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Identification of neuron-related genes for cell therapy of neurological disorders by network analysis

Key words: **Neuronal differentiation, BMSCs, Protein–protein interaction network, Differentially expressed genes (DEGs)**

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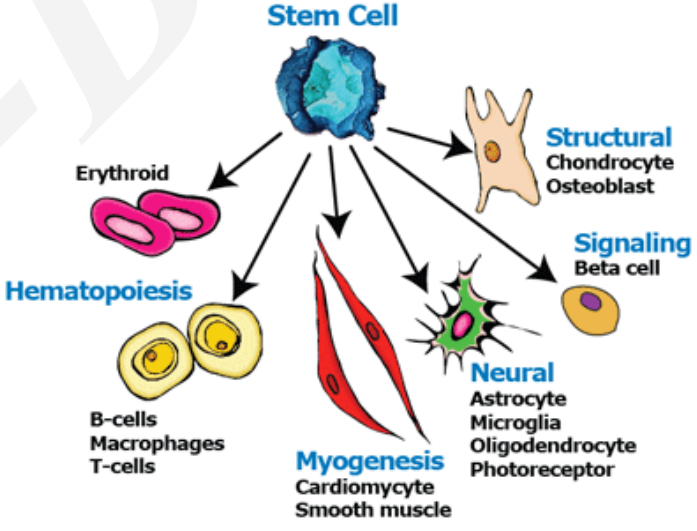
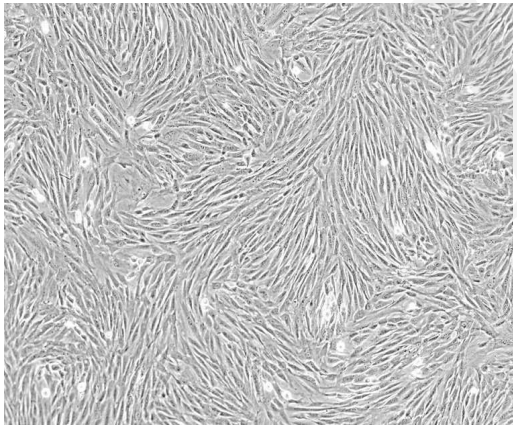
Research Summary

This review mainly focused on identifying the hub genes in neuronal differentiation from BMSCs and the hub genes in neuronal development using softwares in the following .

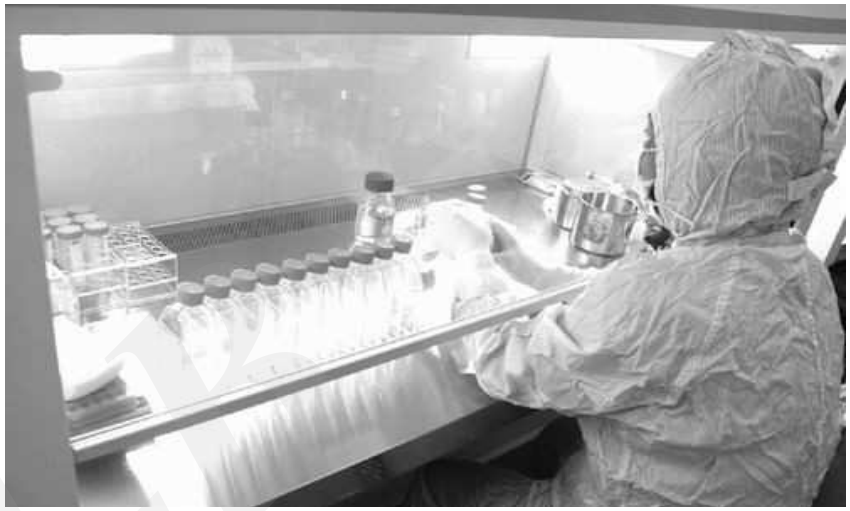
- **DAVID,**
- **STRING 10,**
- **BiNGO tool,**
- **Network Analyzer software**







Innovation points



- **Introduction** of the advantage of BMSCs .

- **Summary** of the most research progress about factors inducing neuronal cell differentiation from BMSCs .

- **Emphasis** of high connectivity (hub genes) associated with neuronal differentiation from BMSCs and neuronal development.

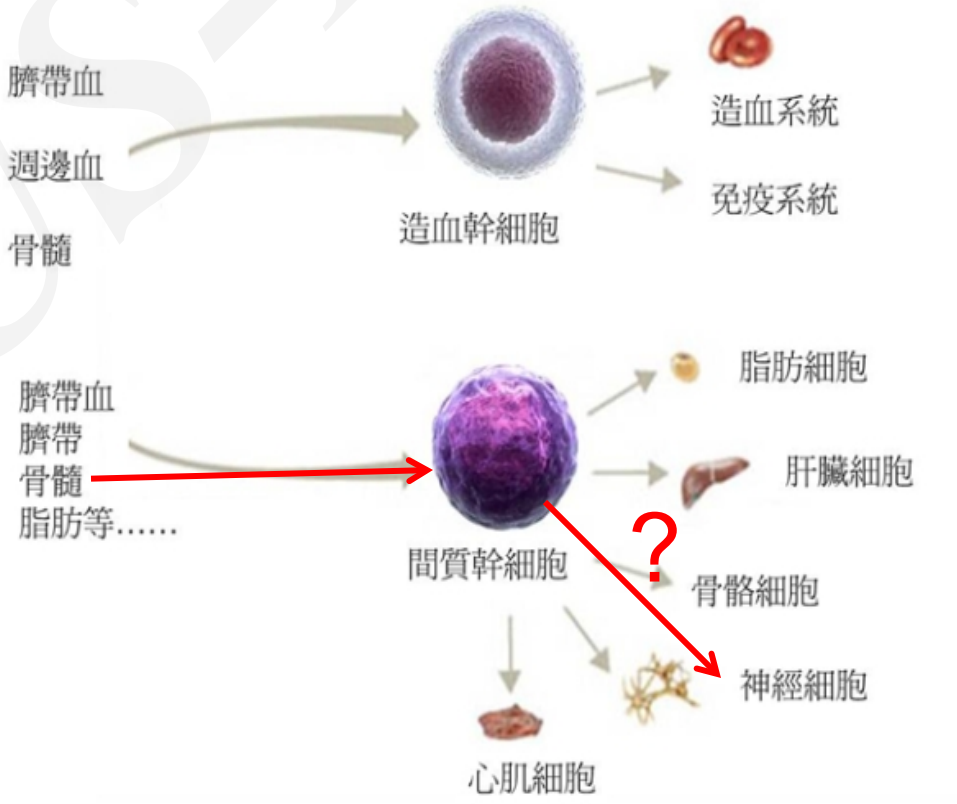


Figure 4

Innovation points

A series of comprehensive pictures and tables were generated to summarize the knowledge about neuronal differentiation from BMSCs and neuronal development..

Figure 1 | Cassette figures of the expression data before and after standardization

Figure 2 | Hierarchical cluster analysis of DEGs.

Figure 3 | GO enrichment analyses .

Figure 4 | GO terms in the networks were displayed as a network using BiNGO .

Figure 5 | . PPI networks of (a) neuron differentiation (GO:0030182), (b) neuron development (GO:0048666) and (c) regulation of cell proliferation (GO:0042127) biological process.

Table 1. The genes in GO terms of neuron differentiation and regulation of cell proliferation

Table2. Key genes selected based on visualize parameters like BC and degree

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