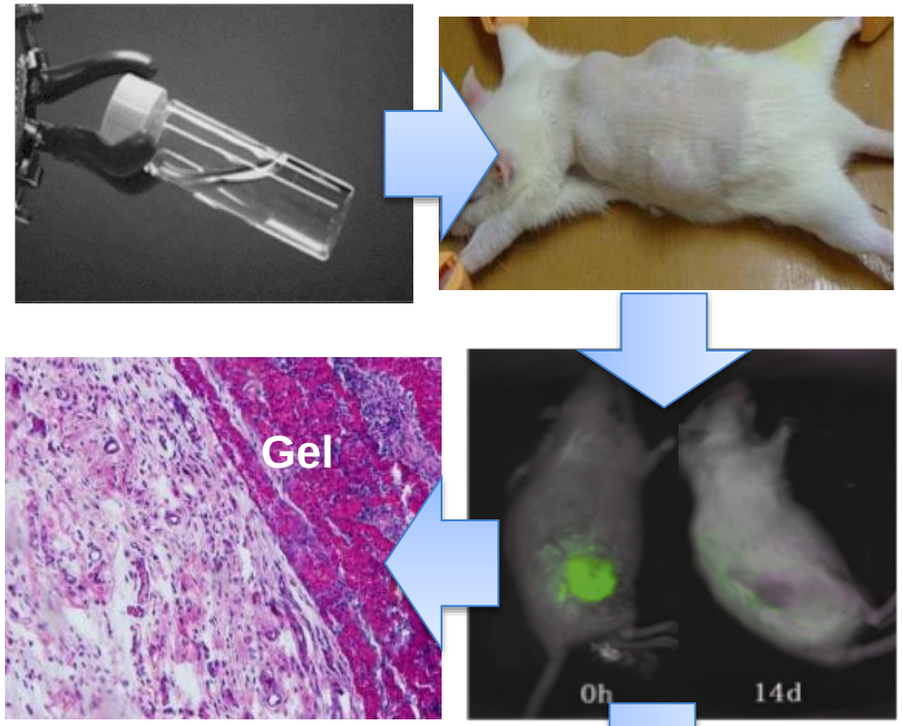
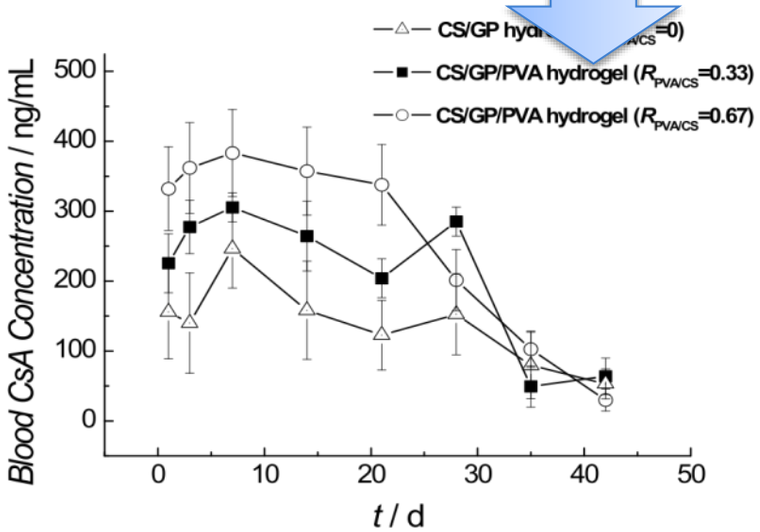
药物的控释和靶向输送

