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Selective functionalized cyclodextrins applied in biomolecules delivery

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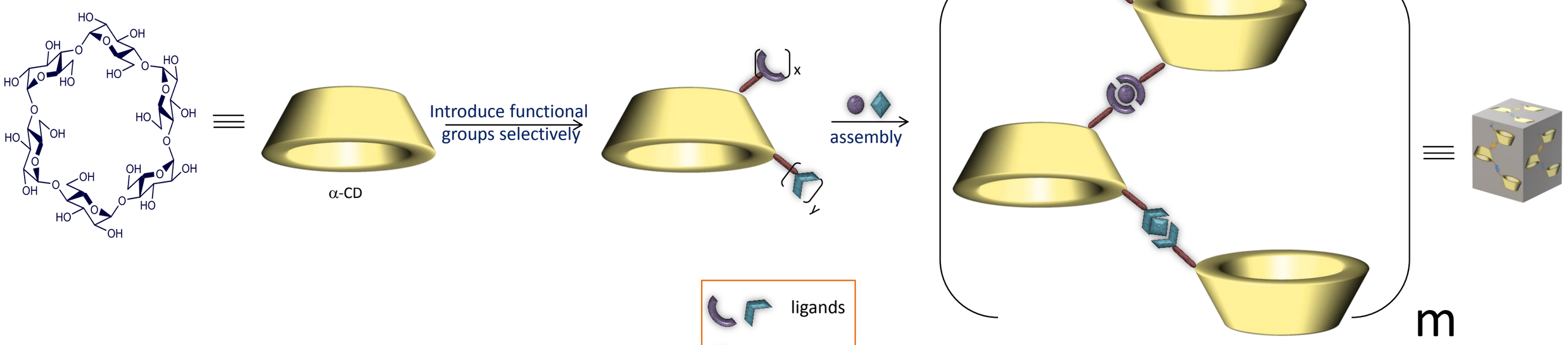
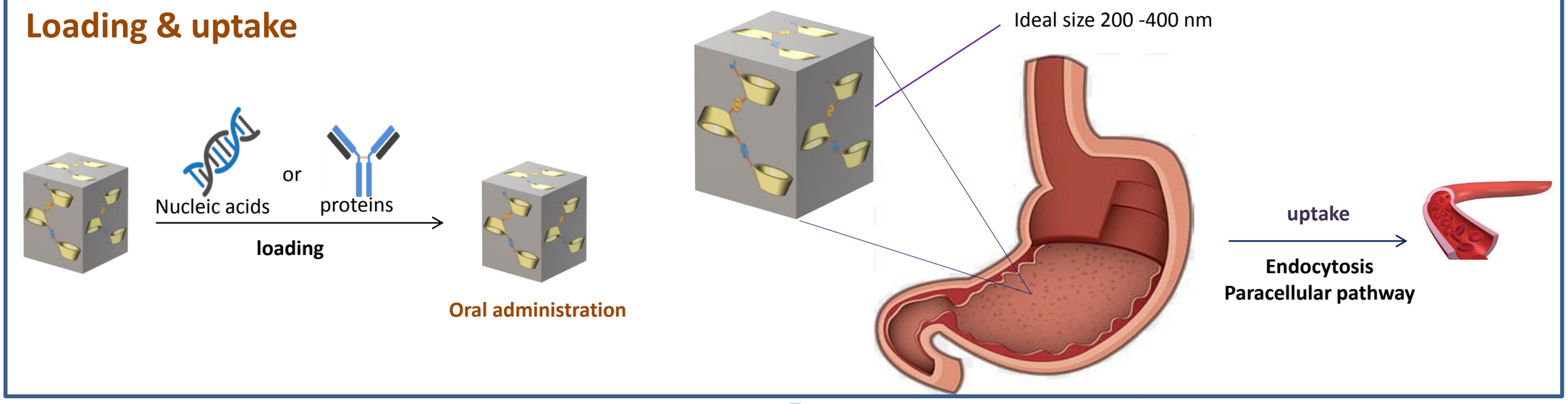
Abstract: Biomolecules play more and more important roles in diseases' treatment generally due to their excellent bio-activity and highly selective affinity. However, the most challenge for biomolecules is biodegradation, therefore, appropriate delivery systems are powerful options to avoid biodegradation. Functionalized cyclodextrin metal organic frameworks (CD-MOF) improve a lot properties of natural CD-MOF, which allow functionalized CD-MOF suitable for biomolecules' delivery.

