B-Raf-Inhibitor Resistance in Melanoma Cells

Melanoma

My Project

Recurrence

What Now?

Maisah Akram
What is It?

Melanoma is a form of skin cancer. While it only accounts for roughly 1% of all cancers, it is the most fatal of all skin cancers, resulting in ~7,000 deaths annually.
Who Gets It?

Environmental Risk Factors:

- Exposure to UV rays (i.e. sunlight)
- Multiple moles
- Fair skin
- Freckles
- Light hair
- Family history of melanoma
- Personal history of melanoma/other cancers
While white people are 20 times more likely to contract melanoma than people of color, it is more often fatal for people of color.
Age

The risk of melanoma increases as you age. However, melanoma is the most common cancer in people under the age of 30.
Gender

Melanoma is more likely to be fatal in men than in women of any age. At age 60, men are twice as likely as women of the same age are to develop melanoma; at age 80, men are three times more likely to develop the disease.
Recurrence

Within the first five years following treatment, second primary melanomas develop at a rate of 0.5% per year. Melanoma is recurrent 10 years after treatment in 1 in 20 patients. Recurrence can occur in the regional lymph nodes of the original melanoma, at or near the original tumor site, and at distant sites.
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My project focuses on melanoma cells that are resistant to BRaf inhibitors. BRaf is a protein present in the MAP Kinase pathway, which controls cell growth. A mutation in amino acid valine 600 of the *BRaf* gene is present in over 50% of all melanomas.
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I am currently treating two cell lines, both a parental and BRafi-resistant, with drugs that inhibit polo-like kinase, aurora kinase, and tubulin. PLK, AURK, and tubulin are all vital to cell proliferation. By comparing the two cell lines, I am hoping to be able to figure out how the resistant melanoma cells become resistant to possibly prevent this from happening in the future or reverse current cases.
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