86

Self-assembled peptide dendrigraft supraparticles with potential application in pH/enzyme-triggered multistage drug release

M. L. Agazzi, S. E. Herrera, M. L. Cortez, W. A. Marmisollé, O. Azzaroni.*

Instituto de Investigaciones Fisicoquímicas Teóricas y Aplicadas (INIFTA), UNLP, La Plata, Argentina.

***maxiagazzi@gmail.com**

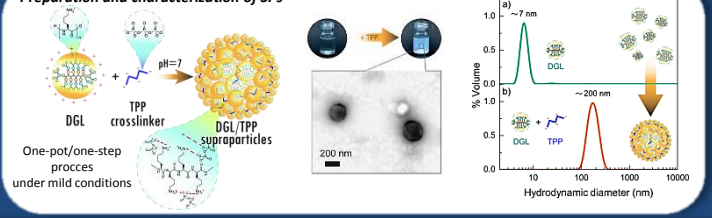
INTRODUCTION :

Small-sized nanoparticles **(5-10 nm)** have a great capacity for tumor penetration but exhibit fast systemic clearance. Instead, larger nanoparticles **(100-200 nm)** present longer circulation times, achieving better accumulation in tumor environments but inefficient penetration. To surmount this paradox, **multistage delivery systems** with size reduction capacity have emerged in recent years.

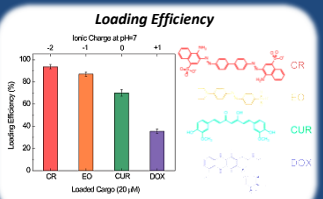
PROPOSAL:

Here we presented a **simple and fast supramolecular approach** to construct **size-shrinkable supraparticles (SPs)** by ionic cross-linking of biodegradable **poly-L-lysine dendrigraft (DGL) with tripolyphosphate anion (TPP).**

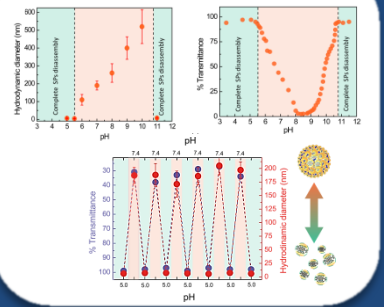
Preparation and characterization of SPs



Loading Efficiency

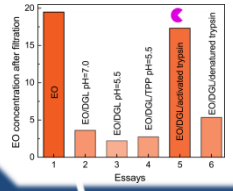


pH-triggered size switching of SPs



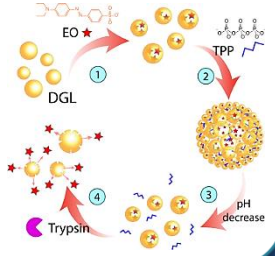
Triggered payload release by trypsin

After pH-triggered disassembly, the cargo trapped in dendrimers can be released by action of **trypsin enzyme**, a protease **overexpressed in tumor tissues**



CONCLUSION:

SPs could be exploited as **multistage nanocarriers** in **pH/enzyme-triggered** drug releasing system



FOLLOW US on social media

Soft Matter Laboratory

ACKNOWLEDGEMENTS

Soft Matter Laboratory · CONICET · UNIVERSIDAD NACIONAL DE LA PLATA

REFERENCE

ML Agazzi et al. Colloids Surf. B, 110895, 2020.

https://doi.org/10.1016/j.colsurfb.2020.110895