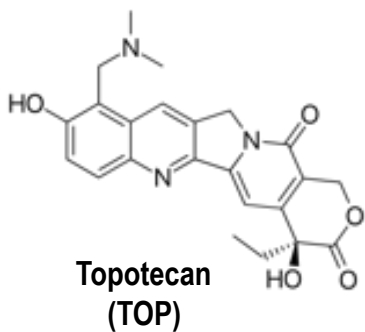
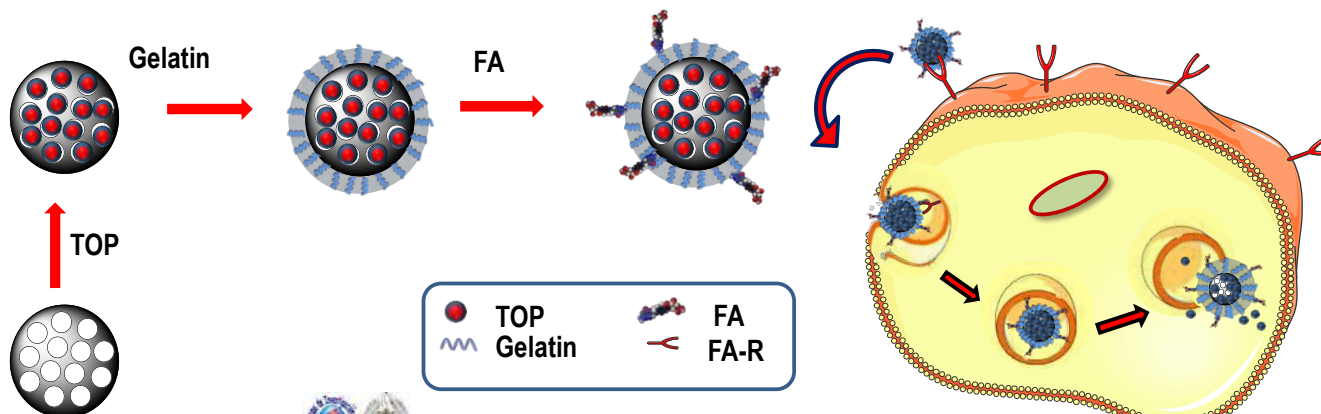


pH-sensitive MSNs for targeted antitumor therapy



- ✓ Noninvasive
- ✓ Great knowledge about the physiological pH, the organelles and the tumor environment

A potent antitumor drug that degrades at physiological pH

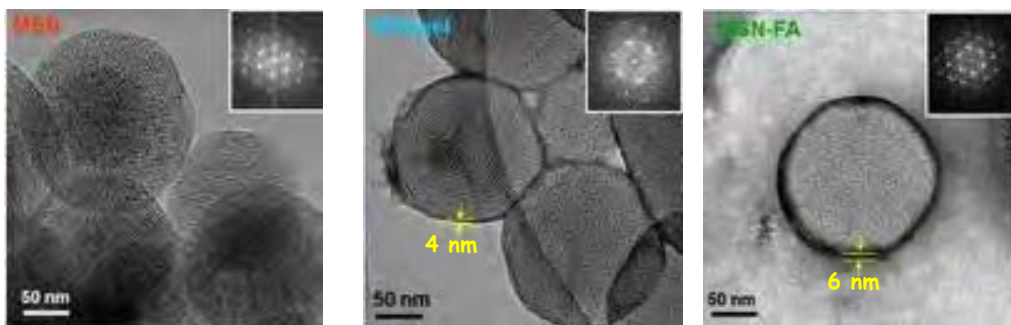


María Vallet-Regí



M. Martínez-Carmona, D. Lozano, M. Colilla, M. Vallet-Regí, *RSC Adv.* 2016, 6, 50923-50932.

Transmission Electron Microscopy (TEM)



