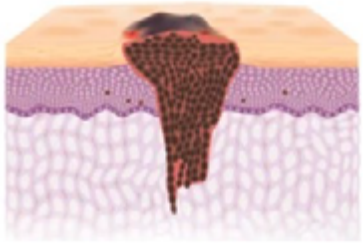
CHAPMAN UNIVERSITY | Office of Research

A Small Peptide Increases Drug Delivery in Human Melanoma Cells

Chapman Case #2022-003

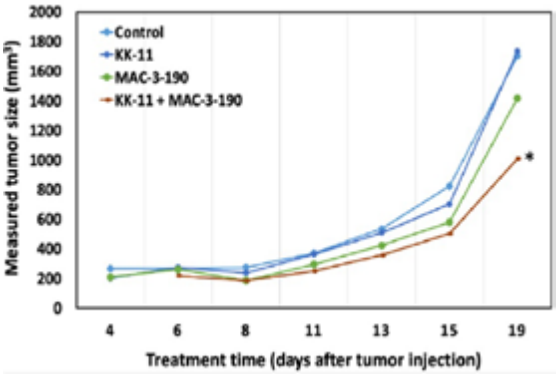
Market Need



Melanoma is a deadly form of skin cancer where the five-year survival rate for patients with metastatic melanoma is only at 31.9 %. Although the survival rates have increased with the help of new targeted therapies and immunotherapies, a significant amount of melanoma patients do not respond to these new therapies. Another very challenging fea-ture of melanoma is its high resistance to traditional chemotherapy. Although the mech-anism of drug resistance in melanoma is complex, a practical approach to overcoming drug resistance is to improve drug delivery. Subsequently, there is a need for an effective solution for delivering chemotherapy drugs into melanoma cells.

Chapman Solution

Dr. Sun Yang and Dr. Kamaljit Kaur of Chapman University have invented a new sequence of peptide KK-11 that improves the targeted delivery of chemotherapy drugs (e.g. doxorubicin) for the treatment of melanoma. When combined with targeted therapy utilizing an nNOS inhibitor (MAC-3-190), the proposed invention demonstrated high efficacy to enhance the anti-tumor activity of MAC-3-190. The growth of melanoma xenografts re-duced to ~50% of the control group without any significant adverse events observed. The delivery peptide was also proteolytically stable – the peptide remains detectable in human serum after incubation for more than 24 hours.



Applications

- Targeted drug-delivery to melanoma cells
- Potentially efficacious for other cancers

Key Publication

- A Small Peptide Increases Drug Delivery in Human Melanoma Cells. Pharmaceutics. May 2022.

Intellectual Property

- Patent application filed

Stage of Development

- Targeted drug delivery with high efficacy demonstrated in animal melanoma models
- Available for licensing and further research collaborations

Contact

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