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The Effect of Laser Irradiation on the Viability of Breast Cancer Cell, MDA-MB-231

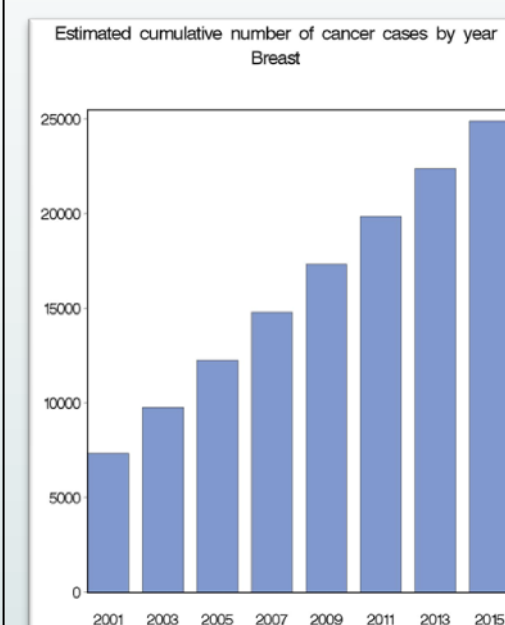
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INTRODUCTION

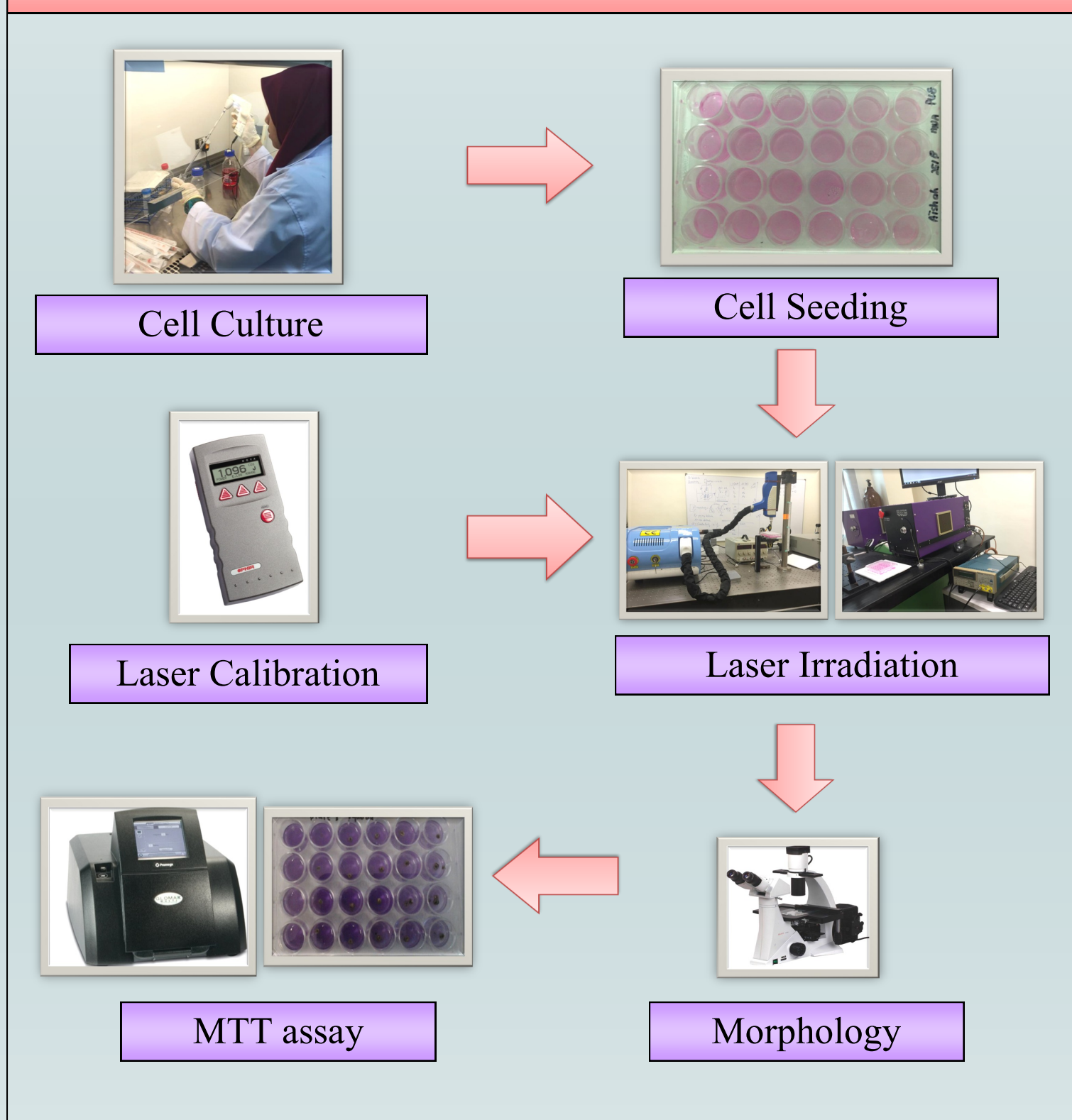
Laser phototherapy is used in the breast cancer clinical treatment, despite the limited safety information of laser irradiation effect on the cancer cell behavior. This study contributed on the development of guidelines for safer laser usage in treating breast cancer and minimizing the possibility of activating post-mastectomy lymphedema.



