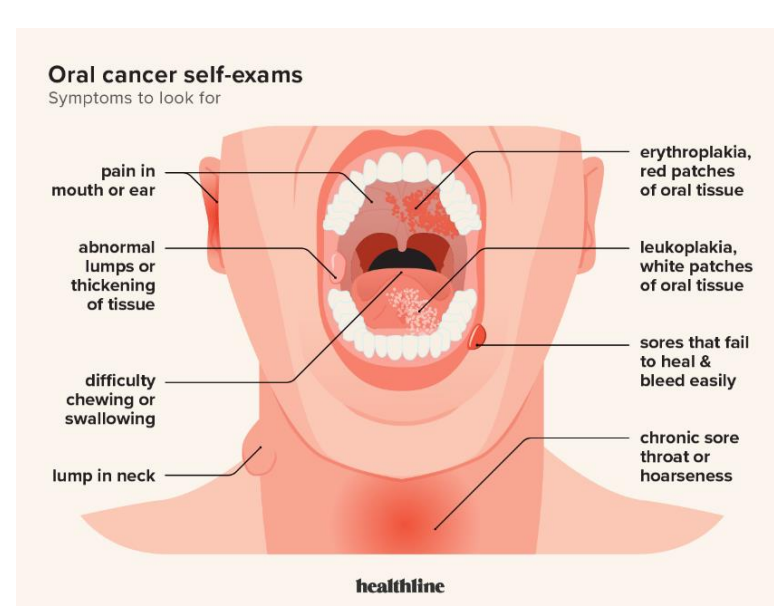


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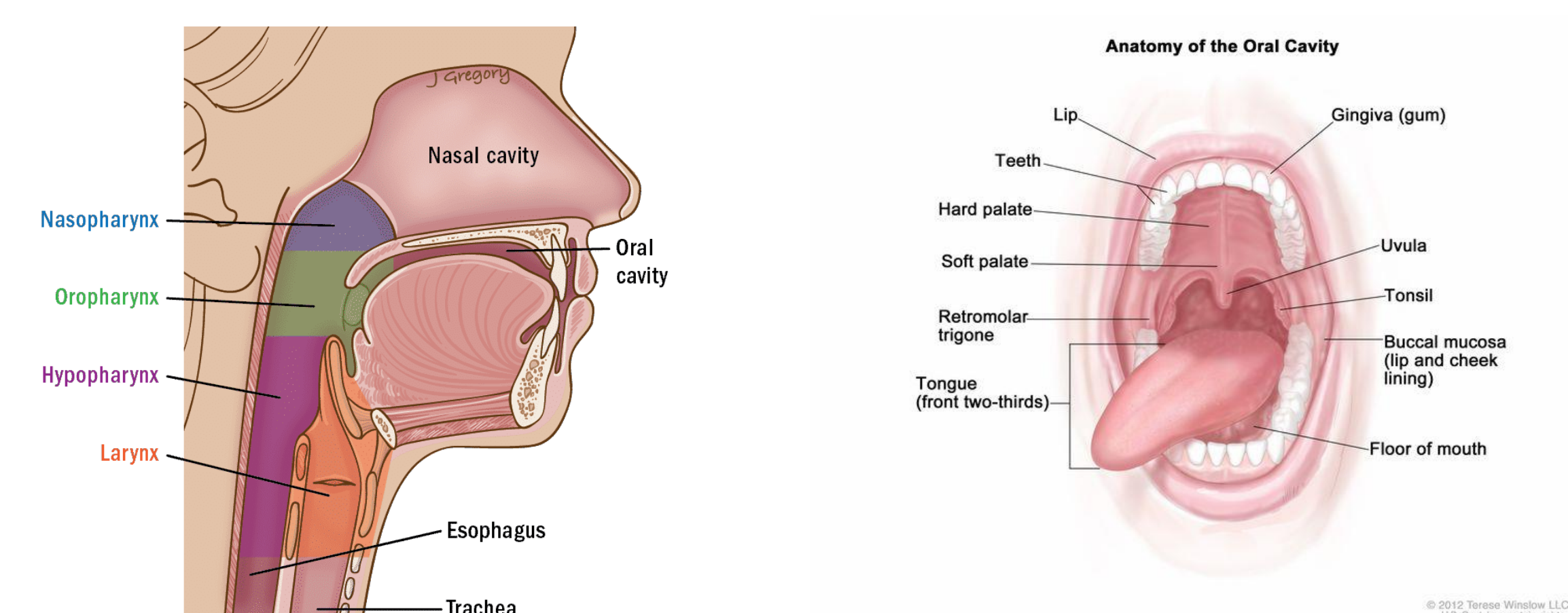
¹Mount Carmel Academy, ²Warren Easton High School, ³New Orleans Charter Science and Mathematics High School, ⁴Louisiana State University Health and Sciences Center

