Adult Oncologic Cell Behavior â€“ Rhabdomyosarcoma

Authors: Derek Guerrero Kimberly Boyer Renee Evans Denise Santos Tommy Davis

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University of California-Irvine

School of Global Science, Technology, and Society

Adult rhabdomyosarcoma affects approximately 3000 cases worldwide per year and is one of the major cancer subtypes with poor survival. In many cases, the disease progresses from the skin to other organs and can cause substantial disfigurement and often lethal cancer of the brain.

Rhabdomyosarcoma is a rare cancer that affects cells in the soft tissues of the body (skin, soft tissue, soft tissue organs, bone, connective tissue, etc.). Researchers have been trying to discover the etiology of this type of cancer, but some researchers have been interested in the mechanism through which rhabdomyosarcoma develops. In other cancers, including breast cancer, researchers have determined that tumors overexpress specific genes. In the absence of the genes, the tumors are less aggressive.

Tumors in adult rhabdomyosarcoma are typically unspecific, being able to originate anywhere in the body, such as the skin, breast, brain, spine, and more. Following on the identification of a number of specific genes in tumors, investigators now have an excellent understanding of how tumor cells grow. In adult cancer, researchers have made a number of discoveries in how rhabdomyosarcoma tumor cells grow. Scientists have found out that the proteins involved in cell growth expressed in this disease cause tumors to develop, that activating certain genes causes tumors to grow, and that tumor cells contain â€œspindlesâ€, which are rod-shaped channels that permit tumor cells to pass tumor suppressor genes on and off. One type of cancer marker called miR-292, which exhibits several tumor-promoting and anticancer properties, has been found to bind to the spindle of rhabdomyosarcoma tumor cells. Through experiments, researchers now know that cells with miR-292 have altered levels of multiple genes and can cause them to be over expressed. They also discovered that miR-292 disrupts a gene called SIB, which in turn promotes growth of tumor cells. To simulate the hypothesis that miR-292 causes adult rhabdomyosarcoma tumors to grow, investigators examined a mouse model that overexpresses a gene called SIB(DC-hÎ±). Researchers found that tumors with higher SIB expression inhibited from a control group.

In addition to cancer, rhabdomyosarcoma is associated with other diseases, including some forms of cancer of the eye and cancers of the esophagus. Neoplasms of the skin affect many females, such as non-cancerous and malignant tumors of the hand, foot, face, and hair. In additional, malignant melanoma is one of the few skin cancers to affect males. Rhabdomyosarcoma becomes difficult to diagnose in early stages because of many signs and symptoms, including vague (headache, skin rash, etc.) and premenstrual pelvic and low back pain. The removal of the moles, which are responsible for the diagnosis of rhabdomyosarcoma, becomes a big problem because of the scars these moles leave behind.

Recently, researchers have identified two gene targets for rhabdomyosarcoma, one being in the peripheral blood mononuclear cells (PBMCs), which are used by tumors to transport malignant cells. Their discovery of these genes means that they may be possible targets for drug development, although results in clinical trials may be years away.

References

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