

Microneedle Therapy for Basal Cell Carcinoma

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Introduction

- Basal Cell Carcinoma (BCC) is a very common form of cancer
- Current chemotherapy drugs are proven to be effective, but its route of administration suffer from systemic side effects.
- We propose a microneedle system that can deliver chemotherapy drugs without the harmful side effects.

Objective

- This experiment analyzed the release of vismodegib at varying w/w concentration (vismodegib/PLGA).
- We opted for single needles due to issues in using the arrays.
- The release of the drug was measured daily for a period of one week with UV Vis Spectroscopy.

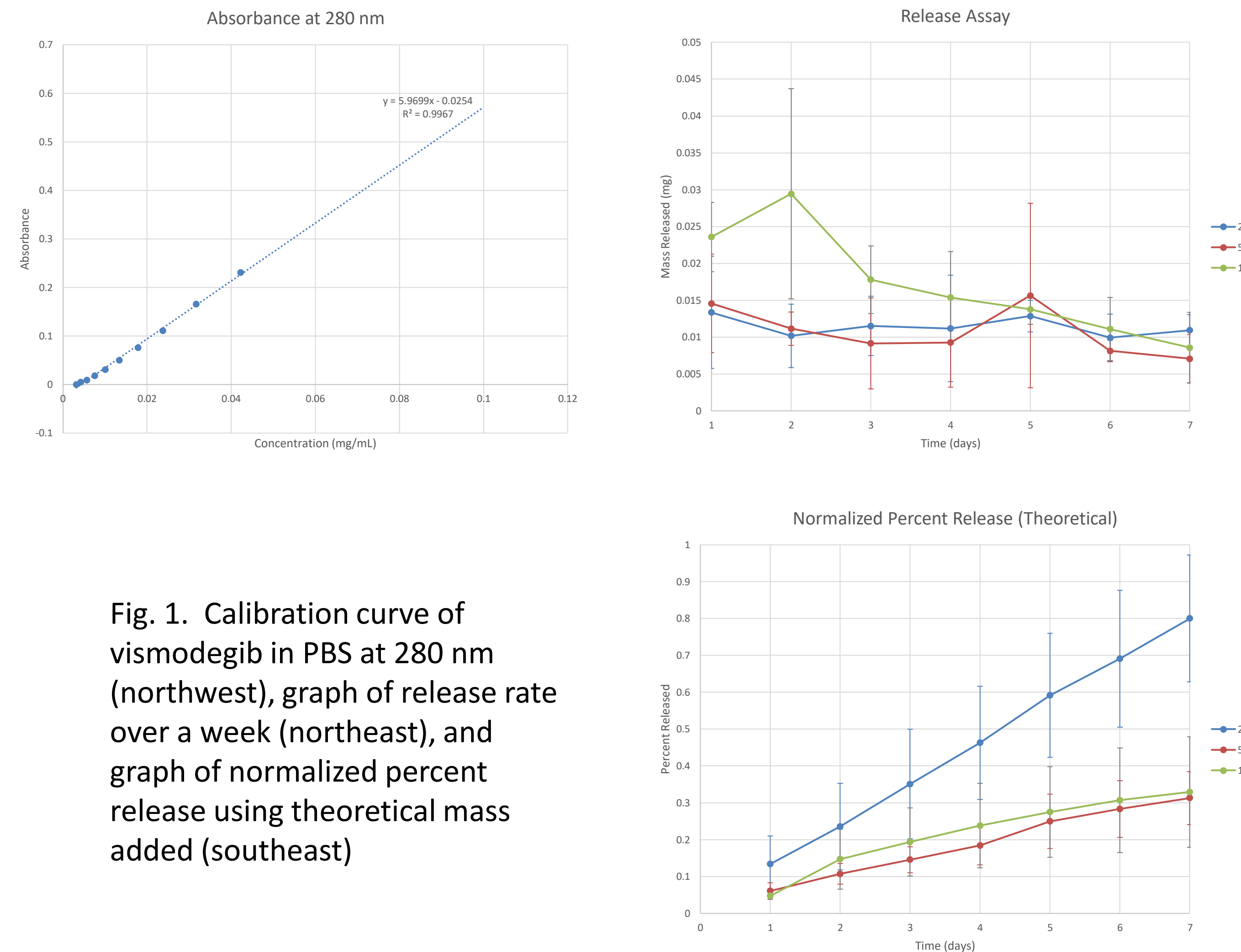


Fig. 1. Calibration curve of vismodegib in PBS at 280 nm (northwest), graph of release rate over a week (northeast), and graph of normalized percent release using theoretical mass added (southeast)

Results & Conclusion

This experiment reveals that release tend to decrease over time, but it is difficult to decipher the results (may need more samples or another method). 5% and 10% released only a small percentage of its load in 1 week but 2% released about 80%.

Future Direction

- Using the microneedle arrays for uniform needle formation
- Studying the models longer (1-3 months) for complete degradation
- Encapsulation and degradation studies
- *In vivo* studies in porcine models

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References

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