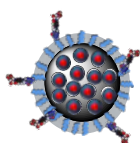
Average size: 170 nm

180 nm

190 nm

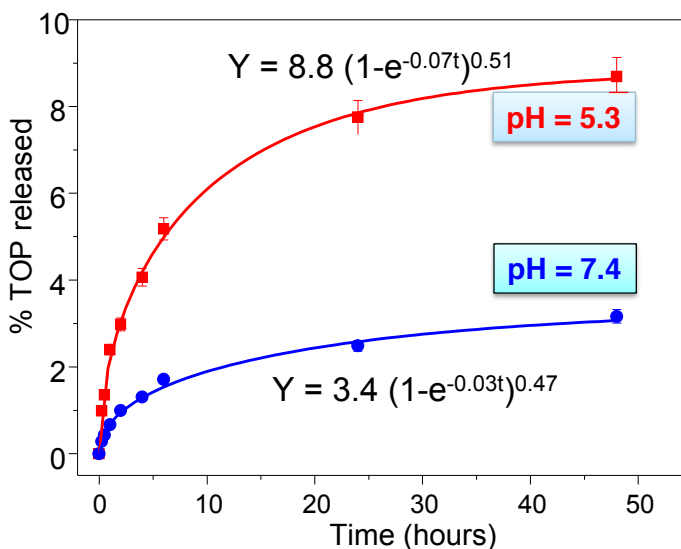


"In vial" TOP release from MSN-FA

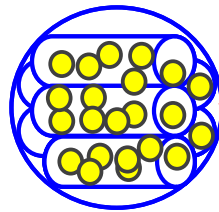
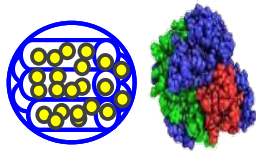


M. Martínez-Carmona, D. Lozano, M. Colilla, M. Vallet-Regí, *RSC Adv.* 2016, 6, 50923-50932.

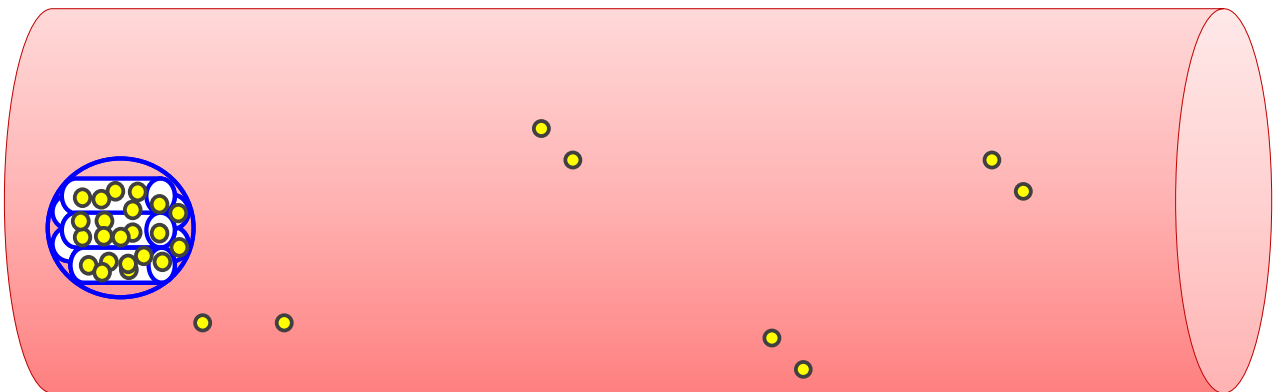
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Transporting pro-drugs

