

## PROJECT SUMMARY SHEET

**TITLE:** Impact of low-intensity electric field therapy on malignant pleural mesothelioma cell proliferation

**RESEARCH ENTITY:** Istituto di Ricerche Farmacologiche Mario Negri IRCCS (*Mario Negri IRCCS Pharmacology Research Institute*)

**PROJECT LOCATION:** Dipartimento di Oncologia (*Oncology Department*) – Istituto di Ricerche Farmacologiche Mario Negri IRCCS, via Mario Negri 2 20156 Milan

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### ABSTRACT/SUMMARY

- INTRODUCTION:

Despite the efforts and advances of research during the last few years, malignant pleural mesothelioma (MPM) continues to have a poor prognosis with a survival rate of five years from a diagnosis rate of less than 10%.

Several clinical studies on various tumors have demonstrated the potential of alternating low-intensity electric fields in combination with chemotherapy to slow down tumor progression. TTFIELDS (Tumor Treating Fields), the medical device that generates the electric fields, is already being used in the clinic for treating some brain tumors, and the FDA has recently approved its use in mesothelioma based on a trial that was also conducted in Italy.

Although the principle leading to the slowdown of tumor cell proliferation is partially known, there are still several aspects that preclinical research could investigate to maximize the properties and potential of this therapeutic tool.

- **METHOD:**

Studies on patient-derived MPM cell lines will allow us to further investigate the interaction between TTFields and cells and between TTFields and chemotherapy. The first part of the project involves assessing the impact of electric fields on cell proliferation and, once we understand the dynamics of the processes involved, we will study the interaction between the electric fields and chemotherapy. This will allow us to identify potentially effective combinations that could be investigated in future *in vivo* studies.

- **OBJECTIVES:**

The purpose of the project is to identify treatment regimens using electric fields and potential combinations with chemotherapy to increase the efficacy of MPM therapy. We hope that the *in vitro* and *in vivo* laboratory studies will inform future clinical studies aimed at improving the treatment of this disease.

**PROJECT PRESENTATION DATE:** 19 September 2019