

Effect of soybean yoghurt supplemented with isoflavones on the haemolytic activity of serum complement in mice with experimental lung metastasis of murine mammary and pulmonary adenocarcinoma

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Complement system is important in immune surveillance against tumours. This system is involved in the regulation of the inflammatory process; and the deposition of C3 fragments on tumour cells promotes the complement-mediated lyses and complement-dependent cellular cytotoxicity. However, malignant cells are usually resistant to complement-mediated lyses. The soybean and soybean products have been investigated as immune stimulants, and in some cases as protectors against mammary tumours and the isoflavones would be some of the most important molecules that show such effects. Considering these aspects, in this preliminary study, we examined the effect of the soybean yoghurt supplemented with isoflavones (SYI) on the haemolytic activity of mice serum complement with experimental lung metastasis of murine mammary or pulmonary adenocarcinoma. Mice were i.v. inoculated with the following adenocarcinoma cell lines: LP07 (lung tumour) and LM38 (mammary tumour). These animals received SYI daily *by gavage* each night from 10 days before, until 21 days after cell inoculation, when

they were sacrificed. The alternative-pathway activity of serum complement was evaluated by a kinetic haemolytic assay. In LP07 model, a significant depletion of complement activity was observed in sera from animals that received SYI compared to controls. In contrast, in LM38 model the complement activity of sera from mice treated with SYI showed a tendency to higher haemolytic activity compared to controls. However, in both models, no correlation was observed among haemolytic activity of complement and other analysed parameters (such as leukocyte count and metastasis number and size). These results warrant additional studies to evaluate the relevance of complement proteins in immunosurveillance and in the understanding of the mechanisms involved in the resistance of tumour cells to complement-mediated injury, as well as the role of the isoflavones in these responses.

Key words: complement system, soybean yoghurt, isoflavones, pulmonary cancer, mammary cancer, metastasis