Introduction

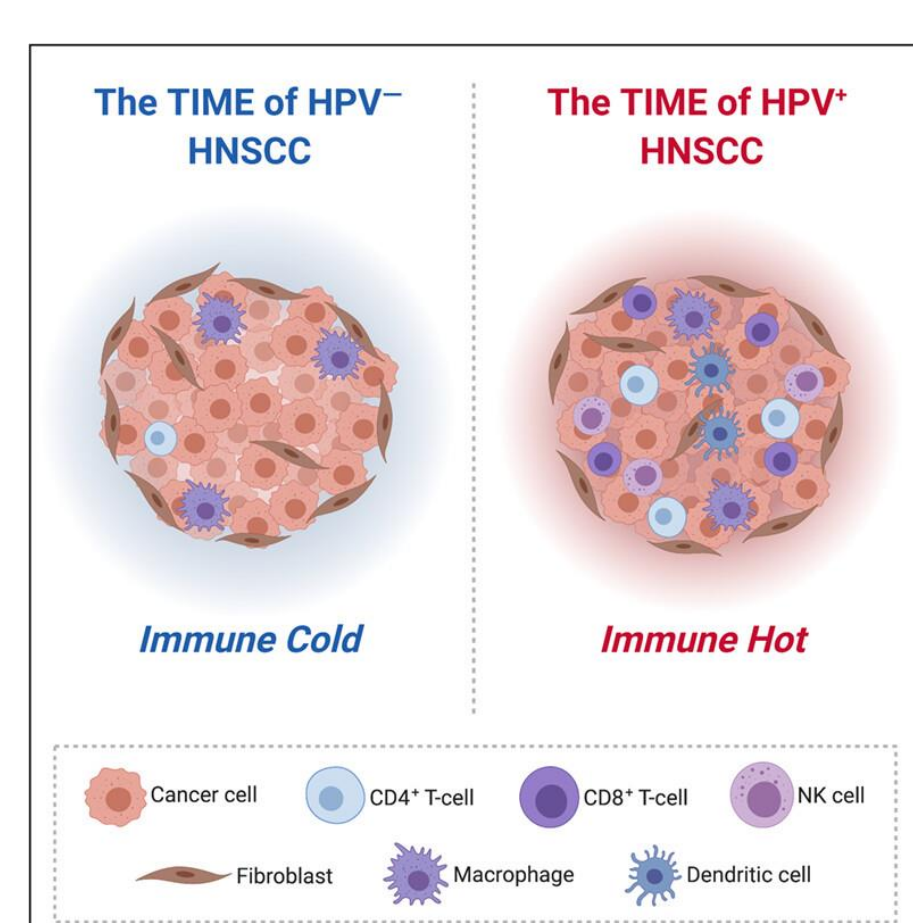
Oral squamous cell carcinoma (OSCC) is a type of skin cancer that affects the oral cavity. It is characterized by red or red and white, rough lesions. OSCC has a very high mortality rate. In its early stages, the five-year survival rate ranges from 63% to 83%. In its advanced stages, the five-year survival rate is 38%. The etiology of OSCC includes use of tobacco products, heavy alcohol usage, and natural and artificial sun exposure over a significant amount of time. It is estimated that the number of OSCC cases will rise by 40% by 2040.



Head and neck squamous cell carcinoma (HNSCC) involves cancers of the oral cavity, nasopharynx, oropharynx, hypopharynx, larynx, paranasal sinuses, and salivary glands. HNSCC is very aggressive and prone to metastasize. HNSCC also has an extremely low five-year survival rate.



