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INFLUENCE OF IONIC DISOLUTION OF Si-Ca-P BIPHASIC CERAMICS ON MULTIPOTENT STEM CELLS PROLIFERATION AND *IN VITRO* MINERALIZATION

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INTRODUCTION

Tissue engineering is a science which studies different ways to achieve the regeneration of diseased tissues. To get it, this field uses biomaterials like inorganic ceramics, which are capable to create a direct bond to bone in absence of fibrous connective tissue. As to its composition, it can be said that silicon (Si) is a trace element that enhances bone formation and maturation in the body; thus apatite ceramics containing Si are expected to increase the speed of bone regeneration.

MATERIALS AND METHODS

EC1	EC2	EC3
31% TCP + 69% C_2S	59.5% TCP + 40.5% C_2S	83% TCP + 17% C_2S

RESULTS

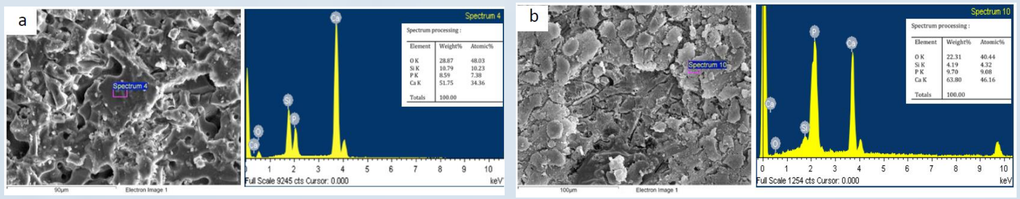
- The presence of bone-like apatite layer on the material Surface after soaking in culture medium.
- ahMSCs are therefore able to adhere in all materials, but only EC2 strongly increments ahMSC proliferation.
- EC1 and EC2 at 28 days plus OM, enhanced the formation of mineralized nodules.

CONCLUSIONS

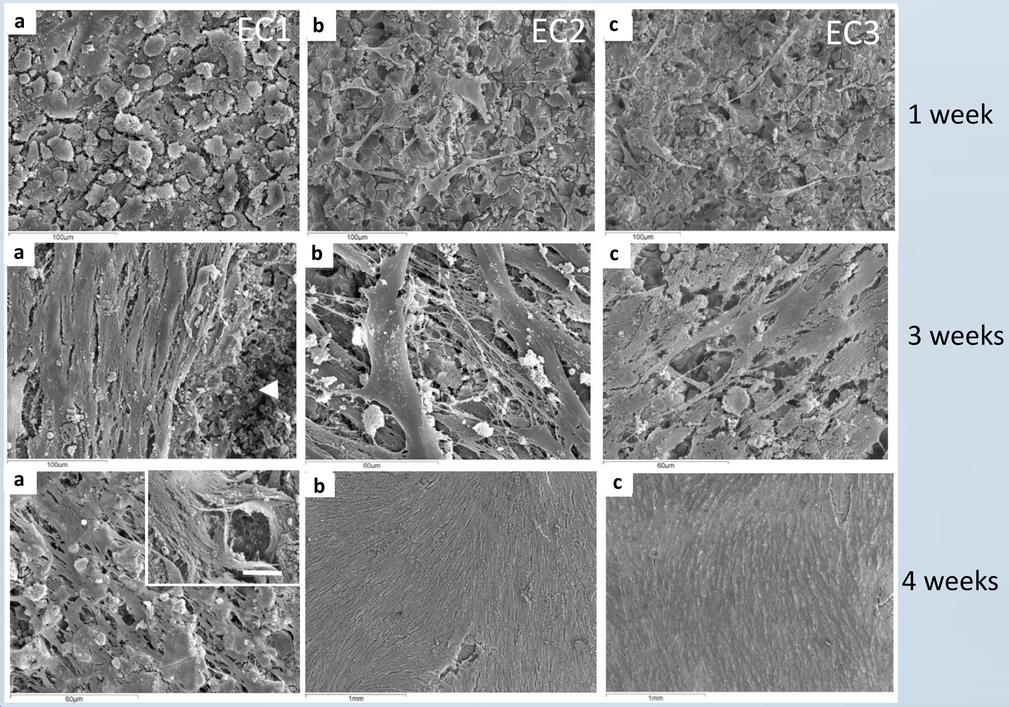
We conclude that all the materials are non-toxics, although on EC2 material proliferation rate is higher. The association of EC2 with OM stimulates cells better tan the others combinations.

RESULTS

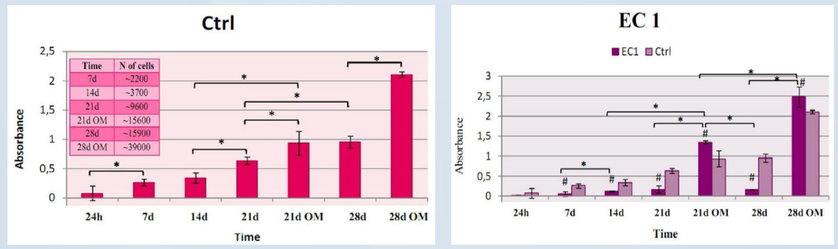
Before immersion in culture médium (1 week) / **After immersion in culture médium (1 week)**



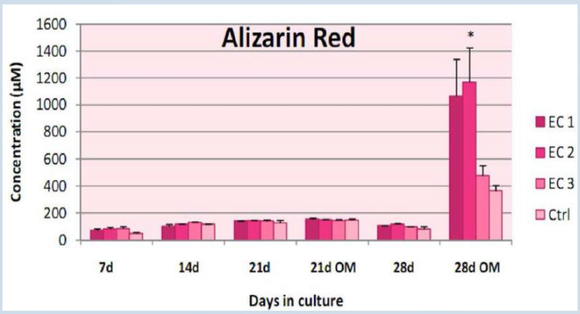
SEM assay



MTT assay



Alizarin Red



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