Mesenchymal stem cells inhibit proliferation of lymphoid origin haematopoietic tumour cells by inducing cell cycle arrest

ABSTRACT

We have previously shown that mesenchymal stem cells (MSC) inhibit tumour cell proliferation, thus promising a novel therapy for treating cancers. In this study, MSC were generated from human bone marrow samples and characterised based on standard immunophenotyping. When MSC were co-cultured with BV173 and Jurkat tumour cells, the proliferation of tumour cells were profoundly inhibited in a dose dependent manner mainly via cell to cell contact interaction. Further cell cycle analysis reveals that MSC arrest tumour cell proliferation in G0/G1 phase of cell cycle thus preventing the entry of tumour cells into S phase of cell cycle.

Keyword: Apoptosis; Cell cycle arrest; Mesenchymal stem cells; Proliferation; Tumour cells