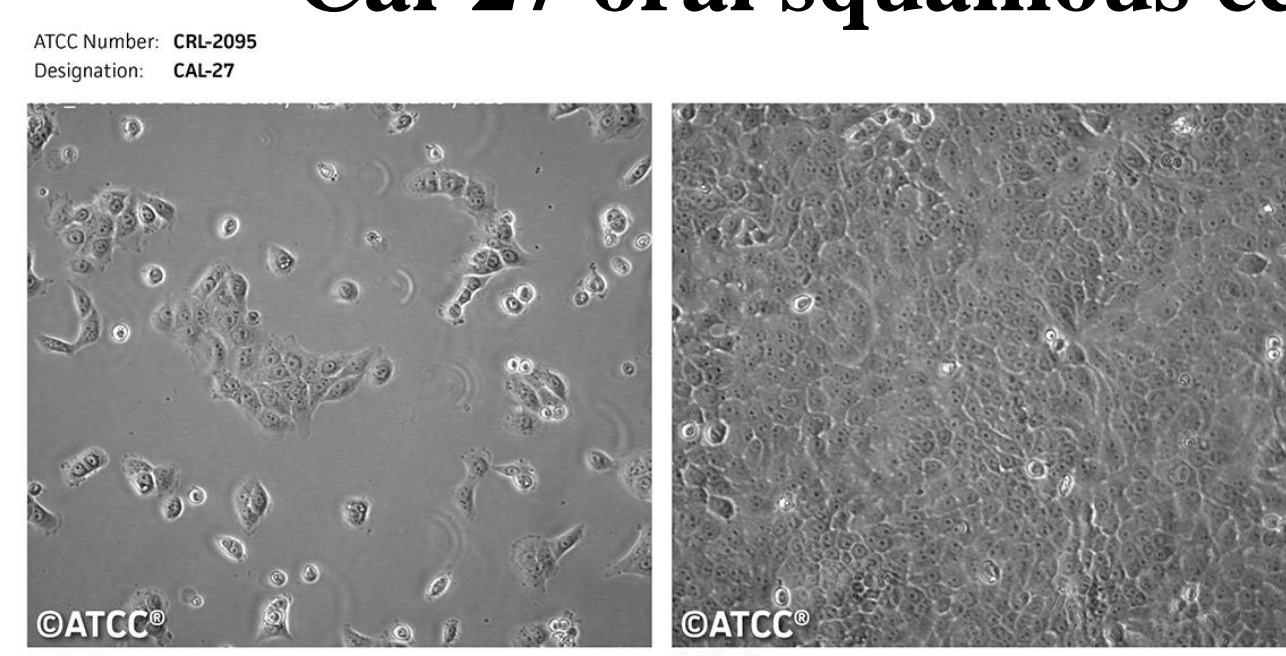
Human papillomavirus (HPV) is one of the most common sexually transmitted diseases. HPV is spread through skin-to-skin contact and is highly contagious. It is estimated around 14 million people in the U.S. are infected. Symptoms include warts or lumps on the skin. HPV can potentially lead to the development of OSCC.



Recent studies suggest that patients that are diagnosed with HPV-positive OSCC have a better prognosis than patients diagnosed with HPV-negative OSCC. OSCC HPV-positive has more obvious symptoms, and body defenses are more likely to respond to the infection.