温敏凝胶植入控释技术

注射植入，实现数月的平稳血液浓度



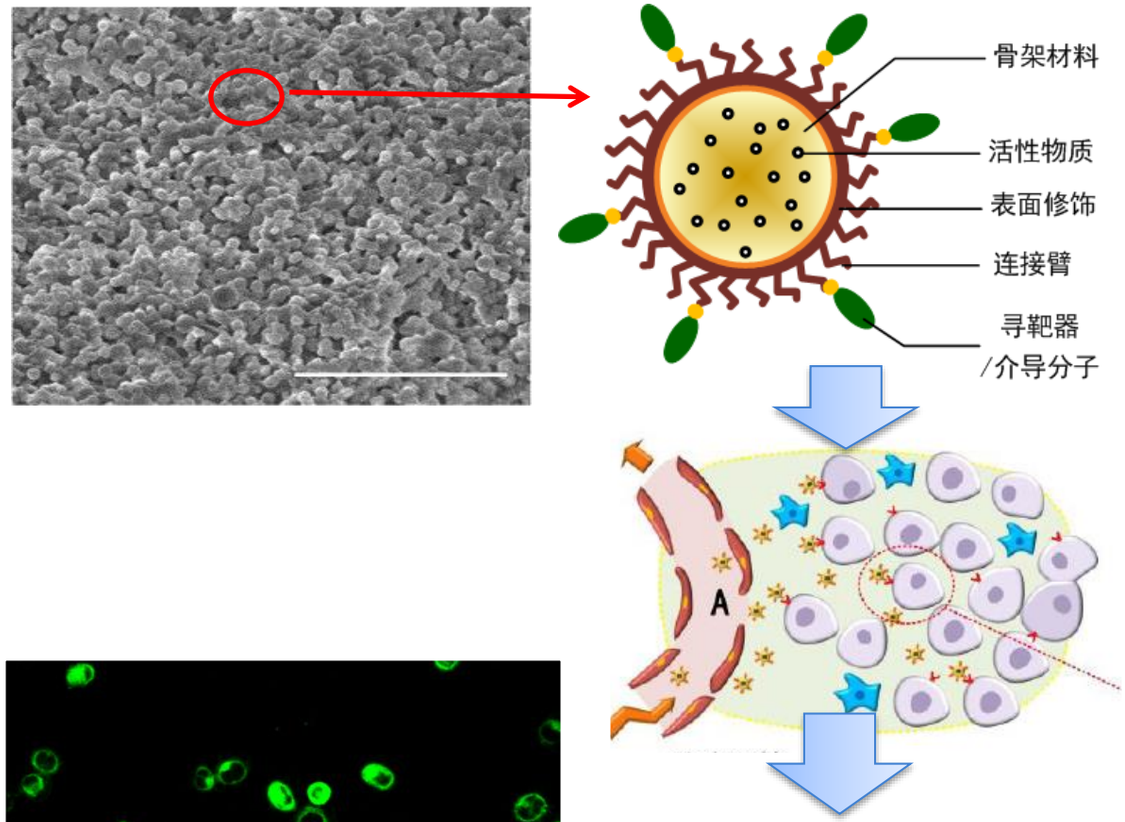


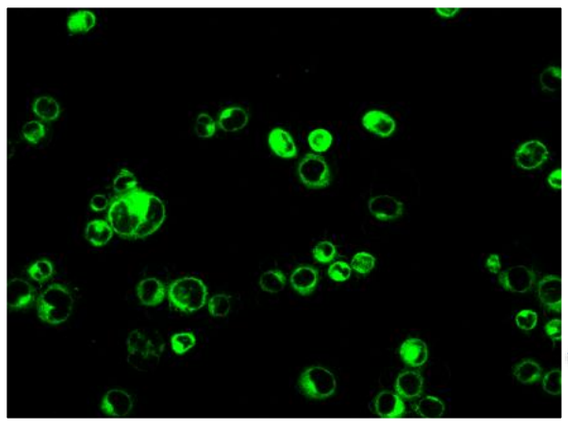
1个月内血药浓度稳定，生物利用度提高80%以上。

应用基础研究并逐步向临床研究推进

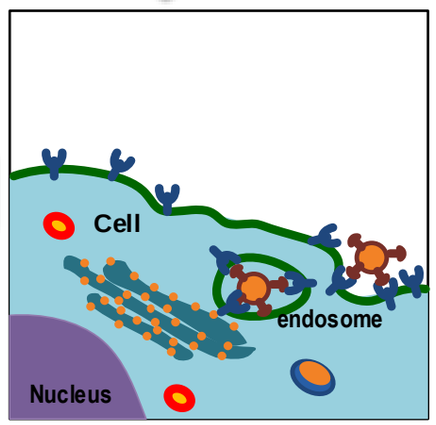
细胞靶向载药纳米粒

将药物输送到特定细胞，对癌症等基本治疗有关键意义





大量纳米粒靶向于细胞并进入细癌细胞内部

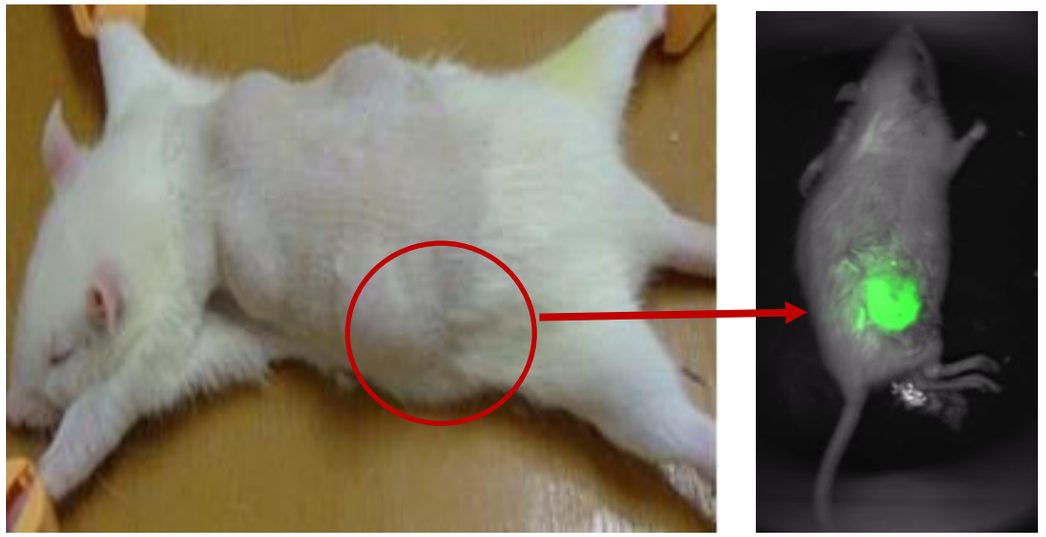


