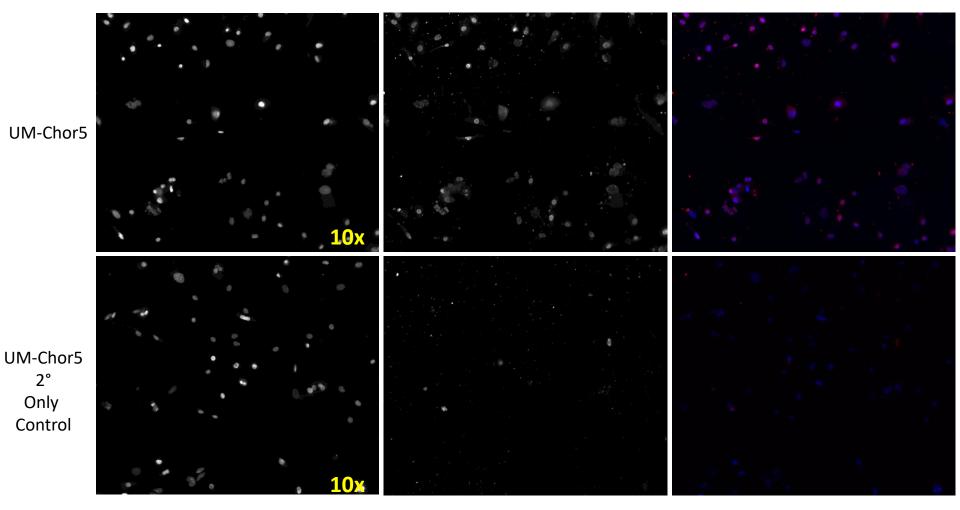


UM-Chor5 arrival, live in T25.



