A combination therapy for improving cancer therapy-induced senescence in tumor cells

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Value Proposition

Each year in the United States more than 200,000 women are diagnosed with invasive breast cancer. Despite diagnostic and treatment advances, breast cancer remains one of the leading causes of cancer deaths among women. Recently, palbociclib, a CDK4/CDK6 inhibitor was approved for the treatment of HR+, HER2- breast cancer. However, despite a significant increase in progression free survival, many patients develop palbociclib resistance. Treatment with anticancer drugs like palbociclib can result in cytostatic growth inhibition and senescence. While senescent cells no longer divide, they secrete proinflammatory compounds that promote the transformation of nearby cells in a process known as senescence-associated secretory phenotype (SASP). SASP has been implicated in therapy resistance and tumor recurrence. Therefore, it is critical to identify molecules that drive tumor cells towards apoptosis rather than senescence upon drug treatment.

Technology

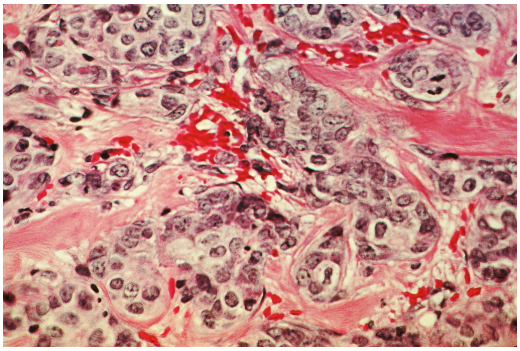
Duke inventors have developed a combination therapy to be used with CDK4/CDK6 inhibitors, such as palbociclib, for treating cancer. This is intended to improve cancer treatment by reducing therapy resistance and tumor recurrence caused by SASP. By combining CDK4/CDK6 inhibitors with a protease-activated receptor (PAR) antagonist, the induced senescence can be reduced by promoting apoptosis. This has been demonstrated in cellular studies.

Advantages

- Counters the negative effects of cancer therapy-induced senescence in tumor cells
- This could be beneficial in the treatment of multiple kinds of cancers
- Cellular studies have demonstrated promising results

Publications

- PCT Application US2019/029573



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Links

- From the lab of Dr. Xiao-Fan Wang

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