

## Successful Glioblastoma Pre-clinical Trial Results

### Key Highlights:

- Recently completed 3 year pre-clinical in-vitro research into the use of cannabinoids in the treatment of Glioblastoma, a fast-growing and aggressive form of brain tumour, delivers outstanding results.
- The study undertaken on 30 biopsy samples from 18 patients, sought to determine the optimal formulation for the treatment of Glioblastoma, including the most efficacious ratio of Cannabidiol (CBD) to Cannabigerol (CBG).
- The study demonstrated that MGC Pharma’s proprietary formulations were cytotoxic to Glioblastoma tumour and stem cells, reducing the cells’ viability and inducing caspase-dependent cell apoptosis (or cell death).
- Tests conducted on the Glioblastoma biopsy samples demonstrated that the CBD/CBG treatment’s efficacy was not enhanced by the addition of a widely used chemotherapy treatment, which has been linked to adverse events.
- With the results of the research study demonstrating the cannabinoid treatment’s viability, MGC Pharma is planning to undertake additional research to further demonstrate the formulation’s efficacy as a treatment for Glioblastoma.

**MGC Pharmaceuticals Ltd** (ASX, LSE: MXC, ‘MGC Pharma’ or ‘the Company’), a European based biopharma company specialising in the production and development of phytomedicines, in collaboration with the National Institute of Biology in Slovenia, has completed a successful in-vitro preclinical research study into the use of cannabinoids to treat Glioblastoma multiforme cells, a fast-growing and aggressive form of brain cancer.

The Glioblastoma research study, conducted between 2019-2022, initially used a formulation which included THC (delta-9-tetrahydrocannabinol), which was later replaced with Cannabigerol (CBG), which has no known psychotropic effects.<sup>1</sup>

The study was undertaken on biopsy samples taken from 18 patients, and over 5,800 cell tests over the course of the study, to determine the most effective concentrations and ratios of Cannabidiol (CBD) and Cannabigerol (CBG) in the treatment formulation. The results of the study have demonstrated the efficacy of cannabinoids in treating Glioblastoma, as well as determining the most effective ratio of CBD:CBG in inhibiting the tumours’ viability, setting off the cascade of biological processes leading to the apoptosis (cell death) of the Glioblastoma tumour and stem cells. With Glioblastoma stem cells being the main cause of the disease’s progression, and which are highly resistant to standard therapies.<sup>2</sup>

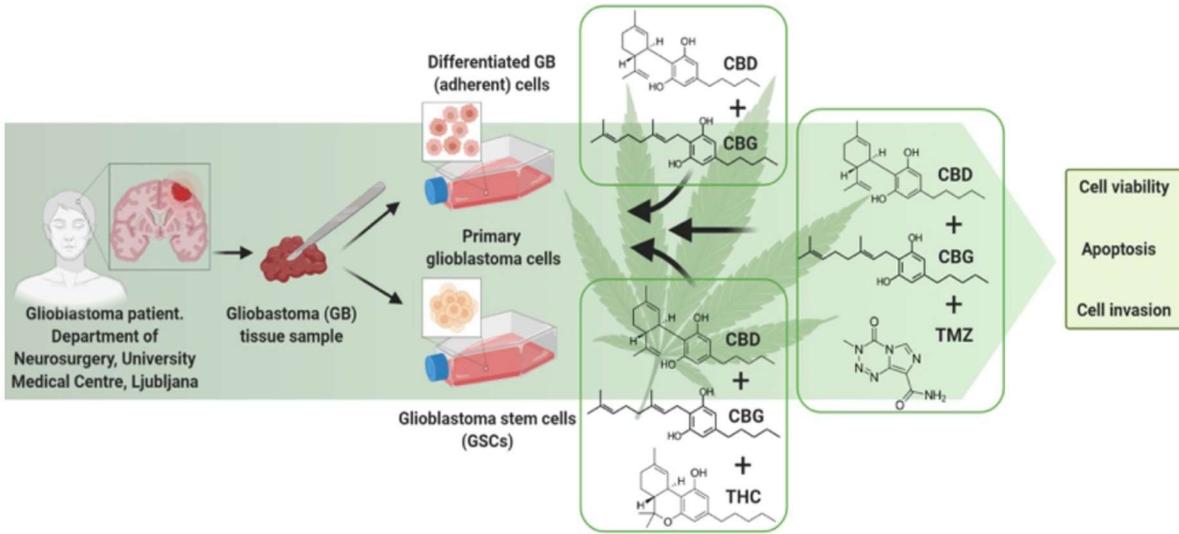
MGC is also undertaking studies in collaboration with UK company, Graft Polymer UK PLC, on the use of a base formulation nano delivery system, based on Graft Polymer’s Graft-Bio IP, to improve the bioavailability of the active compounds using a non-invasive drug administration process, with the study examining the toxicity of the base emulsion in order to confirm its safety profile for potential use in future clinical research undertaken by MGC Pharma.