Cell Line Immunofluorescence Validation

UM-Chor5 Anti-Brachyury versus Secondary-only Negative Control



Hoechst Nuclear Stain

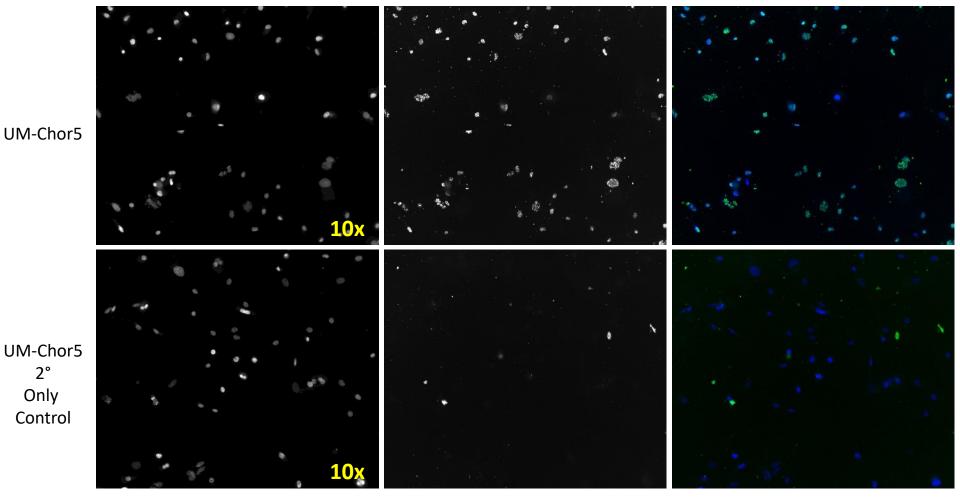
Brachyury

Color Composite



Cell Line Immunofluorescence Validation

UM-Chor5 Anti-CD24 versus Secondary-only Negative Control



Hoechst Nuclear Stain

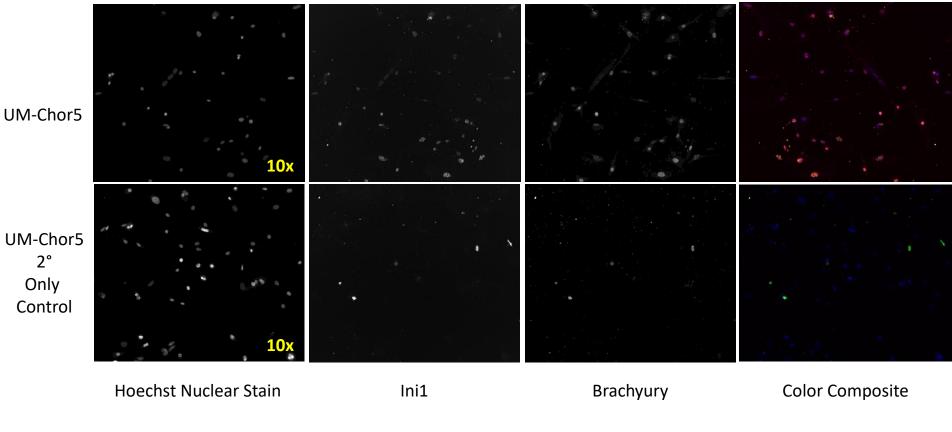


Color Composite



Cell Line Immunofluorescence Validation

UM-Chor5 Anti-Ini1 versus Secondary-only Negative Control



Comments:

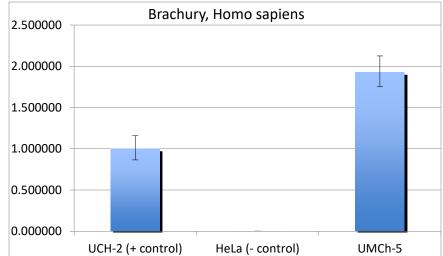
Ini1 signal is positive and nuclear.

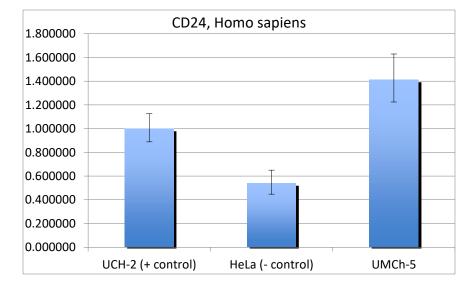


Cell Line PCR Validation

Relative quantification of Brachyury and CD24 gene in UM-Chor5 cell line

| <u>Brachury, Homo</u> | | |
|-----------------------|---------------------------------|--|
| <u>sapiens</u> | Neg. Error | Pos. Error |
| | | |
| 1.000000 | 0.135689 | 0.156991 |
| 0.001345 | 0.000168 | 0.000192 |
| 1.929321 | 0.177805 | 0.195855 |
| | sapiens 1.000000 0.001345 | sapiens Neg. Error 1.000000 0.135689 0.001345 0.000168 |





| Sample | <u>CD24, Homo</u> sapiens | Neg. Error | Pos. Error |
|------------------|------------------------------|------------|------------|
| UCH-2 (+ | | | |
| control) | 1.000000 | 0.111536 | 0.125538 |
| HeLa (- control) | 0.539107 | 0.091686 | 0.110475 |
| UMCh-5 | 1.412872 | 0.187716 | 0.216477 |



Tables and associated graphs depict relative quantification of N (top table and graph) and Z (bottom table and graph) gene expression/RNA in TEST cell samples. Gene expression across all assessed lines is set relative to the positive control sample, which is et at 1. The X-axis represents cell lines assessed and the Y-axis represents gene expression relative to positive control.

Cell Line Validation Results

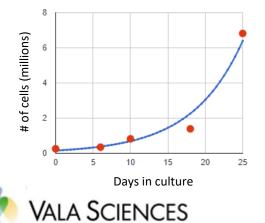
Results summary report of UM-Chor5

| TEST | SPECIFICATION | RESULTS |
|----------------|-------------------------------|---------|
| Cell Growth | Immortilized | Pass |
| STR Analysis | Human, unique | Pass |
| IF Validation | Signal in nucleus | Pass |
| PCR Validation | Expressing Brachyury and CD24 | Pass |

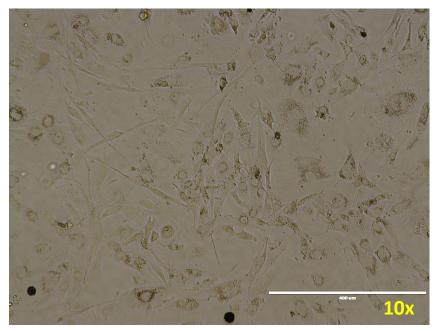
Cell lot generated

| Stock Lot# | 1027-0131 |
|----------------|-----------|
| Cells per vial | 300К |
| Lot Viability | 96% |
| Passages | 21 |

Cell Line Growth: Cell doubling time= 96 hours



Cell growth rates were calculated from an actively growing culture for four passages. Growth rates will likely be slower when calculated from a fresh thaw.



UM-Chor5, lot#1027-131