AIM

To determine the effects of different sources laser phototherapy on the cell viability of the in vitro human breast cancer cell, MDA-MB-231

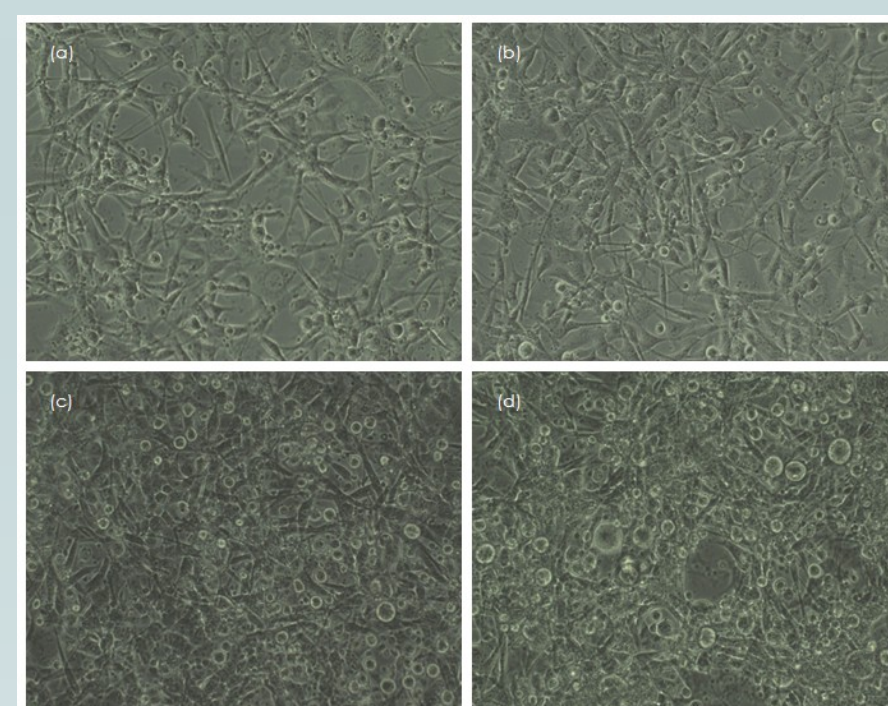
METHOD



RESULTS

Cell Viability			
Wavelength	Max. Value	Energy ↑	No. Pulse ↑
Control	100%		
248 nm	↑ 151%	↓	No change
532 nm	↓ 84%	↓	No change
1064 nm	↓ 74%	↓	No change

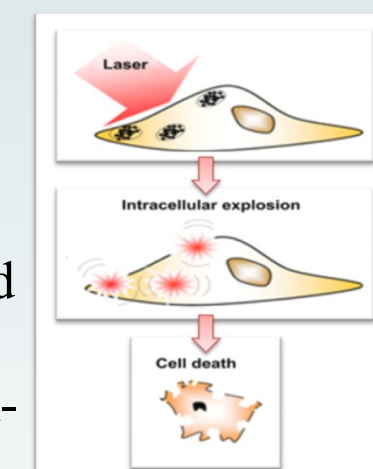
Viability of cell MDA-MB-231 treated by different laser source



The morphology of the human breast cancer cell MDA-MB-231; (a) control without treatment (b) treated by Excimer KrF 248nm, (c) Nd:YAG 532nm, and (d) Nd:YAG 1064nm

DISCUSSION & CONCLUSION

- MDA-MB-231 cell viability increased after being irradiated by excimer 248 nm laser.
- The cancer cell viability decreased after irradiation by both Nd:YAG 1064 and 532 nm.
- As the energy of laser increase, the cell viability were decrease
- Additional laser exposures had no effect on MDA-MB-231 cell viability
- The research shows that Nd:YAG 1064nm more effective in lowering cancer cell survivability than 532 nm and 248 nm.
- Further in vivo studies are needed for better understanding on the mechanism of laser-tissue interaction and improve the laser usage safety in photothermal therapy.



REFERENCES

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