Evaluating Combination Treatment on Diffuse Intrinsic Pontine Glioma (DIPG) from CDDO-2P-Im Drug and Radiotherapy

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SEO/YES

INTRODUCTION

- DIPG is a rare and aggressive pHGG primarily affecting children aged 5-10 in the brain's ventral pons.
- Current treatment is limited to radiation therapy, facing challenges with side effects and resistance.
- CDDO-2P-Im enhances radiation therapy, reducing doses and cognitive consequences in children.
- Targeting the CCL2/MCP-1 pathway impedes glioma progression and boosts immunotherapy response.
- Synthetic oleanane triterpenoids are studied as CCL2/MCP-1 inhibitors to improve radiation therapy outcomes and reduce toxicities.

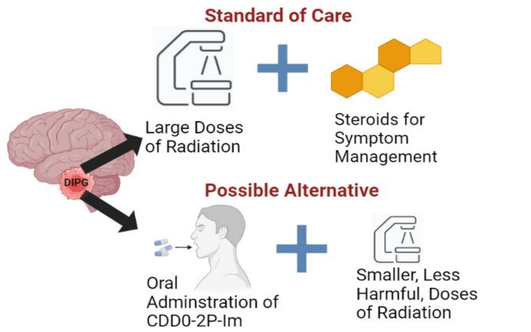


Figure 1. Alternative Treatment with CDDO-2P-Im and Radiation Therapy. (Created with Biorender)

PURPOSE

Investigate the efficacy of CDDO-2P-Im as a radiosensitizer in combination with radiation therapy through colony-forming assays, aiming to demonstrate a decrease in cell count at higher doses and thereby enhancing the treatment for DIPG

METHODS

1. DIPG cell lines grown in T75 as confluency were monitored to ensure health of colonies
2. Colony-forming assay (CFA) conducted using varying doses of CDDO-2P-Im, including control
3. Process repeated, except with varying doses of radiation and a process that tested combination doses of radiation and CDDO-2P-Im
4. DIPG cells stained using glutaraldehyde-crystal violet mixture
5. Cells and number of colonies counted and statistical significance tests performed on the gathered data

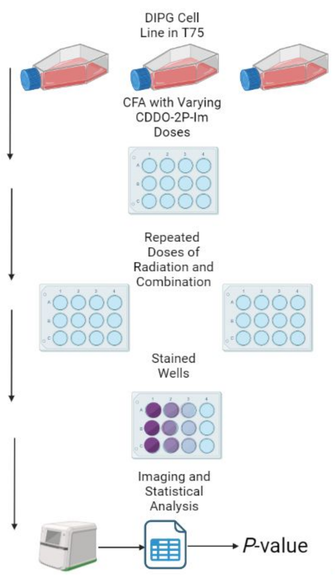


Figure 2. CFA and Analysis of Data. (Created with Biorender)

RESULTS

Figure 3. Imaging from Combination (Radiation + 2P-Im) Therapy.

