



# MEDICINE 2040

Rewriting the future of healthcare

## **PERSONALIZED CANNABIS-BASED CANCER MEDICINE**

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Background: We developed a new approach of personalized cannabis-based cancer medicine. This approach aims to connect between a specific cancer patient to the optimal available cannabis extracts. Preclinical researches on cancer models have demonstrated that cannabinoids trigger an antitumor response. Cannabis plants produce hundreds of compounds with therapeutic potential and capability to induce synergic responses when combined (“entourage effect”).

In this study, we compared the antitumor efficacy of cannabis extracts and chemotherapies on cell lines and human biopsies. Methods: We built large library collections of cannabis extracts, chemotherapies and cell lines. All cannabis extracts, chemotherapies and their combinations tested for their toxic effects on all cell lines. By using AI analysis and machine learning, we built a predicting tool to predict the influence on a human tumor biopsy. Finally, we tested the recommended combinations on patient biopsy to evaluate the best match for treatment.

Results:

- Each cannabis extract has specific properties.
- Different cannabis extracts effect differently on the survival of cancer cells.
- The same cannabis extract effects differently on the survival of different cancer cells.
- Similar cannabis extracts (by main cannabinoids) effect differently on the same cancer cells.
- Cannabis extracts & chemotherapies synergistically affect the survival of cancer cells.

Conclusions: We established a pipeline that pinpoints the optimal personalized cannabis-based cancer treatment, combining patient cancer, and specific cannabis extract.