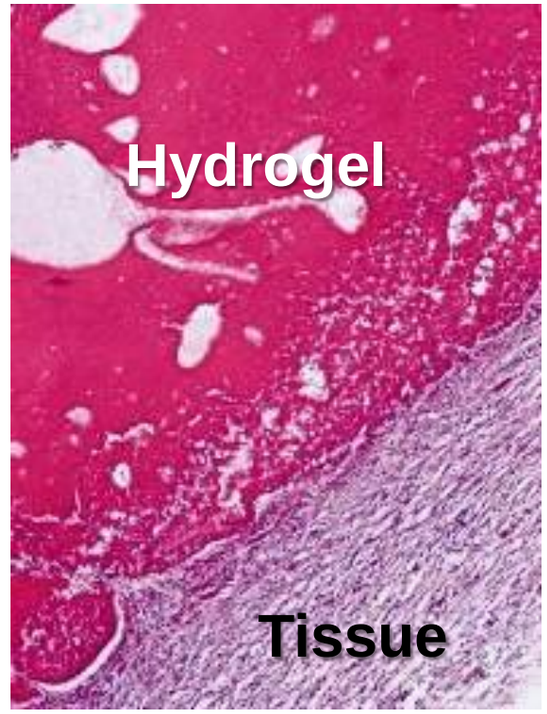
以组织中渗透和细胞摄取动力学为核心的基础研究

温敏凝胶可注射植入式给药系统

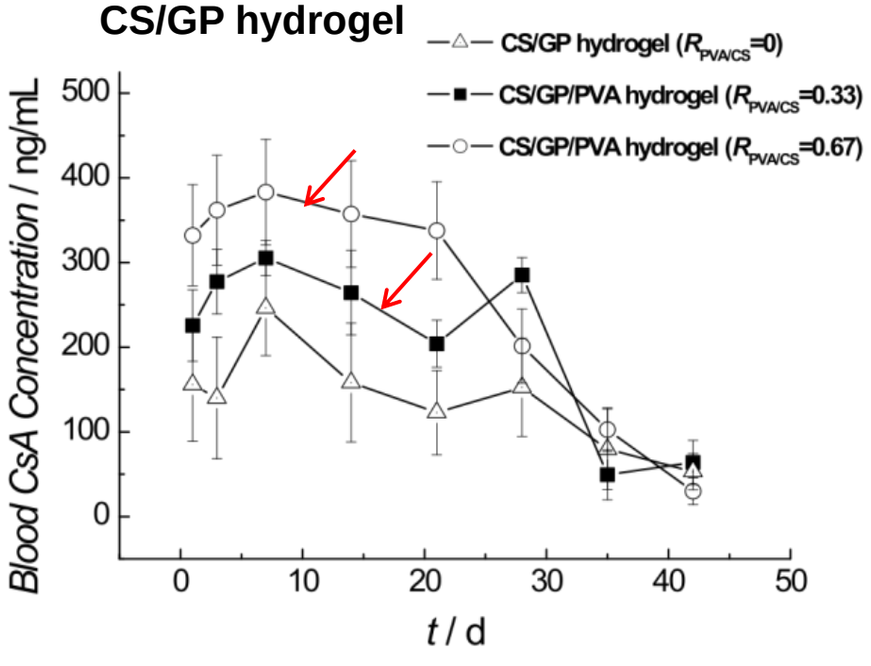
壳聚糖/多聚磷酸盐/PVA共混凝胶（CS/GP/PVA）

- 快速的凝胶化
- 亲水性和低电荷表面-有效抑制炎性反应
- 较高的结构强度
- 良好应用前景





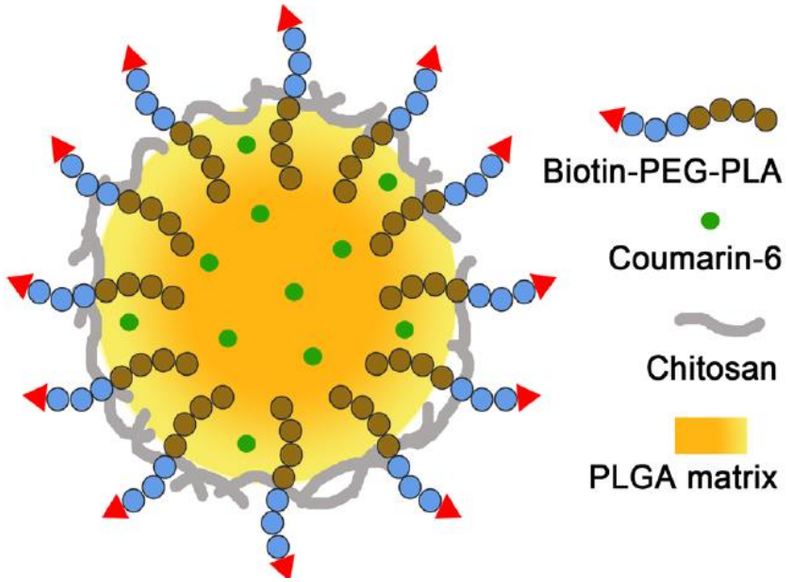
In vivo drug release of CsA from the CS/GP/PVA hydroge land CS/GP hydrogel

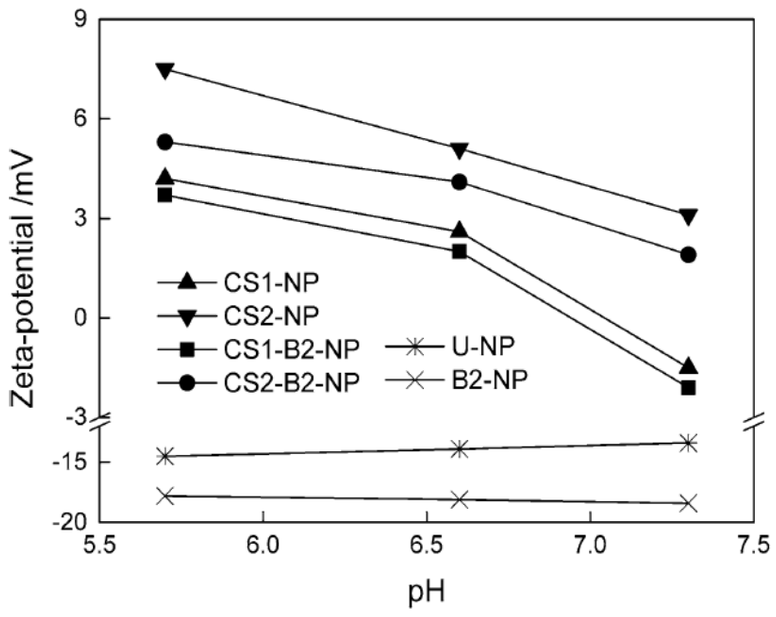


pharmacokinetic parameters	CS/GP hydrogel ($R_{PVA/CS}$ =0)	CS/GP/PVA hydrogel（$R_{PVA/CS}$ =0.33）	CS/GP/PVA hydrogel（$R_{PVA/CS}$ =0.67）
T_{max} /d	7	7	7
C_{max} / ng/mL	246.29±56.08	305.42±20.91	383.20±62.20
$AUC_{0-\infty}$ / ng×d/mL	5704.42±943.32	8579.13±1007.03	10620.63±1615.62
BA_r	--	150%	186%