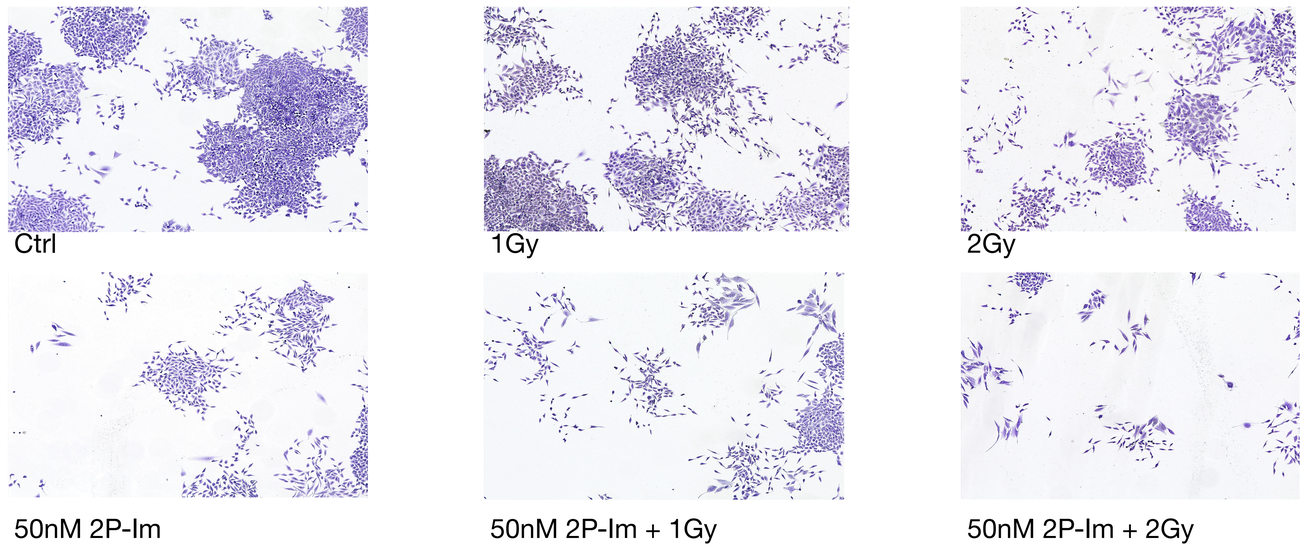
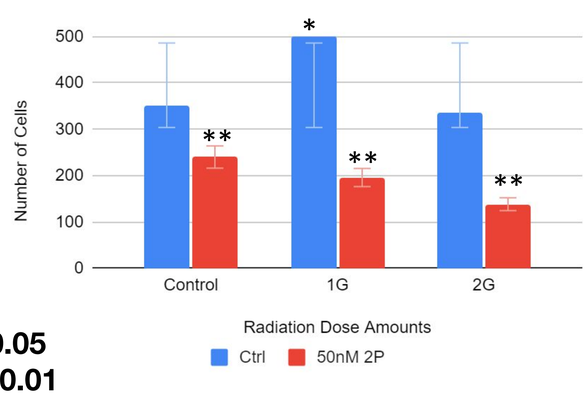
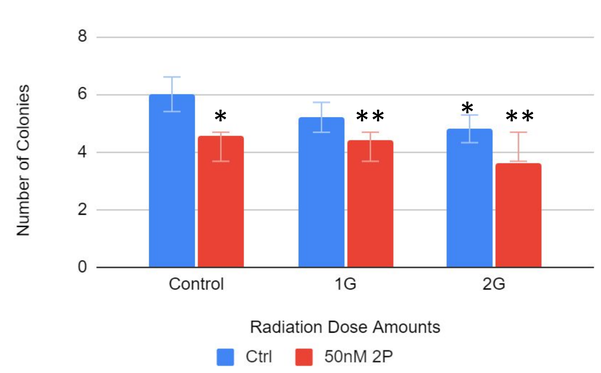


Figure 4. Average Cells per Colony.



***P<0.05**
****P<0.01**

Figure 5. Average Colonies per HPF.



DISCUSSION/FUTURE

- Investigate dose-dependent cytotoxicity of 2P-Im in animal models (mice) to determine optimal dosage and potential side effects
- Gain a deeper understanding of 2P-Im's mechanisms of action in treating DIPG to identify new targets for intervention
- Progress toward clinical trials to assess 2P-Im's safety and efficacy in human patients with DIPG for potential therapeutic use

ACKNOWLEDGMENTS

I am sincerely thankful to Dr. Nathan Berger (Case Comprehensive Cancer Center) for leading the program, Dr. John Letterio (Case Western Reserve University) for instructing the summer students, and Stevie Rieger and Bhavya Sharma (Case Western Reserve University) for their invaluable mentorship and insights. Special appreciation goes to James Render (Case Western Reserve University) for constant guidance, Dr. Xia Wu (Case Western Reserve University) for direction during the writing process, Case Western Reserve University School of Medicine for providing facilities, and the National Cancer Institute for funding and support.

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