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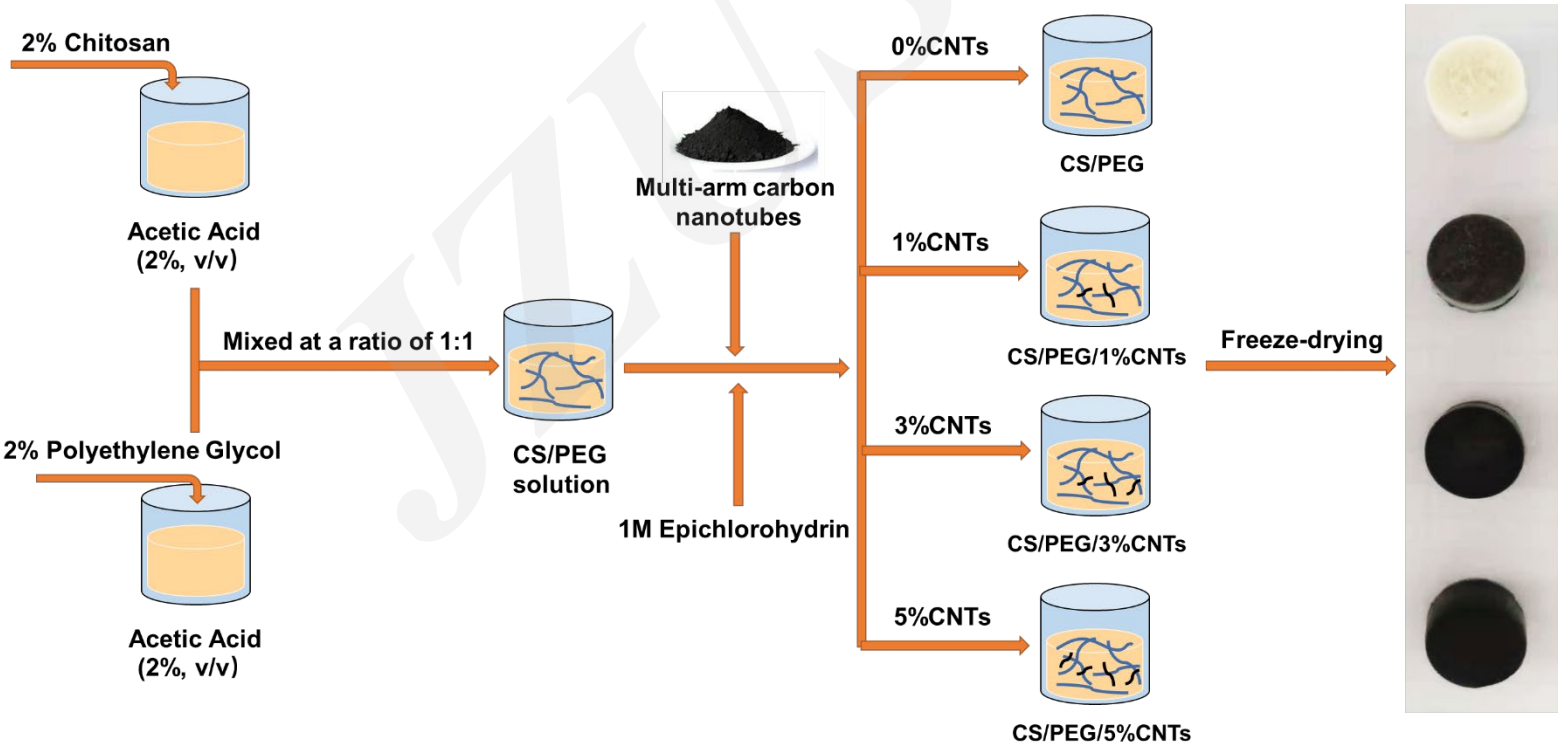
# Biocompatible chitosan/polyethylene glycol/multi-walled carbon nanotube composite scaffolds for neural tissue engineering

**Key words: Multi-walled carbon nanotubes (MWCNTs); Cell-scaffold; PC12 cells; Biocompatibility**

# Research Summary

**In this article, the CS/PEG/MWCNT composite scaffold was prepared by freeze-drying method, and the application prospects of the composite scaffold in nerve tissue engineering were explored through physical and chemical characterization and biocompatibility study.**

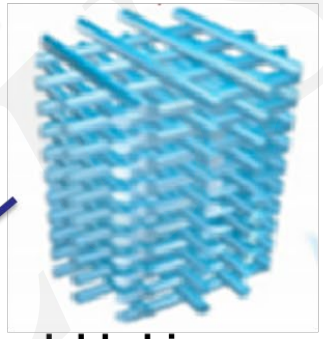


# Research Summary

**Mechanical properties**

**Chemical nature**

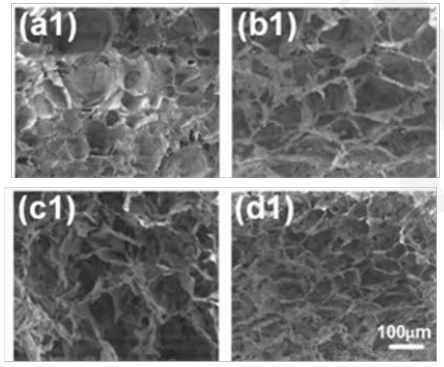

**Synthesis and Cross-linking method**



**Degradable biocompatible nerve cell scaffold**

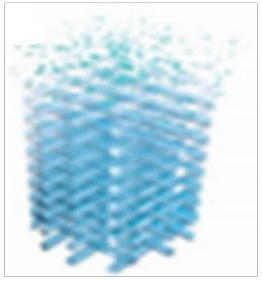
**Performance characterization**

- Micro structure(SEM)
- Porosity
- Water swelling
- etc.



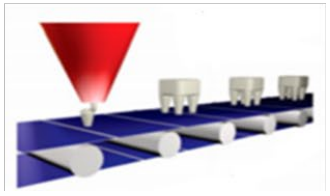

**Biological performance**

- Biocompatibility
- Cytotoxicity
- Promote differentiation



**Production efficiency**

- Production Method
- cost



# *Conclusion*

- **After adding CNTs, the overall microstructure of the scaffold did not change significantly, but a small amount of pore wall thickens and pore diameter decreased.**

- **As the concentration of CNTs increases, the conductivity and mechanical properties of the composite scaffold increased, and the swelling rate and biodegradation rate decreased.**

- **PC12 cells have significant differentiation ability in Cs/PEG/CNTs, and successfully expressed the relevant markers of neural cell differentiation.**