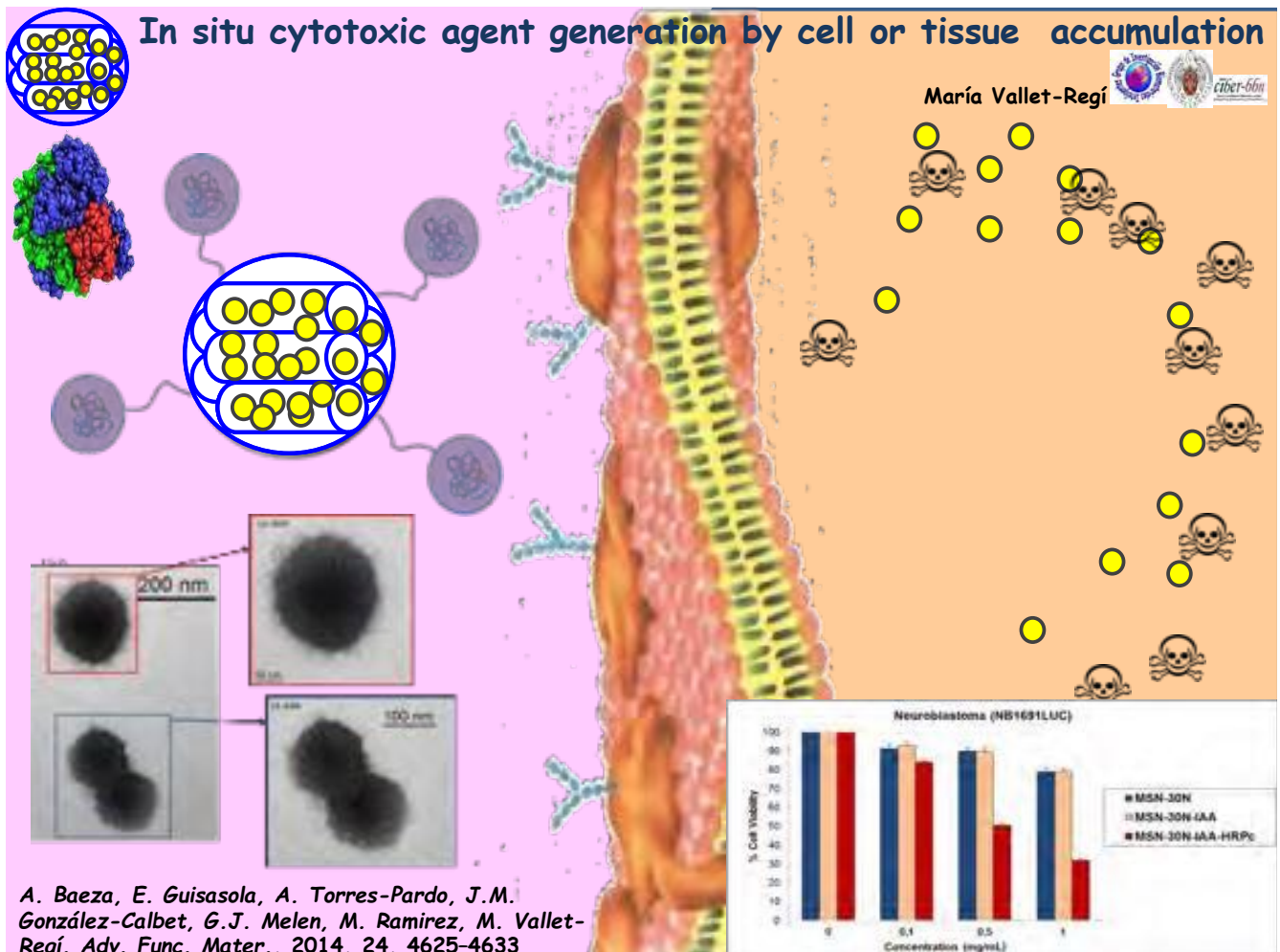


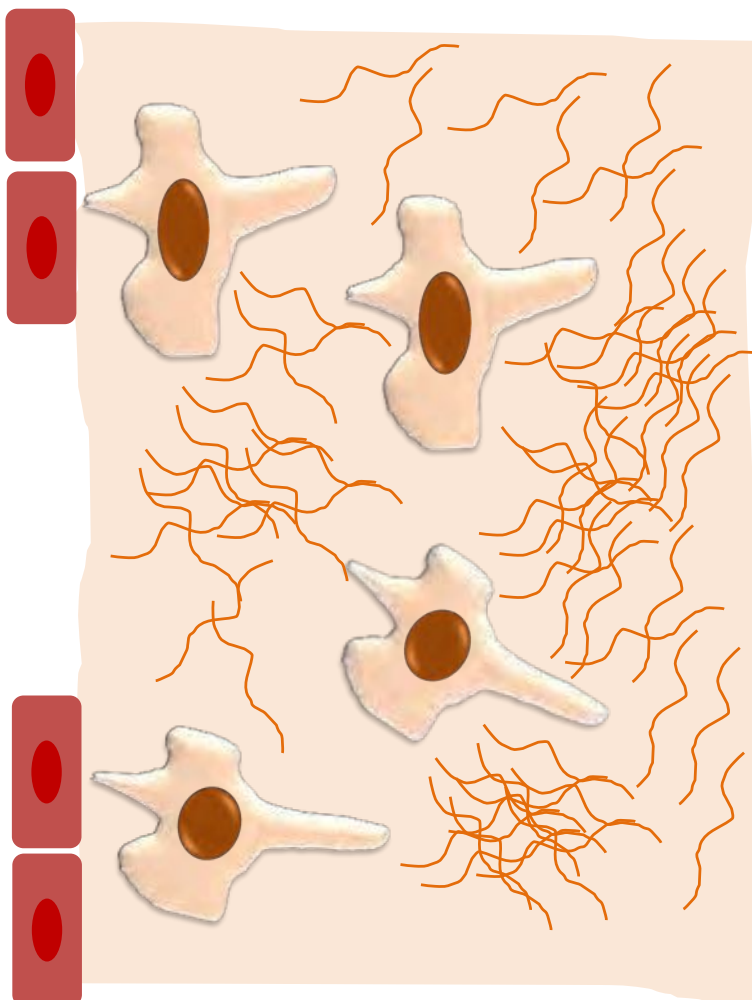
Non-toxic pro-drugs



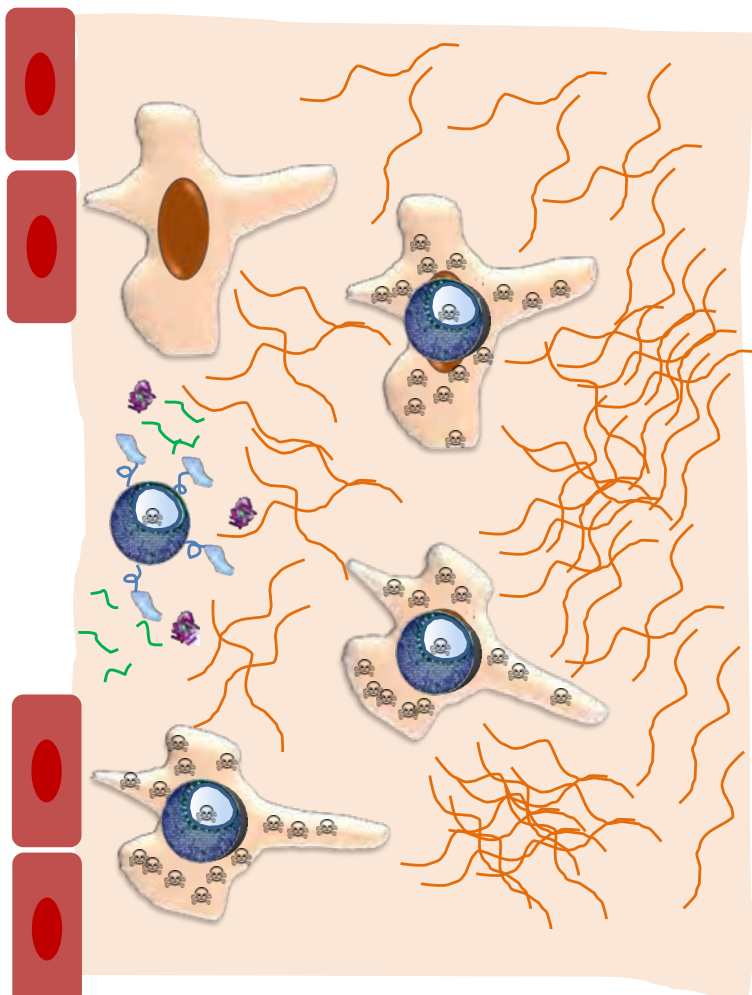
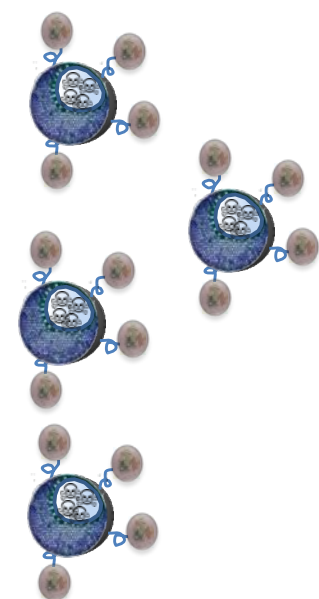
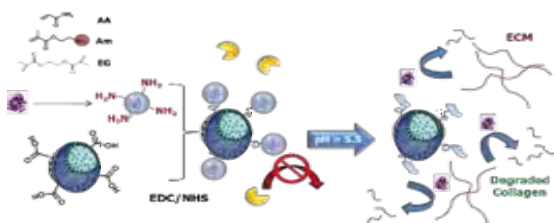
A. Baeza, E. Guisasola, A. Torres-Pardo, J.M. González-Calbet, G.J. Melen, M. Ramirez, M. Vallet-Regí.
Adv. Func. Mater., 2014, 24, 4625-4633