细胞靶向载药纳米粒

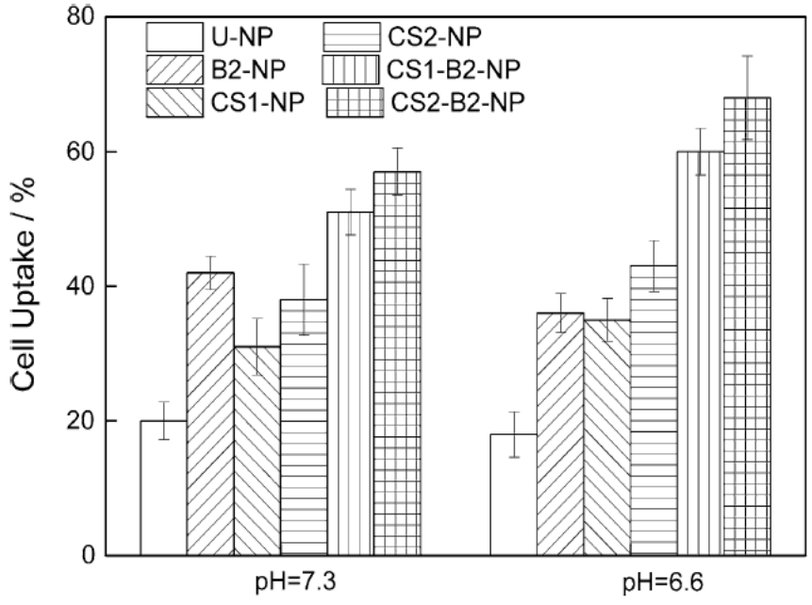
表面电位可变的纳米粒



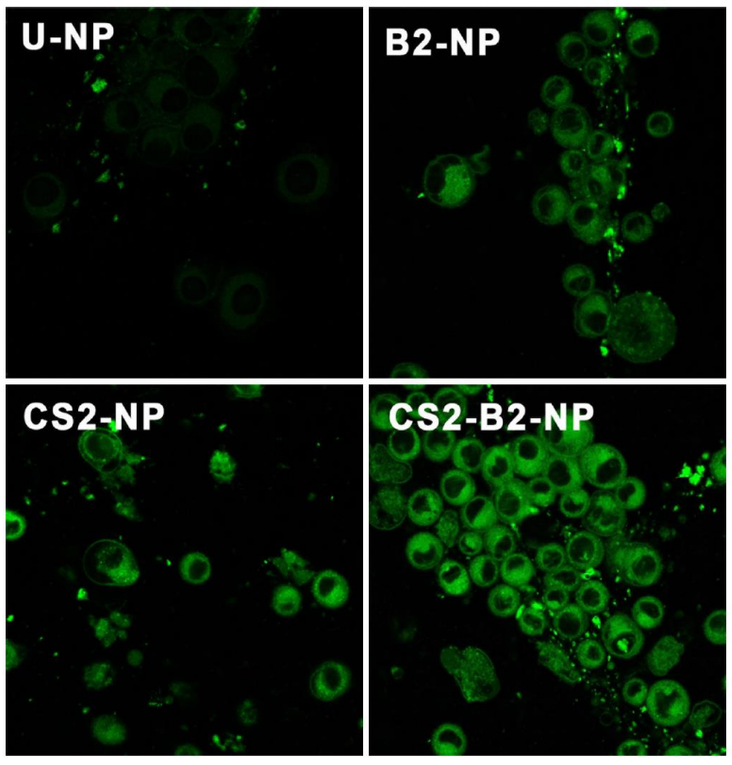


肿瘤组织的酸性条件下NP表面呈正电，与肿瘤细胞的静电作用强化摄取

- 表面修饰壳聚糖和含有靶向基团的两亲高分子
- 一步完成修饰的简单方法
- 壳聚糖-随pH改变NP表面电荷
- 靶向基团-受体介导细胞摄取NP



U-NP	undecorated NP
B-NP	Biotin–PEG–PLA 修饰
CS-NP	壳聚糖修饰
CS-B-NP	壳聚糖/Biotin–PEG–PLA/PLGA同时修饰



静电作用强化了受体介导的胞吞和吸附胞吞，使肿瘤细胞对NP的摄取率显著提高