Spatiotemporal tracking of intracellular nanoparticles decorated with multivalent peptides

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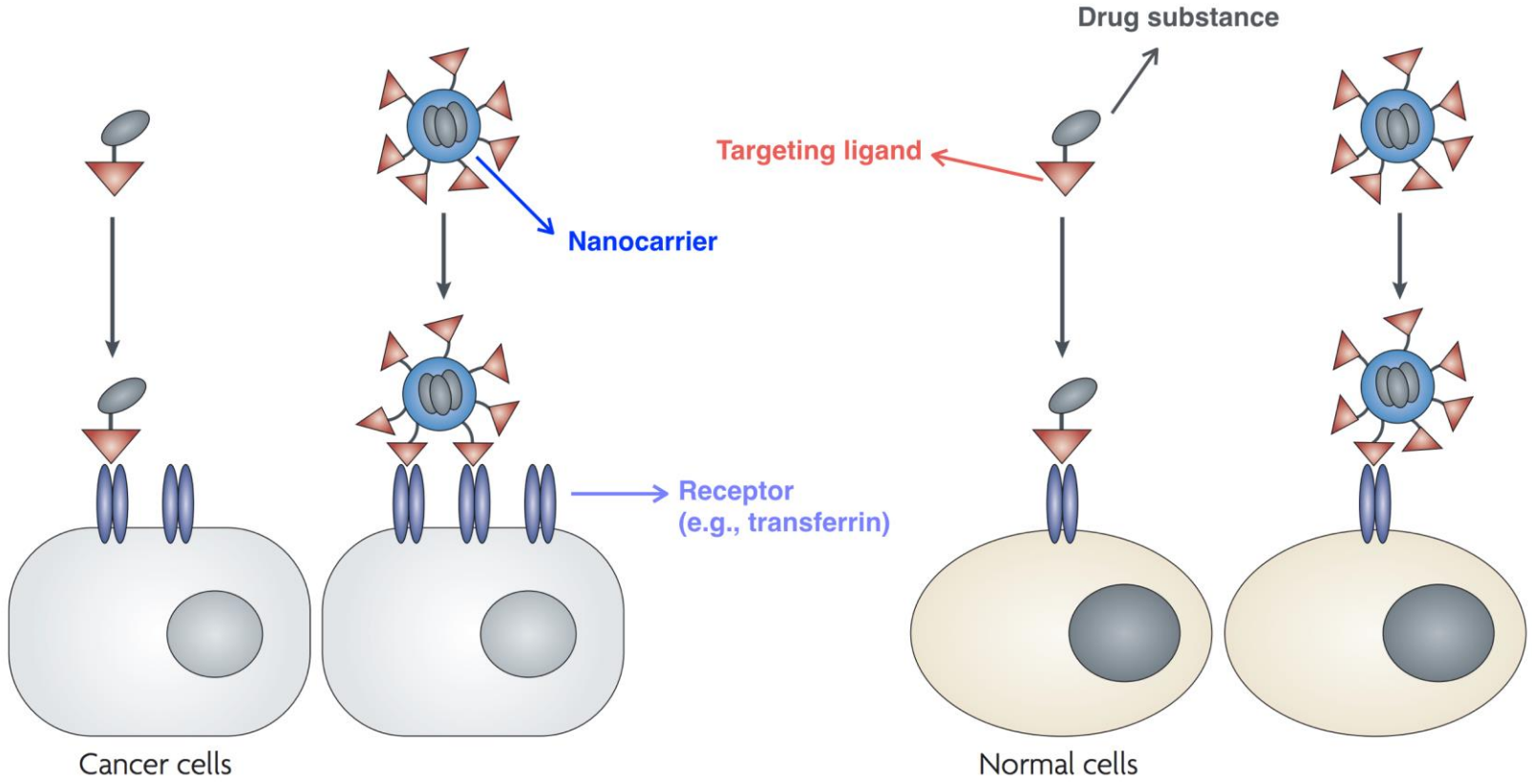
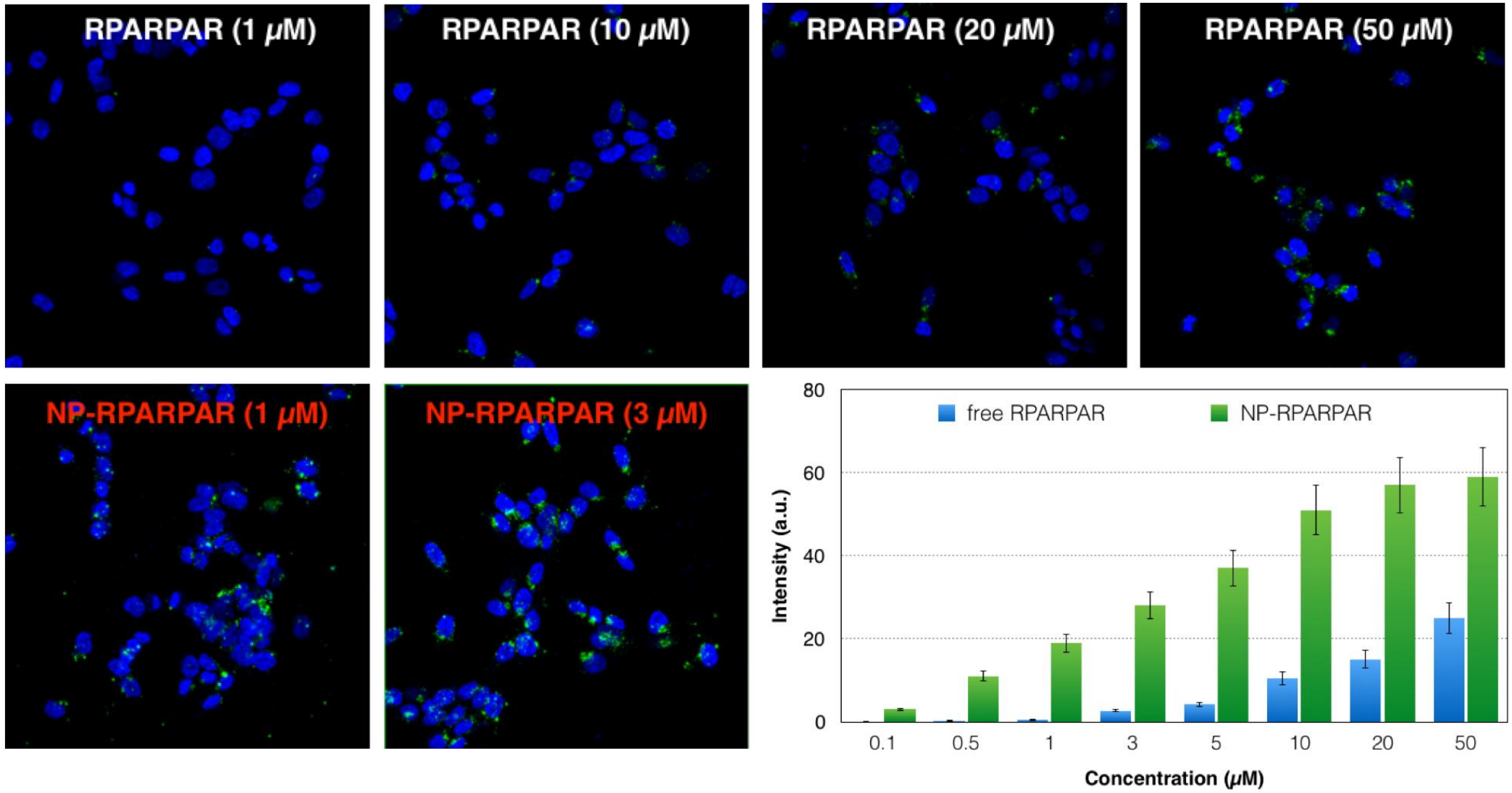
Multivalent nanoparticle can enhance targeting specificity