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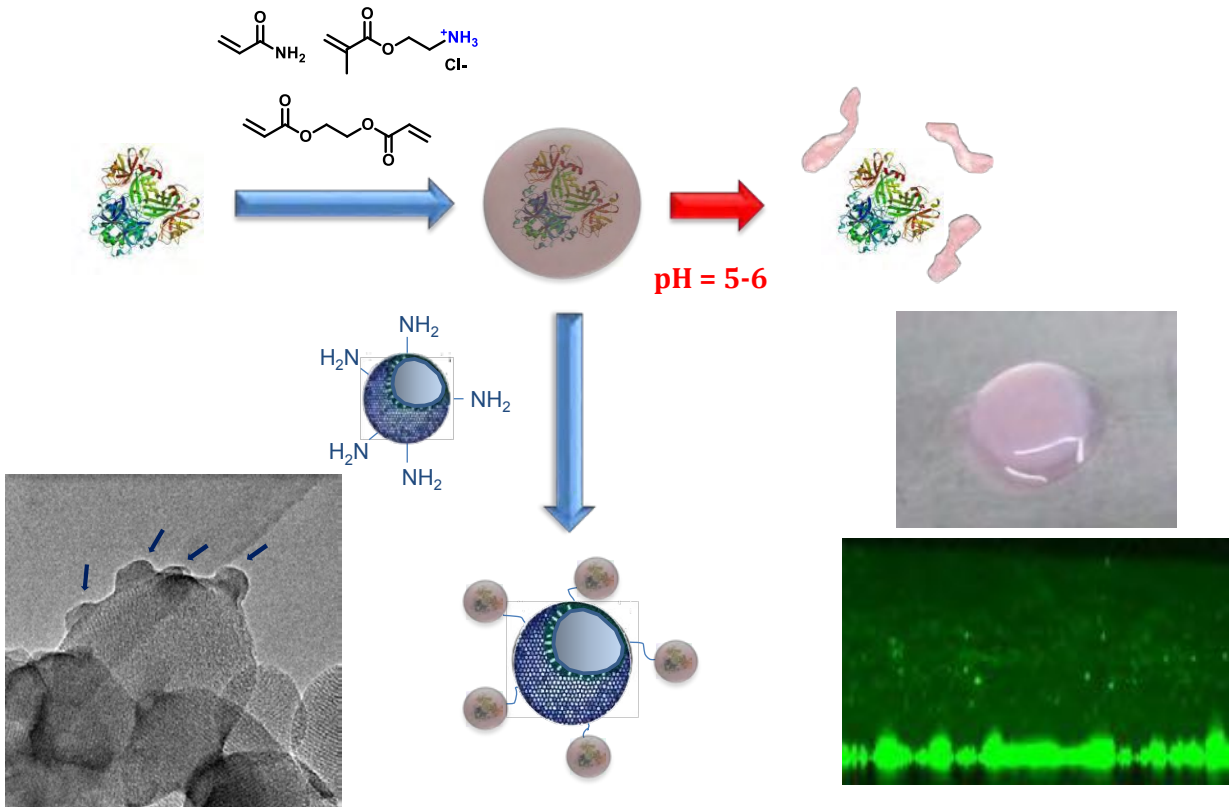


