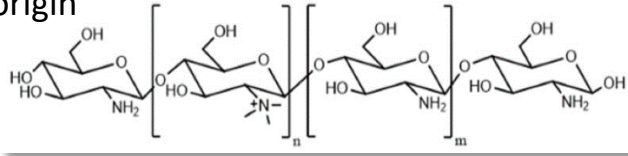


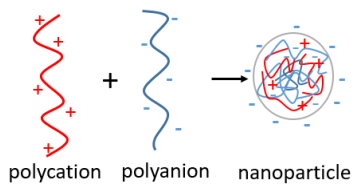
OBJECTIVES:

- Develop characterization methods to establish how trimethyl chitosan (TMC) can be used in the preparation of nanoparticles

TMC is a cationic polymer from natural origin

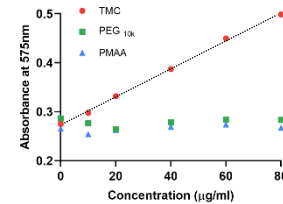
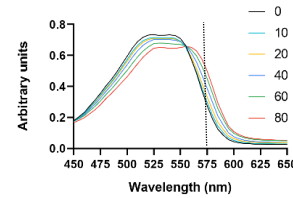


TMC can self-assemble with anions to form nanoparticles

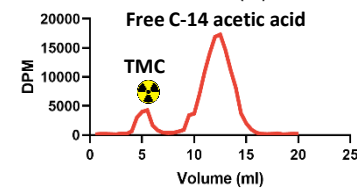
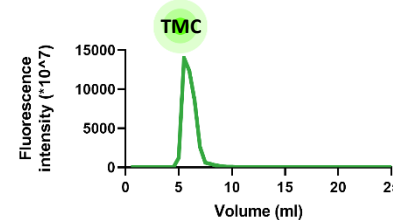


Detection of TMC

Colorimetric test

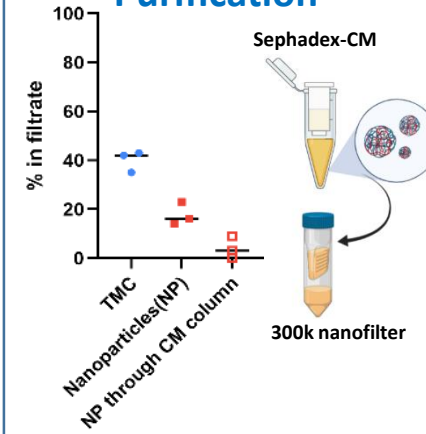


Conjugation of labels

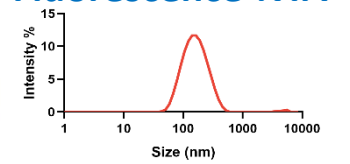


Characterization of nanoparticles

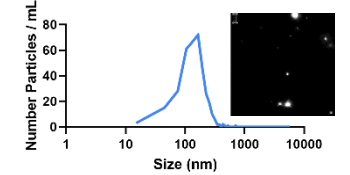
Purification



Fluorescence-NTA



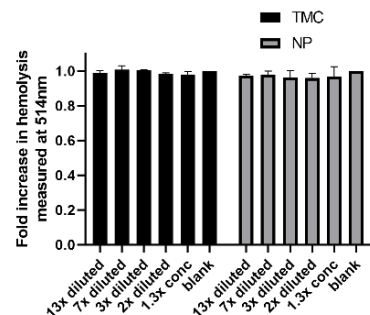
Z-average = 109.5 nm, pdi= 0.230



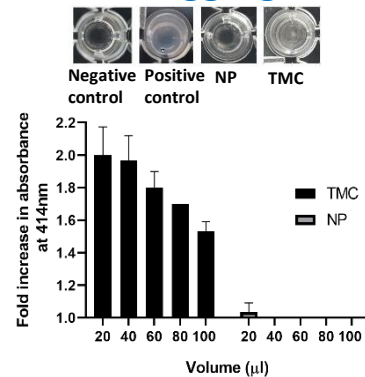
Median (X50) size= 145.5 nm, X90/X10=3

Interactions with biological systems *in vitro*

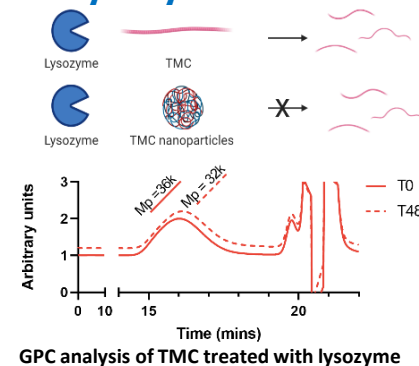
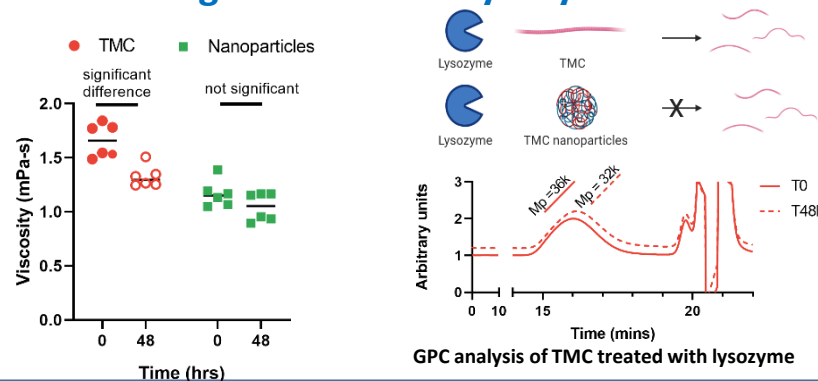
Hemolysis



Protein aggregation



Degradation with lysozyme



Perspectives

- We have established various methods to follow TMC, characterize TMC nanoparticles and monitor their interactions with biological components
- The formulation of TMC into nanoparticles changes its physicochemical properties and the way it interacts with biological components
- A decrease in molecular weight was observed during *in vitro* chemical hydrolysis and in the case of enzymatic hydrolysis using lysozyme
- The processes developed here will help us study the fate of TMC nanoparticles *in vivo*