

Proteins regulate cancer cell attachment

Aggressive cancer cells are able to leave their original site and invade other tissues. In order for these cells to do this, they must have some way of moving around. This means that a cancer cell must have a very precise way of regulating when it should move forward and make contact with its outside environment. Many researchers have discovered that a significant amount of proteins are involved in regulating when a cancer cell attaches to its environment. To initiate attachment, two proteins called Focal Adhesion Kinase (FAK) and Src Kinase activate a number of other proteins. Kinases are proteins that modify other proteins to either activate or deactivate them. In this case FAK and Src activate a number of cell attachment proteins, like Paxillin, so the cell can make contact with its external environment.

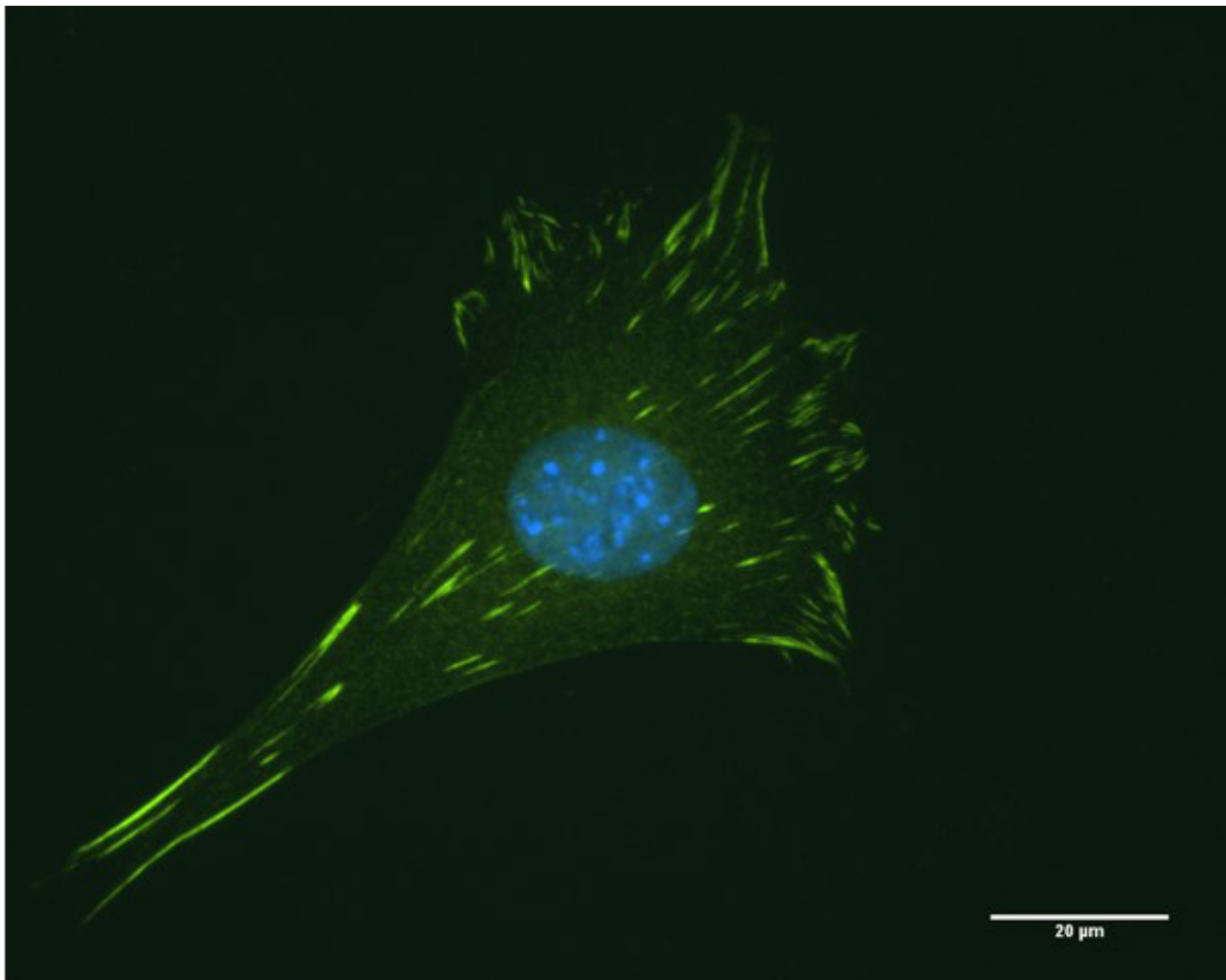


Fig. 1. Microscopic visualization of a cell attachment protein called Vinculin. The nucleus of the cell is stained in blue.

Cancer cells are able to regulate their attachment more because they typically have more activation of FAK and Src. Regular, non cancerous cells do not migrate, and therefore do not need to regulate cell attachment. There have been many methods discovered to allow researchers to study how these cells attach. Most of the techniques involve using microscopes to look at the cells. For example, one can visualize a cell attachment protein on a cell surface by staining the cell with an antibody for the protein of interest. Then, they can add a fluorescent antibody to the first antibody so that one can see the protein under a fluorescent microscope (Fig. 1). Often times, focal adhesion protein expression is altered in cancer cells. It is important for researchers to continue to study these proteins so we can come up with more drugs to stop cancer cells from migrating and spreading to other tissues.

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[Cell matrix adhesions in cancer: The proteins that form the glue.](#)

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