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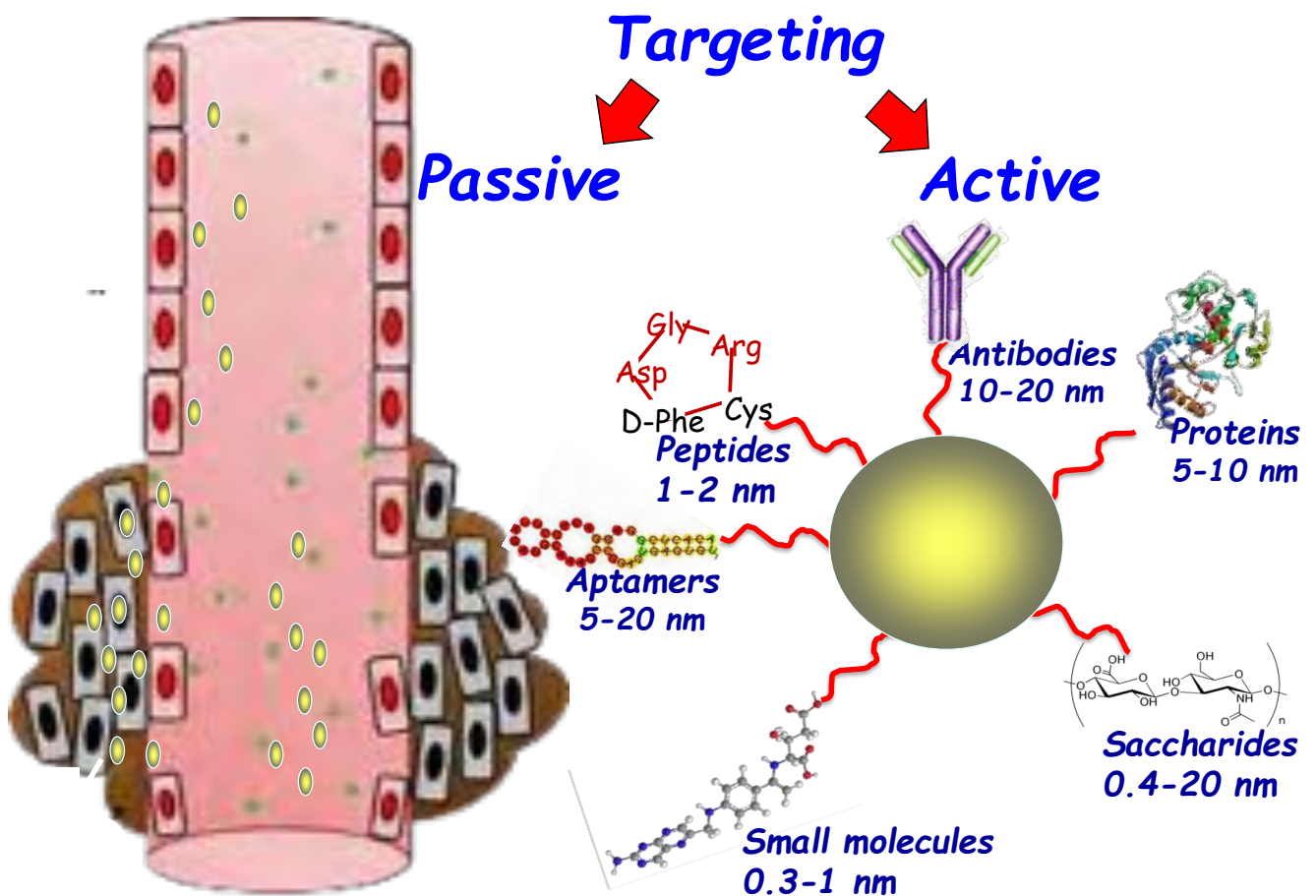
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Collagenase nanocapsules for improved penetration