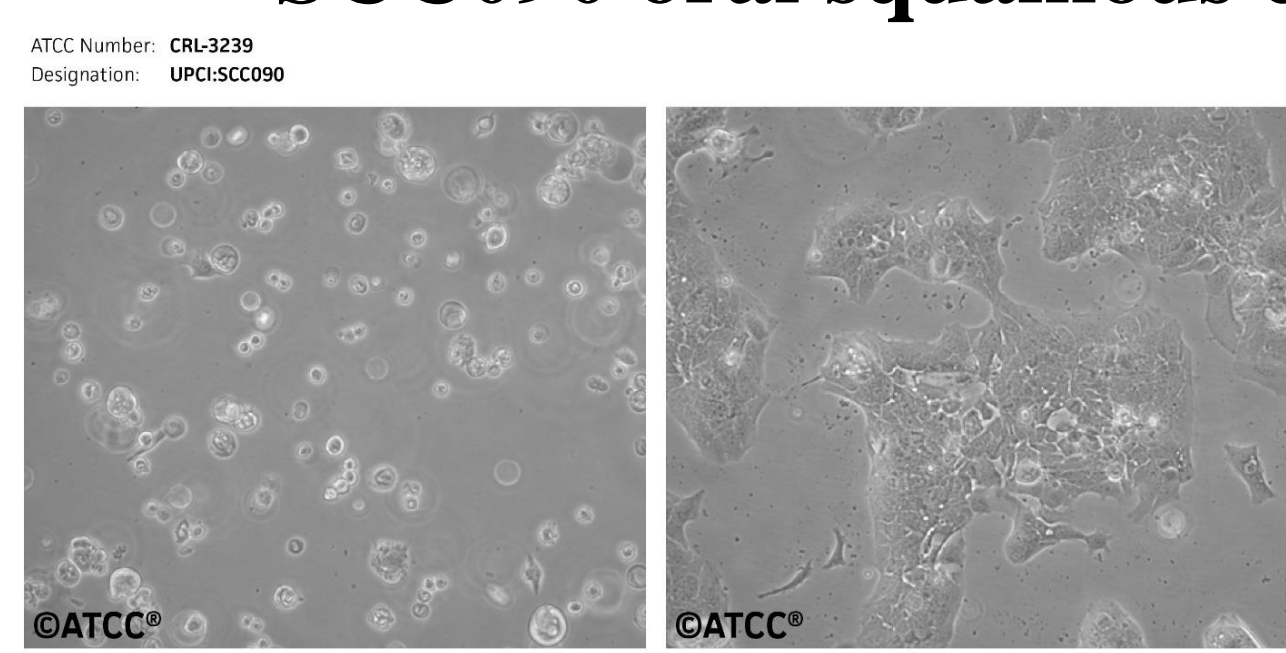
Cell Lines

Cal-27 oral squamous cells HPV-negative



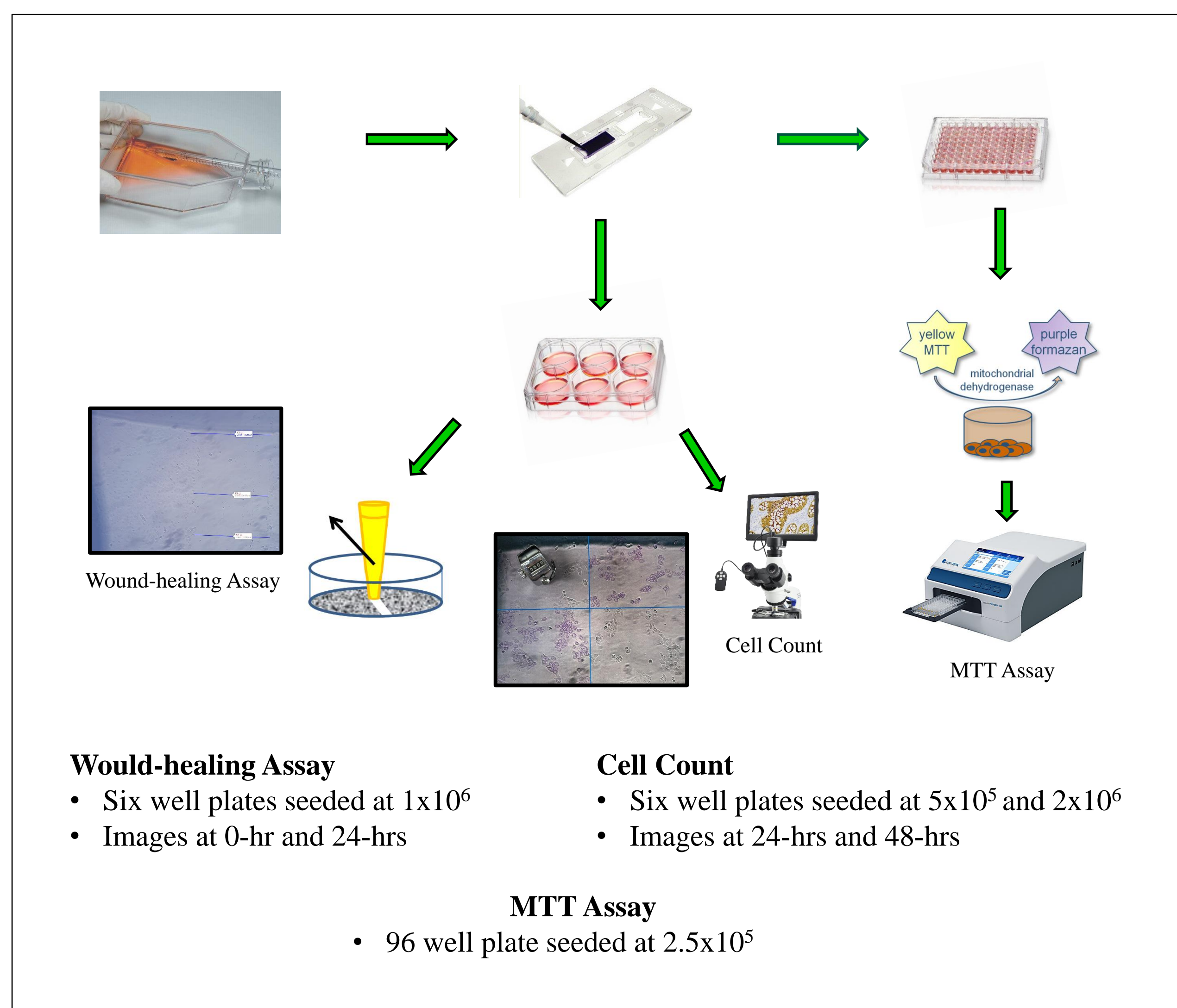
- Found on the middle of the tongue
- Taken from a 56-year-old, white male in 1982

