

Differentiation of Motor neurons Derived from Embryonic Stem Cells on a Polymerized Surface by Plasma

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The embryonic stem cells (ES) are undifferentiated cells capable of renewing themselves and under certain physiologic or experimental conditions; they can be induced to become tissue or organ specific cells with special functions [1]. Spinal motor neurons represent a subtype of CNS neurons to the specification which neuronal pathways have been defined. Ectodermal cells take on a rostral initial neuronal through the regulation of BMP, FGF, and Wnt signaling. Rostral neural progenitor cells acquire an identity of spinal position in response to signals inducing caudalization RA (retinoic acid). Subsequently, spinal progenitor cells acquire the identity of MN progenitors in response to the action of ventralization of Sonic Hedgehog (Shh). [2,3].

Once a specification of motor neuron gain is dispensable to be carried to the morphological differentiation process, in which the contact surface wherein the differentiation is carried must provide an adequate anchorage to allow the morphology characteristic of motor neurons. An alternative to improve the adhesion properties of the surfaces of seed is used the polymerization by plasma using a pyrrole monomer, where modified the surface characteristics of materials to increase their seeding adhesion properties, has been found that the polypyrrole synthesized by plasma creates a surface layer rich amine which promotes cell adhesion [4].

In this paper evaluates the properties of pyrrole as growth substrate promotes cell adhesion and therefore the differentiation of motor neurons derived from embryonic stem cells, cells will grow and then be differentiated on cover slips coated with polypyrrole synthesized by plasma, were tested for cell viability on the polymer that tried in good faith the proper functionality of motor neurons and to verify that the polypyrrole synthesized by plasma in a good substrate biocompatible growth that does not alter physiological properties of motor neurons and allowing cell differentiation.

References

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