Synthesis & assembly

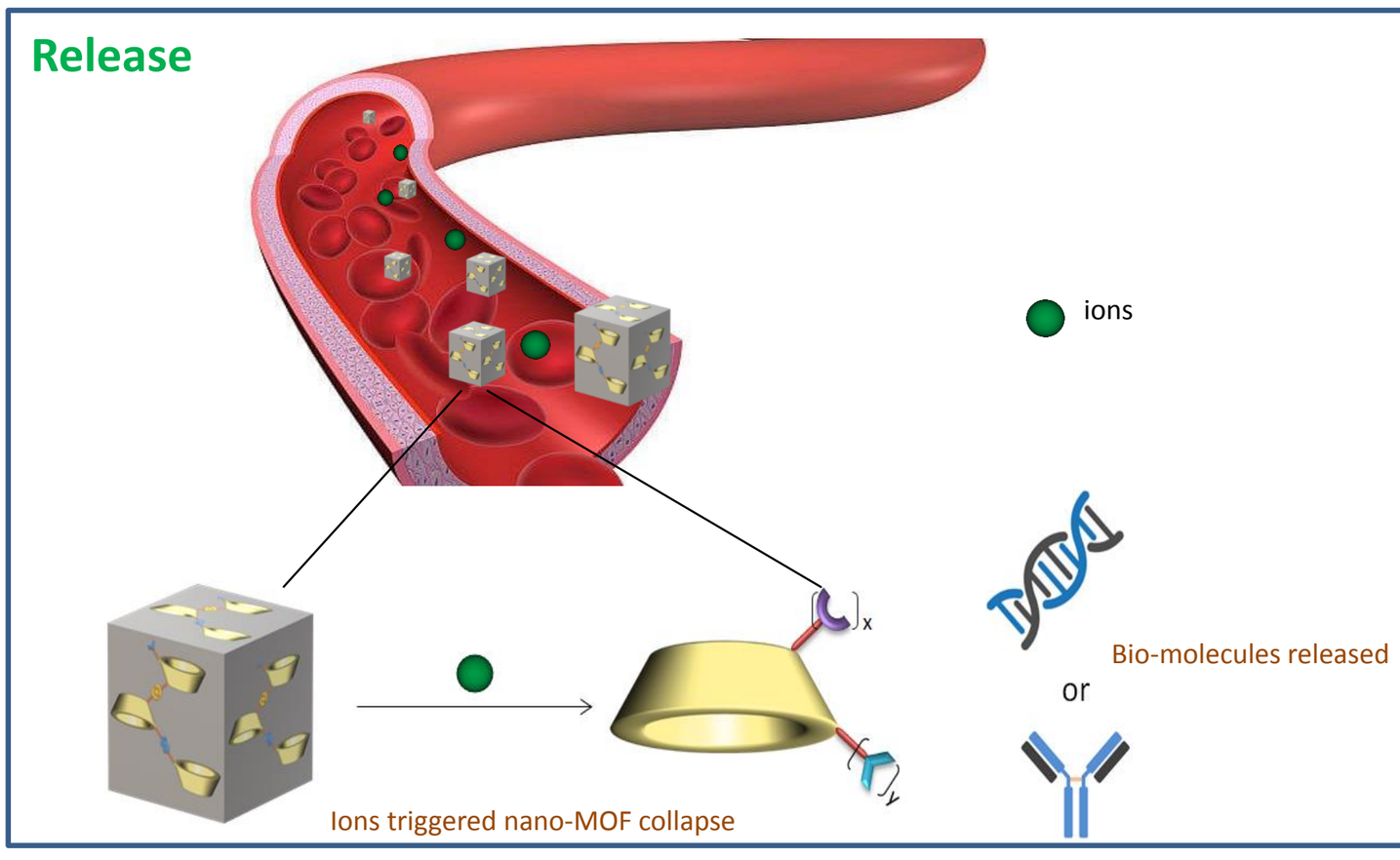


After 10 to 12 steps, the functionalized CD blockers were prepared, subsequently assembled with cations.

Loading & uptake



Release



Conclusion: 1. A functionalized CD-MOF already assembled, but the size is much bigger than ideal size. (need improve)

2. Ions triggered nano-MOF collapse testing in simulated plasma proved the ion-trigger nano-MOF collapse ability.

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