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# Interaction of mesenchymal stem cells with primary bone tumor cells: Potential implications according to the tumor resection status

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Conventional therapy of primary bone tumors includes surgical excision with wide resection, which leads to physical and aesthetic defects. For reconstruction of bone and joints, allograft can be supplemented with mesenchymal stem cells (MSCs) or adipose-derived stem cells (ADSCs). Additionally MSC-like cells may be used in tumor-targeted cell therapy. However, we wanted to know whether MSC-like cells may have adverse effects on osteosarcoma development. MSCs/ADSCs were co-injected with human MNNG-HOS osteosarcoma cells in immunodeficient mice and have accelerated the local tumor growth. This pro-tumor effect may be due to MSC/ADSC secreted factors as the *in vitro* proliferation of osteosarcoma cells was increased up to 2 folds in the presence of MSC/ADSC-conditioned medium. Because of the enhancing effect of MSCs on *in vivo*/*in vitro* proliferation of osteosarcoma cells, MSCs may not be good candidates for osteosarcoma-targeted cell therapy. In contrast, MSC-conditioned medium did not change the dormant, quiescent state of osteosarcoma cells cultured in oncospheres. This result indicates that MSC-secreted factors may not be involved in the risk of local recurrence and that MSCs may be safe in tissue reconstruction following bone tumor treatment.

## Biography

Valerie Trichet has completed her PhD from Rennes University and Post-doctoral studies from Edmonton University, Canada and Nantes University, France. She is an Associate Professor at the Faculty of Medicine, University of Nantes in France. She has joined the Laboratory of the Pathophysiology of Bone Resorption (INSERM UMR957) in the year 2006. Her current research interests are focused on understanding the role of Mesenchymal Stem/Stromal Cells in Bone Regeneration and in Primary Bone Tumors.

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