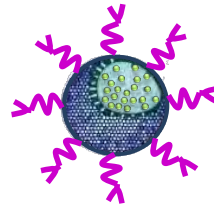
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R. Villegas, A. Baeza, M. Vallet-Regí, *ACS Appl. Mater. Interfaces*, 2015, 7, 24075-24081

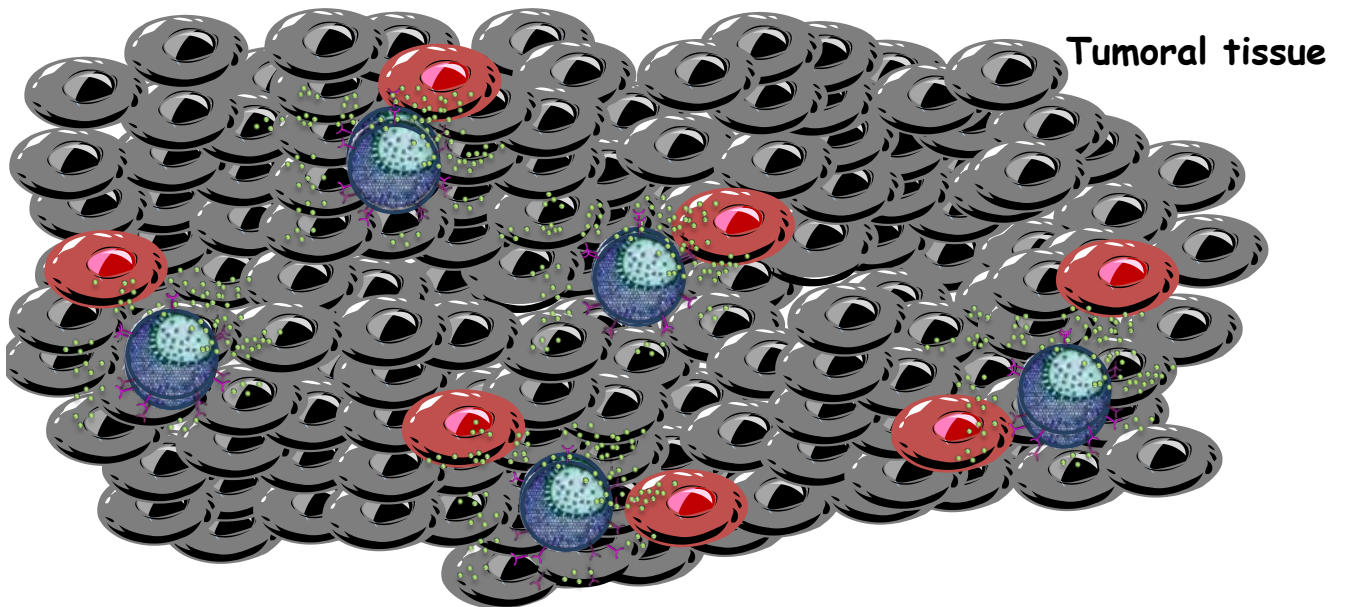


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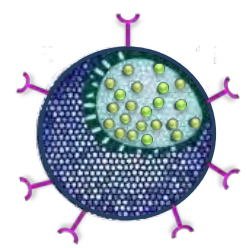
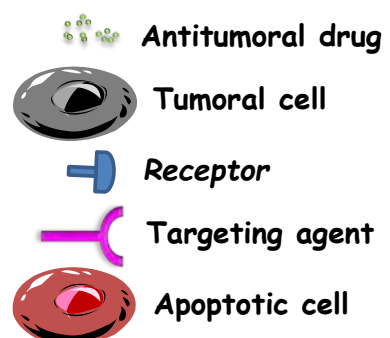
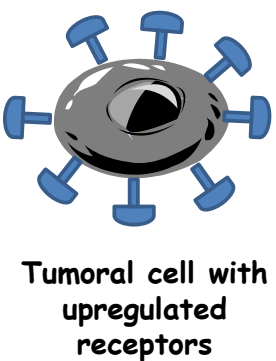
M. Manzano, M. Vallet-Regí, *J. Mater. Sci. Mater. Med.* 2018



PEGylated MSNs loaded with therapeutic agents



Tumoral tissue



Drug loaded nanoparticle with targeting agents