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A Smart Approach of Modern Therapeutics to Dysregulating Lysosome Functions in Cancer Cells by Specific Drugs and Its Nano formulations

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Abstract

The research team made the discovery by conducting an in-depth mechanical study of lysosomes, which are membrane-bound organs in all cells. Lysosomes were once thought to be just "waste" stem cells, waste recycling, regulating cell regeneration and the same function on all cell types, but the PM team's research is based on new knowledge about lysosomes that shows they act as the main messaging centers and regulates long-term hematopoietic stem cells.

Keywords: Cancer; Cells; Tissues, Tumors; Prevention, Prognosis; Diagnosis; Imaging; Screening; Treatment; Management

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Introduction

The researchers' work examines why a hematopoietic stem cell can remain dormant for years and how the lysosome continuously acts as a sensor even in that highly dormant state. Despite the cell's dormancy, the lysosome inside it is still very active, allowing "cutting and inactive" receptors involved in signaling the growth and transport of nutrients to the stem cell membrane to remain dormant. These findings could have implications beyond the study, potentially making it possible to control the balance between cell sleep when stem cells are activated to help replenish blood. This study has discovered a new mechanism that involves inhibiting the organelle, the lysosome, and dormant that cell. This opens the way for lysosomes to potentially be used as a

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therapeutic target. Tens of thousands of people around the world receive bone marrow transplants each year to help treat leukemia. High doses of chemotherapy are used to quickly kill cancer cells, but they also kill the stem cells needed to reproduce healthy blood. Stem cell transplantation is used to regenerate a patient's healing blood source, but finding the right donor can be challenging, especially in different ethnic communities where the donor list may not be extensive or non-existent. Stem cells in cord blood are of considerable value as additional donor sources, but the number of stem cells is often too small for an adult recipient. Understanding how stem cells are activated and proliferated in a controlled manner can greatly benefit cord blood. The ability to control stem cell activation may also be helpful in situations where stem cells are improperly activated due to disease, inflammation, or drug treatment, and help maintain sleep. Learning how to maintain blood stem cells is essential. If that stem cell is activated improperly, it can have serious consequences for the blood system, because stem cells are not renewable. You have to do everything you can to keep that cell asleep, and one way is to prevent it. Get rid of signals from its surface. It can also be used to help fully understand leukemia stem cells, which mimic normal stem cells and are sometimes able to sleep and escape treatment. It is now interesting to look at these leukemia stem cells and see that how this mechanism is set up. We may notice differences and use them for treatment [1-510].

Results and Discussion

Humanity will not be able to defeat all cancers in the next ten years, but it will certainly adapt to some types. Most importantly, global medicine is close to defeating cervical cancer, which is now the fourth most common disease among women. Annually, more than 570,000 new cases of this type of cancer are registered in the world, and this type of cancer causes 7.5% of deaths due to malignant tumors. Meanwhile, the disease has been well studied and a safe and effective vaccine against the causative agent, human papillomavirus (HPV), has been developed, as shown by several clinical trials and separate studies in women who Vaccinated with this vaccine at the age of 12 to 13 years, after ten years of vaccination, no cancer or cervical tumor has been reported in these people. There are virtually no side effects to the vaccine other than minor neurological symptoms and headaches, which have been reported in only four out of 100,000 girls who have been vaccinated. Australians were the first to vaccinate teenage girls in 2007. In 2017, the number of cancers and cervical cancers in women aged 18 to 24 was halved, and HIV infection was reduced almost 20-fold. At this rate, by 2066, cervical cancer will be completely eradicated from the Green Continent. However, the World Health Organization says the vaccine is not enough. HPV testing is important for adults and early detection of precancerous conditions and malignancies in women. If this cancer is diagnosed early, it can be treated. Also, screening and treating precancerous lesions is more cost-effective than advanced cancer control. Experts from the World Health Organization believe that overcoming lung cancer is not out of reach, provided that smoking is completely stopped. Lung cancer is the second most common type of cancer, especially in men, according to the International Agency for Research on Cancer. The truth is that cigarette smoke contains more than 60 carcinogens and nicotine suppresses the immune system. E-cigarettes and regular light cigarettes are no less dangerous. The first type often leads to the formation of malignant tumors, while the second type causes one of the most dangerous types of lung cancer, adenocarcinoma. We need government programs to quit smoking. It is necessary to increase taxes on cigarette manufacturers and ban smoking in public places. In 2019, the Russian government approved the concept of tobacco control of the Ministry of Health until

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2035, which includes heating systems for cigarettes, steam and tobacco. It is estimated that in 15 years, more than 21% of the adult population of our country does not smoke. Russia is among the top 10 smokers in the world, according to the medical journal The Lancet. There is a good chance of avoiding liver cancer, and this requires a significant reduction in alcohol consumption. According to WHO experts, more than 740,000 cases of cancer in 2020 are related to alcohol. Not only is liver cancer (154,000) linked to alcohol, but also esophageal cancer (189,000), mouth and colon cancer are also linked to alcohol consumption. Alcohol-related cancer was diagnosed in 9.8% of all malignant tumors in Mongolia and 6% in Russia. In countries where alcohol is traditionally banned, such as Kuwait, there have been virtually no such diseases.

Conclusions

Cancer arises from precancerous lesions of neoplastic polyps, and the diagnosis and elimination of these lesions in the early stages, which are usually performed on endoscopic examinations, play an important role in preventing the progression of cancer in patients. However, sometimes it is difficult for doctors to diagnose tumorous and non-tumorous lesions on endoscopy, and unnecessary sampling creates additional stress and discomfort for patients. The power of artificial intelligence learning has been used to combine information from endoscopic images and the findings of specialist physicians. This technology analyzes images of lesion areas taken with an endoscope. If AI detects that a bowel lesion is possibly a tumor, a "high probability" message is displayed, and if the system concludes that the bowel lesion may not be related to a cancerous tumor, a "low possibility" message is displayed. The new software is designed to communicate directly with endoscopic equipment and automatically notify your doctor during the endoscopy process which areas are prone to cancer and which areas are not yet infected with tumors. Colorectal cancer is the second most common cancer in Europe, and researchers hope to use new technology to help doctors fight the deadly disease.

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States, United Kingdom, Canada, Australia, New Zealand, Scotland, Ireland, Netherlands, Belgium, Denmark, Luxembourg, Romania, Greece, Russia, Estonia, Ukraine, Turkey, France, Swiss, Germany, Sweden, Norway, Italy, Austria, Czech Republic, Hungary, Poland, South Africa, Egypt, Brazil, Spain, Portugal, Mexico, Japan, Singapore, Malaysia, Indonesia, Thailand, Taiwan, Hong Kong, Philippines, South Korea, China, India, Kingdom of Saudi Arabia, Jordan, Qatar, United Arab Emirates, etc. as research fellow, sabbatical and volunteer researcher or visitor and so on heretofore. He has a history of several years of teaching for college students and various disciplines and trends in different universities. Moreover, he has been a senior advisor in various industry and factories. He is expert in many computer programs and programming languages. Hitherto, he has authored more than twenty books and book chapters in different fields of Chemistry. Syne, he has been awarded more than one thousand reputed international awards, prizes, scholarships and honors. Heretofore, he has multiple editorial duties in many reputed international and peer-reviewed journals, books and publishers. Hitherward, he is a member of more than five hundred reputed international academic-scientific-research institutes around the world. It should be noted that he is currently the President of the American International Standards Institute (AISI), Irvine, California, USA and also Head of Cancer Research Institute (CRI) and Director of the Bio Spectroscopy Core Research Laboratory at California South University (CSU), Irvine, California, USA.

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