<sup>1</sup> Source: [Science Direct: Nutraceuticals, Efficacy, Safety and Toxicity](#)

<sup>2</sup> Source: [National Library of Medicine](#)

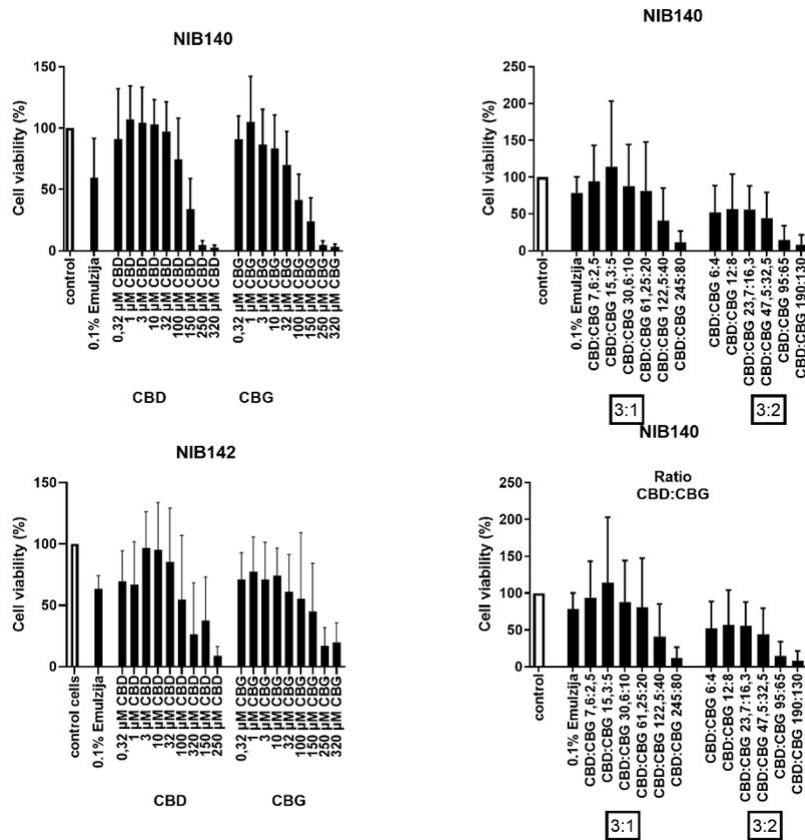
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**Figure 1.** Glioblastoma study process



**Figure 2.** The graphs below presents the cell viability results of cell lines no. 140 and 142, treated with various ratio combinations of MGC Pharma’s treatment formulation. These results will be used by MGC Pharma to determine the treatment formulations to be used in future research.

**Glioblastoma Research Results**



The study also examined the effect of adding a widely used chemotherapy agent to the treatment formulation in order to determine the effect on its efficacy, with the results demonstrating that the addition of the agent bore no contributing effects to cell apoptosis. Significantly, these results suggest that MGC Pharma’s cannabinoid treatment can potentially be used as a treatment in cancer patients without the inclusion of toxic agents. These findings will be the subject of further research in studies to determine the efficacy of MGC’s Glioblastoma treatment formulation in a clinical trial setting. With the advance of MGC Pharma’s research to the next stage of the Clinical Trial process, it is anticipated that the treatment formulation will provide a crucial addition to the Company’s Intellectual Property, as well as being a transformative step forward in the treatment of aggressive brain cancers.

**Roby Zomer, co-founder and Managing Director of MGC Pharmaceuticals, commented:** *“The results of this trial are enormously exciting both for the Company, and for the treatment of fatal cancerous tumours. MGC Pharma’s research has demonstrated the effect of naturally derived cannabinoid products on stage IV brain tumours without the use of toxic chemotherapy components. We are proud of the work achieved thus far and are looking forward to advancing our proprietary formulation to the next stage of clinical trials.”*

**About National Institute of Biology (NIB)**

The National Institute of Biology is the largest independent Public Research Institution for Life Sciences in Slovenia. The Institute was established by the Government of the Republic of Slovenia in 1960. The activity of the Institute has been and continues to be basic developmental and applicative research in the fields of biotechnology, biophysics, biomedicine and system biology. NIB works in close cooperation with affiliated higher education and research institutions in Slovenia and abroad. This synergy ensures that the knowledge produced at the Institute is widely accessible to the society through education and outreach activities and is beneficial to the economy by being transferred into practice.

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**About MGC Pharma**

MGC Pharmaceuticals Ltd (LSE: MXC, ASX: MXC) is a European based bio-pharma company developing and supplying affordable standardised phytomedicines to patients globally. The Company’s founders were key figures in the global medical cannabis industry and the core business strategy is to develop and supply high quality phytocannabinoid derived medicines for the growing demand in the medical markets in Europe, North America and Australasia. MGC Pharma has a robust product offering targeting two widespread medical conditions – Epilepsy and Dementia – and has further products in the development pipeline.

Employing its 'Nature to Medicine' strategy, MGC Pharma has partnered with renowned institutions and academia to optimise cultivation and the development of targeted phytocannabinoid derived medicines products prior to production in the Company's EU-GMP Certified manufacturing facility.

MGC Pharma has a number of research collaborations with world renowned academic institutions, and including recent research highlighting the positive impact of using specific phytocannabinoid formulations developed by MGC Pharma in the treatment of glioblastoma, the most aggressive and so far therapeutically resistant primary brain tumour.

MGC Pharma has a growing patient base in Australia, the UK, Brazil and Ireland and has a global distribution footprint via an extensive network of commercial partners meaning that it is poised to supply the global market.

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