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Rescuing lysosomal/autophagic defects via nanoapproach: implications for lysosomal/autophagic defect-related diseases

Key words: Lysosome, Autophagy, Lysosomal/autophagic disfunction, Acidic nanoparticles, Transcription factor EB (TFEB), Dementia, Alzheimer's disease

Research summary

This review mainly focuses on engineered nanomaterials that have the capabilities to restore the function of the lysosome or autophagy-lysosome system, and summarizes different strategies and methods for various disease treatments closely associated with lysosomal/autophagic dysfunction.

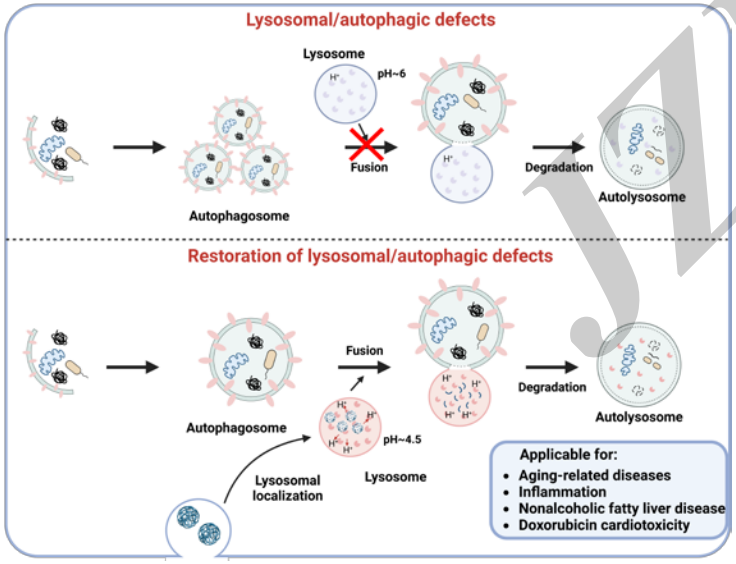

Figure 3

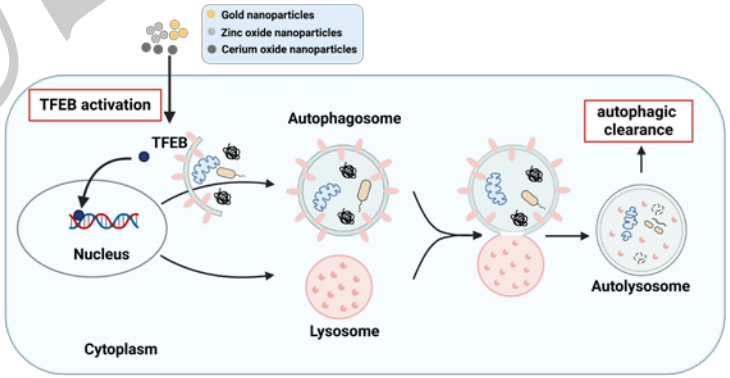

Figure 8

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Innovation points

- **Introduction** **of various diseases associated with lysosomal/autophagic dysfunction.**

- **Summary** **of the most updated research progress about engineered nanomaterials in restoring lysosomal/autophagy dysfunction.**

- **Emphasis on** **the significance of regulating the function of the lysosome or autophagy-lysosome system in disease intervention.**

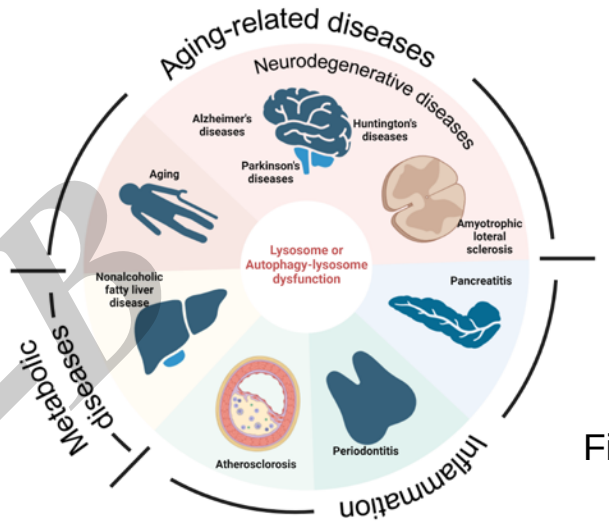

Figure 2

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Innovation points

A series of comprehensive tables were generated to summarize the different nanoparticles for restoring lysosomal or autophagic function.

Table 1 | Acidic nanoparticles capable of restoring lysosomal or autophagic function.

Table 2 | Inorganic non-metallic nanoparticles capable of restoring lysosomal or autophagic function.

Table 3 | Metal based nanoparticles capable of restoring lysosomal or autophagic function.

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