Investigating the role of saposin B in HMA-mediated toxicity toward breast cancer cells

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Introduction

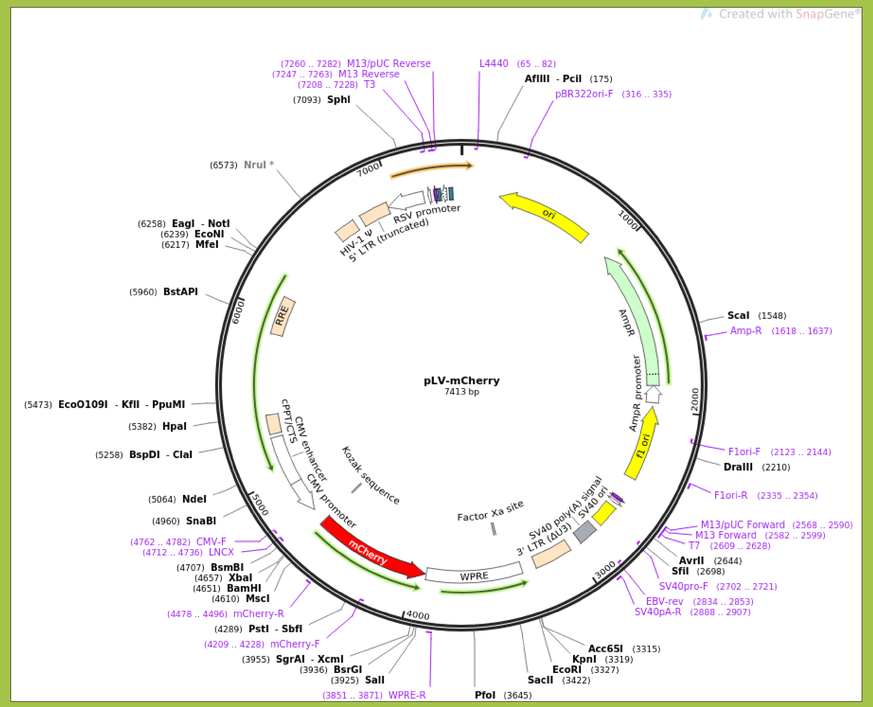
Therapy-resistant cancer cells can be targeted using novel cationic amphiphilic drugs such as HMA that induce lysosomal cell death. Parallel alteration of lysosomal protein Saposin B could sensitize cells to HMA, reducing off-target effects.

Hypothesis

Mutant Saposin B will potentiate HMA treatment in breast cancer cells.

Methods

- A plasmid construct was created for wild-type and mutant saposin B overexpression.
- Breast cancer cell lines were transduced with either construct.
- Cell viability assays with treated cells were used to determine the EC50.
- A dextran release assay was used to evaluate lysosomal membrane permeabilization.

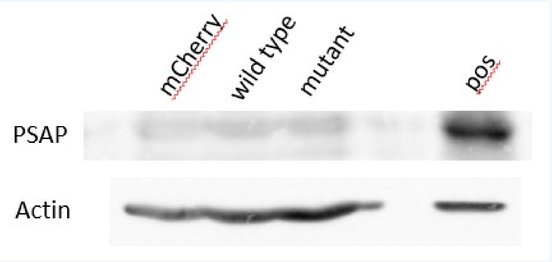


Main Finding: The model used is ineffective in testing our hypothesis.

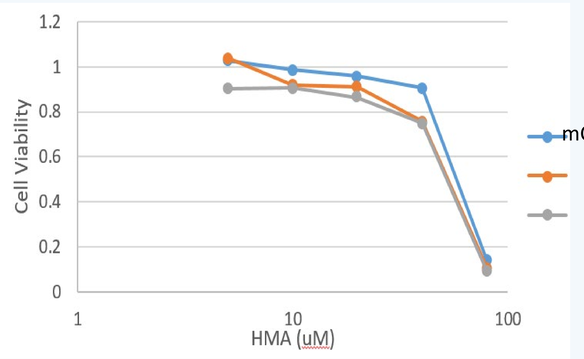
QR code linking to full abstract or manuscript = >>>>>

Results

The western blot below shows that our transduced lines were not overexpressing Saposin B.



Consequently, there was no difference in HMA toxicity.



Discussion

Transfected Hek293s did show significant overexpression of Saposin B, so it is likely that viral transduction was not efficient enough. Successfully transduced clones could not be selected due to the lack of mCherry, and additionally, they could be less viable. A different vector is needed that is both inducible and provides a drug selection factor.