PROJECT SUMMARY SHEET

TITLE: Study of the BoxA molecule for the treatment of mesothelioma

RESEARCH ENTITY: Ospedale San Raffaele *(San Raffaele Hospital)*

PROJECT LOCATION: Ospedale San Raffaele, Via Olgettina 58, 20133 Milan

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ABSTRACT/SUMMARY

- INTRODUCTION
  In recent years, our research group has developed a synegeneic mouse model of mesothelioma (Mezzapelle et al. Sci Rep 2016) to investigate new therapies involving the immune system response (immunotherapy). Mesothelioma is a very aggressive tumor caused by exposure to asbestos and whose progression is driven also by the pro-inflammatory cytokine, HMGB1. Our initial approach was to use the BoxA molecule that can antagonize the pro-inflammatory activity of HMGB1.

- METHOD
  The project is based on preliminary results that demonstrated the therapeutic activity of BoxA in mice with mesothelioma. BoxA was shown to prolong survival and cure approximately 20% of mice inoculated with mesothelioma cells. Furthermore, when re-injected with tumor cells the cured mice rejected the tumor and developed an immunological memory against it. The project will entail conducting animal model studies and molecular and cellular assays.

- OBJECTIVES
  The objective of the project is to demonstrate the molecular and cellular mechanism through which BoxA exerts its therapeutic activity. We will analyze the response to BoxA directly on both the tumor and inflammatory cells, particularly the macrophages. The activity of BoxA will be studied with respect to its main receptors, CXCR4, TLR4 and RAGE, to identify which is responsible for the molecular signal induced by BoxA.

PROJECT PRESENTATION DATE: 01.01.2020