SCC090 oral squamous cells HPV-positive



- Found on the base of the tongue
- Taken from a 46-year-old, white male in 1994

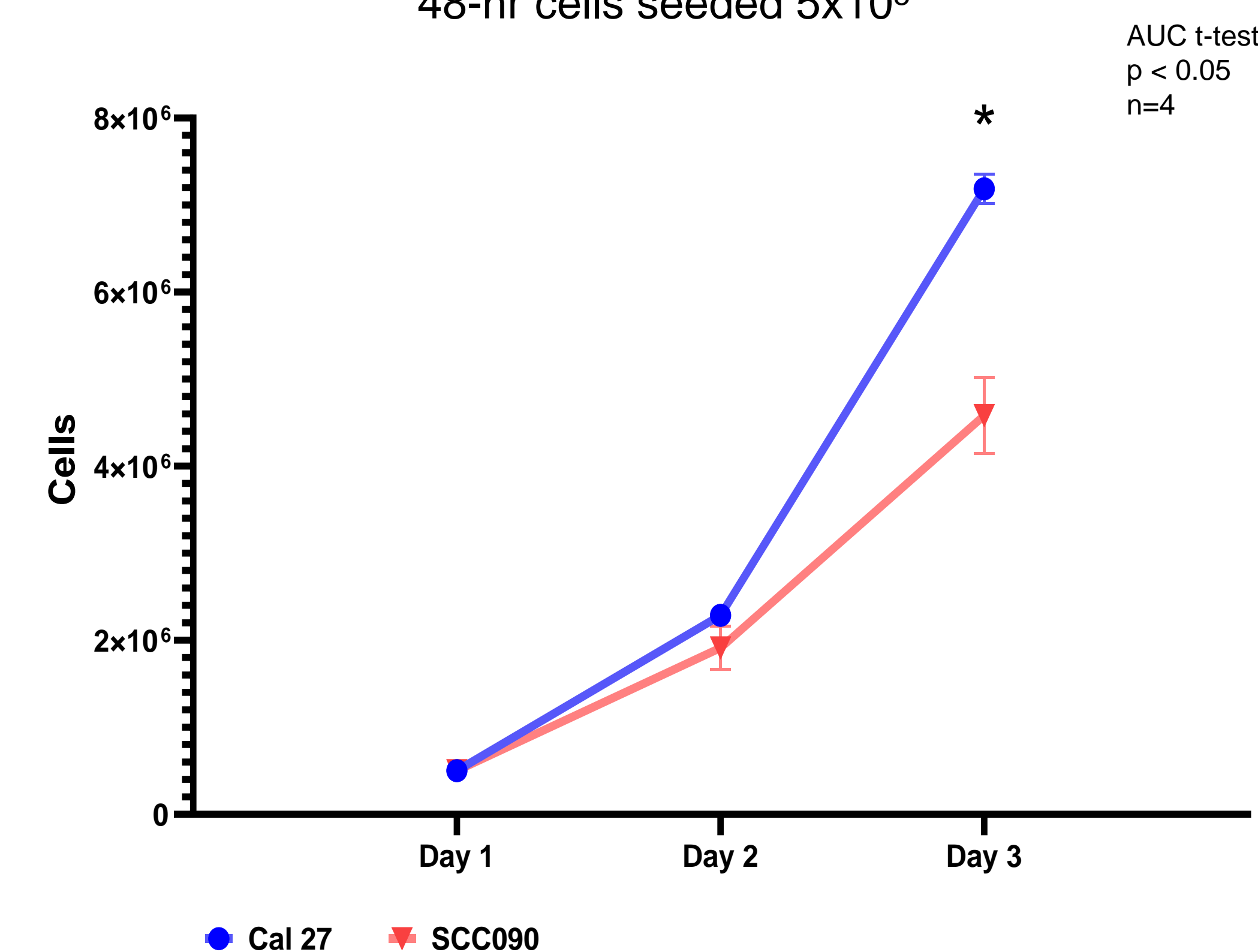
Methods



Growth Curve

Growth Curve Cal-27 vs SCC090

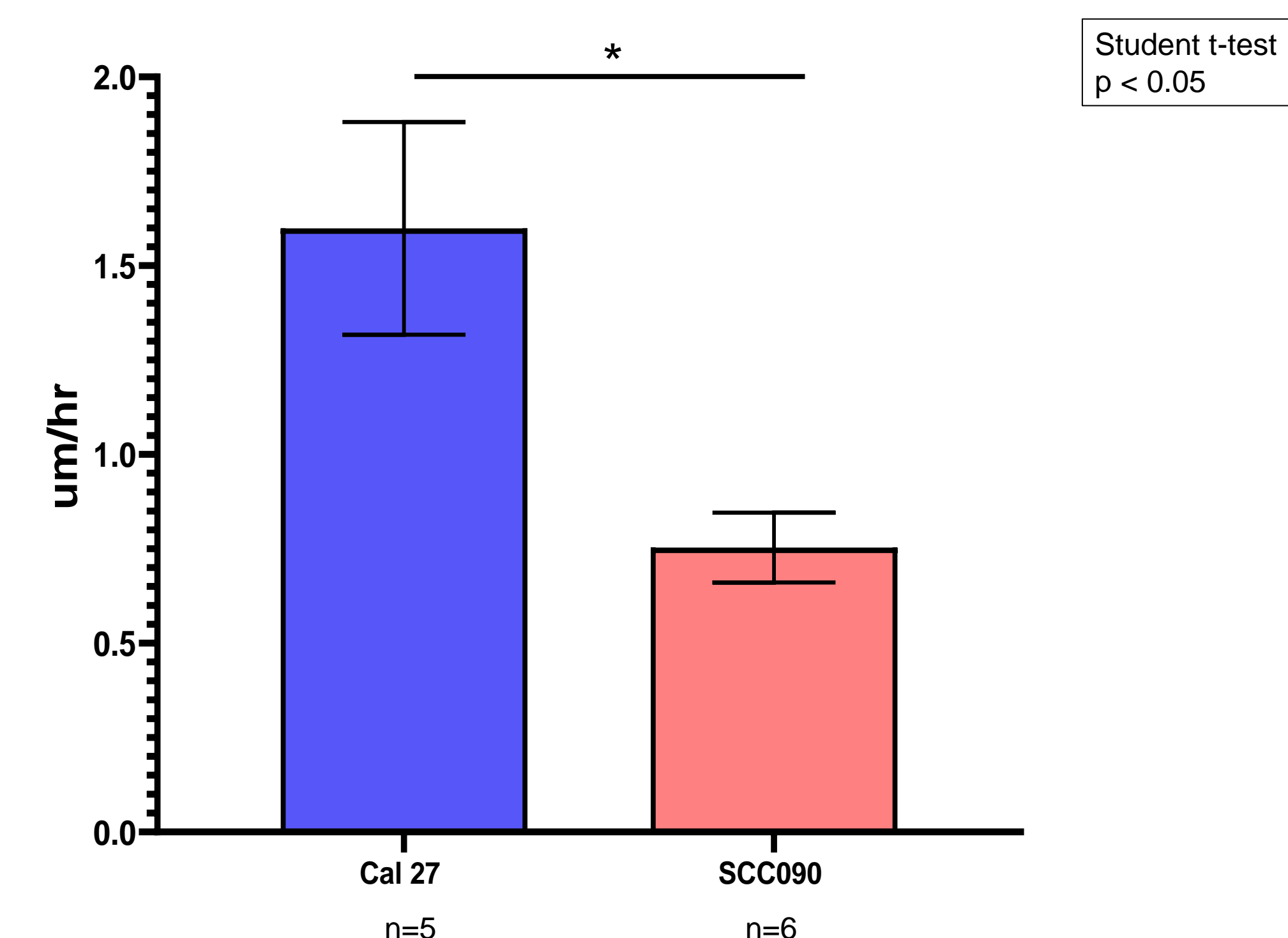
48-hr cells seeded 5×10^5



Motility

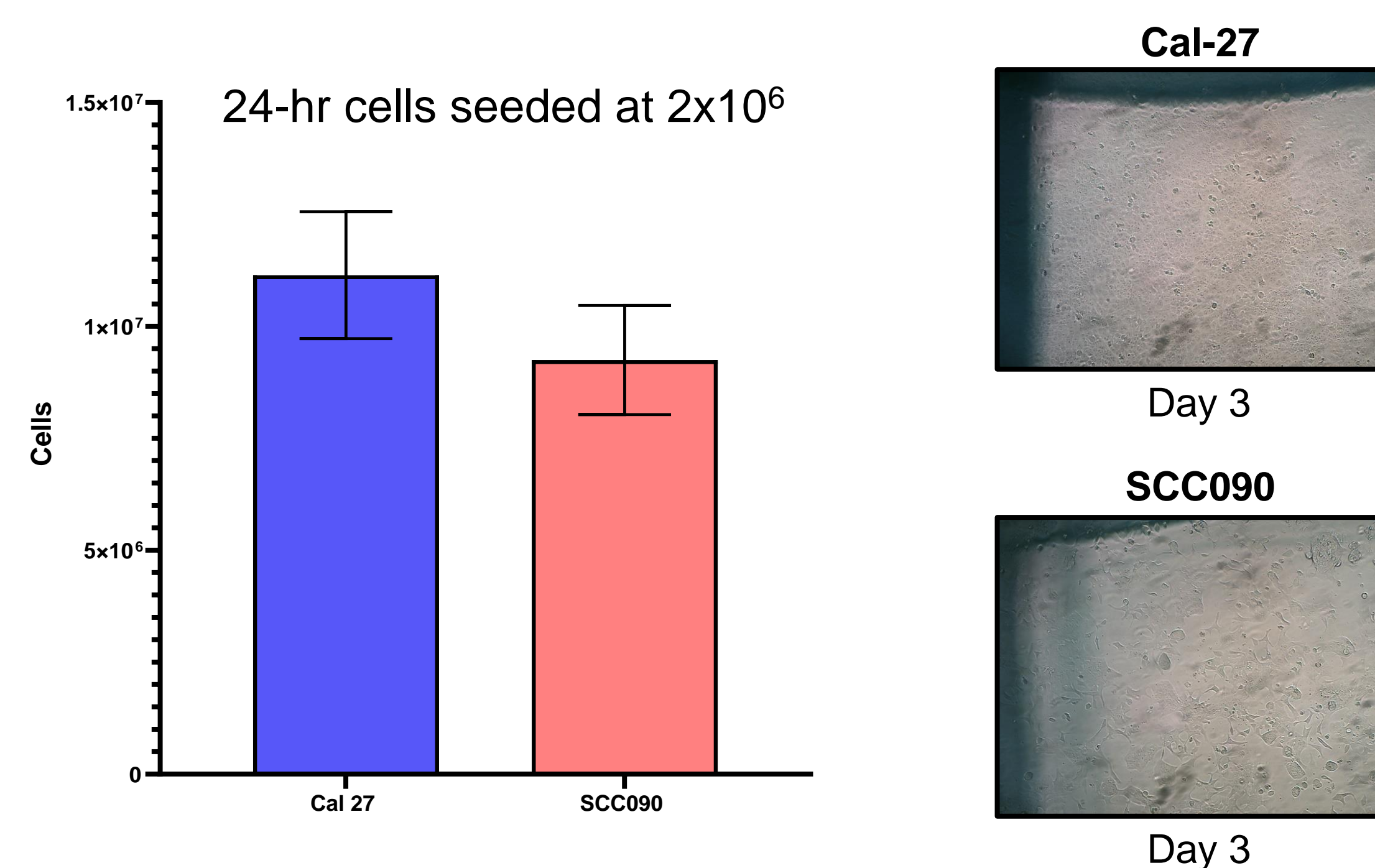
