Squamous cell carcinoma is a type of skin cancer that causes an overproduction of squamous cells. The squamous cell is present on the top layer of your skin. Because your skin has a high chance of being in contact with ultraviolet rays, Squamous cell carcinoma is the second most common skin cancer. The cancer is caused by a mutation of the p53 when it is exposed to ultraviolet light. Squamous cell carcinoma has increased rapidly in the last 50 years, with over one million Americans receiving a yearly diagnosis. There are also two types of Squamous cell carcinoma: Cutaneous and Metastatic. When someone develops cutaneous squamous cell carcinoma, the cancer only affects the top layer of the skin.

On the other hand, Metastatic squamous cell carcinoma can spread to other parts of the body. To treat this type of cancer, there are three different pathways. Chemotherapy can be used by taking the medication to attack the body's cancerous cells. Cyrosurgey and Mohs surgery can treat cancer by freezing the cancerous cells or removing the affected area to kill the cells. Lastly, Photodymaic therapy uses blue light to remove the cancer cells from your skin. Many people with Squamous cell carcinoma have a good prognosis when it is detected early and treated correctly. (Cleveland Clinic 2022)

Collagen III is a structural protein in the fibrillar group. Its role in humans is to support the structural components of many organs. These organs include large blood vessels, the uterus, and the bowl. Which are all hollow. (Kuivaniemi, 2019) Collagen III is also secreted by many cells. This allows it to create inflammation when exposed to certain diseases, like viral and nonviral liver diseases. Because it is the second-most abundant collagen in the soft tissue, it is present during the early stages of healing. (Nielsen, 2016) Another way Collagen III can work is by suppressing tumors in the body, which can lead to negative or positive effects.

For some cancer cells to stay dormant and undetectable for clinical tests, they use Collagen III. Collagen III allows cells to bypass metastases, which is why cancer cells die. It has been shown that in different types of cancer, there are higher levels of Collagen 111 in tumors lymph node-negative and squamous cell carcinoma. Leading to the belief that Collagen III plays a vital role in cancerous tumors. (Kuivaniemi, 2019).

With the knowledge that Collagen III plays a role in cancerous tumors, they began to study what they were precisely. Using many different techniques and studies, researchers were able to determine what the vital role of Collagen III truly is.

Conversely, Collagen 111 is purposely being used to suppress tumors like those in breast cancer. Due to its ability to allow a tumor to become dormant, it can limit recurrence in people previously affected by cancer. (Brisson, 2023). This could be great for people who have tumors that are overgrowing. The Collagen could stop or severely reduce the growth rate, allowing other cancer treatments to work effectively.

When comparing Changes in the ECM, you can see the amount of collagen in dormant and proliferative cell lines. Looking at the physical states of the proliferative tumor cell lines, you can see that fibers tend to follow the direction going towards ninety-plus. This tumor, called T-HEp3, looks like tiny hairs under a microscope. On the other hand, the dormant tumor cell lines p lines tend to have a broader range spanning the scales from green to blue than some dark blue or purple. The D-HEp3 tumor has less fiber and is more interwoven and mesh-like. Attributed throughout the graph, the extracellular matrix shows that the dormant cells have a broader range in which the fiber lies compared to the proliferative tumor cells, which have a more linear arrangement. When comparing single cells to metastases, the same is true. The single

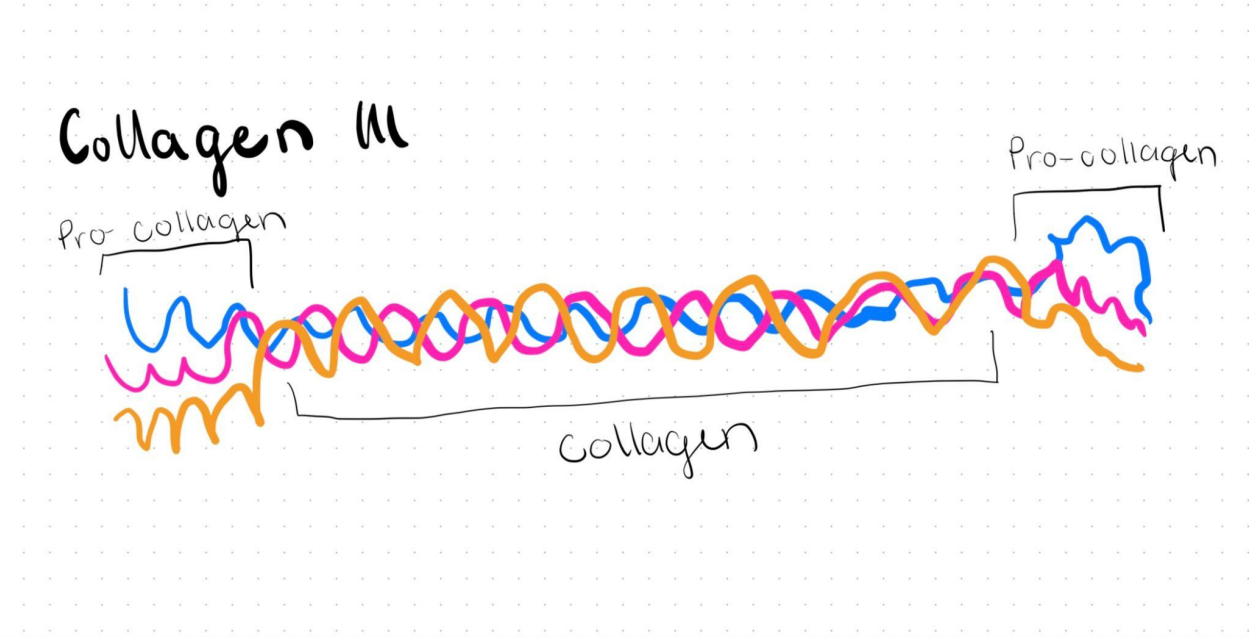
looks similar to a proliferative cell looking linear. The Metastases look similar to dormant tumor cell lines, being mesh-like.

Another way to identify the effects of collagen III is by looking at the different types of tumor cells within the cell cycle. After being removed after surgery, the single-cell tumor looks to be in the G0/G1 one phase; it can be seen with a concentrated bright green spot with lighter areas around the edge. This can explain why the residual tumor cells are not currently undergoing mitosis. In the metastatic tumor, it can be seen that there are many cells in the S stage due to the green throughout the inter-cell. The images suggest that the micrometastase cells are growing through mitosis. However, not all cells are growing; there is a wide range of cells in different stages. In contrast, the single cells are dormant. (Martino 2021)

Knowing what types of cells produce active tumors can be used to determine which cells have more collagen III. In the dormant cells, there is more collagen than in the single cells, which have a mesh shape, making them single-celled. Compared to Proliferative cells, which still have some collagen III. However, these metastatic cells tend to have a closer amount of EMC glycoproteins to collagen, which makes them look more linear. (Di Martino 2021) This variation in amount will affect the size or growth of the overall tumor.

Overall, collagen III will limit the size of a tumor. The more collagen is present, the more the tumor cell stays dormant. This slows the growth rate, making it smaller than other tumor cells. This is because, in total, there are fewer cancerous cells present. Overall, this is useful for scientists who want to find ways to stop the growth of cancerous tumors. (Brisson 2023) Researchers have studied the effects of Collagen III on Breast cancer, showing that tumor size is correlated to the production of Collagen.

Collagen III successfully decreases the tumor of cells that go through S/G2. This fall is proven by the smaller tumor size produced than those injected with Collagen III. The ability of Collagen III to overtake and impede growth is a tremendous scientific revelation.



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