

## Platelet preparations in neuronal cell differentiation

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Concentrated Growth Factors (CGF) is a platelet rich preparation that has the important feature of a tight fibrin network and containing a large number of growth factors possessing great regenerative potentialities [1].

The regeneration of nervous system is one of the main goal of regenerative medicine. The aim of this study is to test the *in vitro* CGF effects on both differentiated and undifferentiated SH-SY5Y cells, derived from human neuroblastoma.

To induce differentiation, SH-SY5Y cells have been treated with Retinoic Acid (RA) 10 $\mu$ M, in both basal and complete medium and in the presence and absence of CGF. After 72 hours, different parameters have been investigated: the morphological characteristics of the cells, the cell proliferation, the cellular vitality using the MTT test, the CGF and/or RA differentiation property and the immunocytochemical analysis of neuronal specific markers (NeuN, Synaptophysine,  $\beta$ -III-tubulin, Nestin). Moreover the NGF (Nerve Growth Factor) and BDNF (Brain Derived Growth Factor) release have been assayed by ELISA test.

Our results obtained suggest that treatment with CGF, also used alone, positively affects cell differentiation and neuronal phenotype regulating the expression of the neuronal markers and improving the outgrowth of neurites.

Taken together these results seem to be promising into new approaches for neuronal regeneration using platelet preparations.

### References

- [1] Borsani E et al. (2015) Biological characterization and *in vitro* effects of human concentrated growth factor preparation: An innovative approach to tissue regeneration. *Biol Med (Aligarh)* 7: 256.

### Keywords

Concentrated growth factors, neuronal differentiation, SH-SY5Y