Wound Healing Assay Cal-27 vs. SCC090

24-hr measurement cells seeded 1×10^6



Growth & Morphology

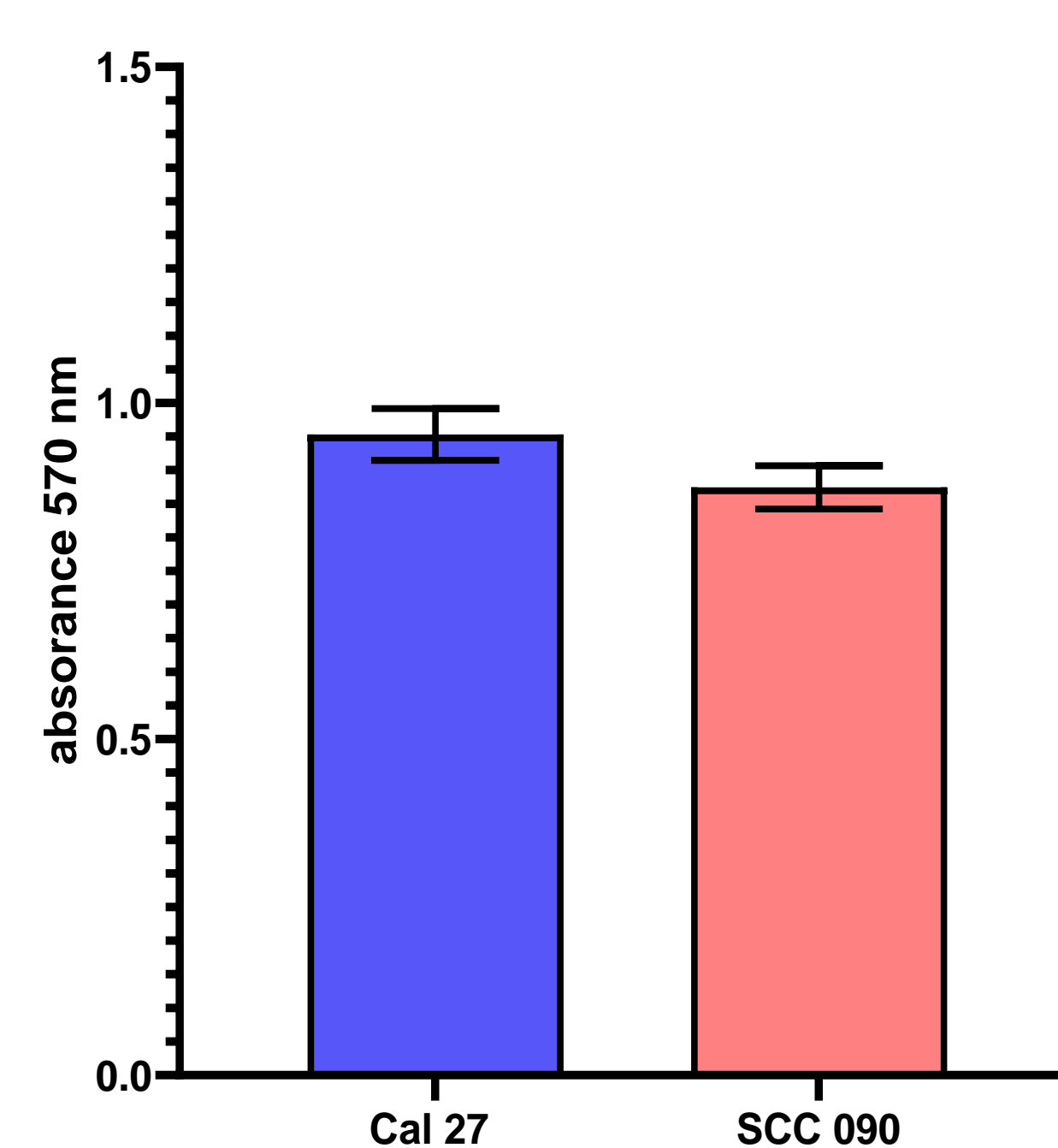
Cell Count Cal-27 vs. SCC090



Proliferation

MTT Proliferation/Viability Assay Cal-27 vs. SCC090

24-hr measurement cells seeded at 2.5×10^5



Conclusion

- There was no difference in cell growth at 24 hours for cells seeded at low and high density as observed in the MTT and cell counting results.
- Observation of cells seeded at 5×10^4 showed that Cal-27 cells had a greater increase on day three when compared to SCC090 cells.
- There was a significant difference when area under the curve (AUC) was compared over three days.
- Cal-27 had a greater rate of motility than SCC090 with a significant difference when Cal-27 was compared to SCC090 over 24 hours.

Future Direction

- Perform an agarose invasiveness assay comparing the two cell lines.
- Cell culture Cal-27 and SCC090 cell lines in a 3D spheroid system for a more realistic way to model cell behavior.