Nanoparticles with numerous targeting ligands can provide multivalent binding to the surface of cells with high receptor density.

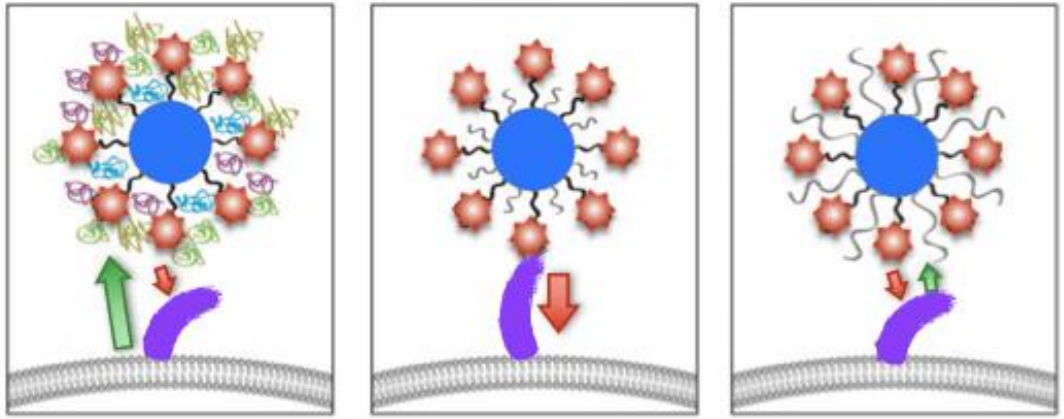
- Normal cells: Low surface density of receptor, compete conjugation with a single targeting agent and a targeted nanoparticle.
- Cancer cells: High surface density of receptor, engage the enhanced conjugation of targeted nanoparticle with receptor.

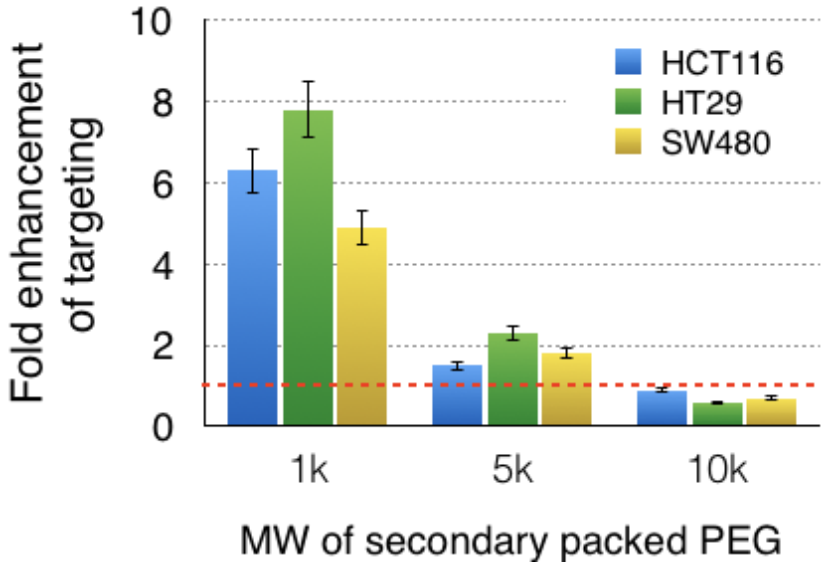
Multivalent nanoparticle can enhance targeting specificity

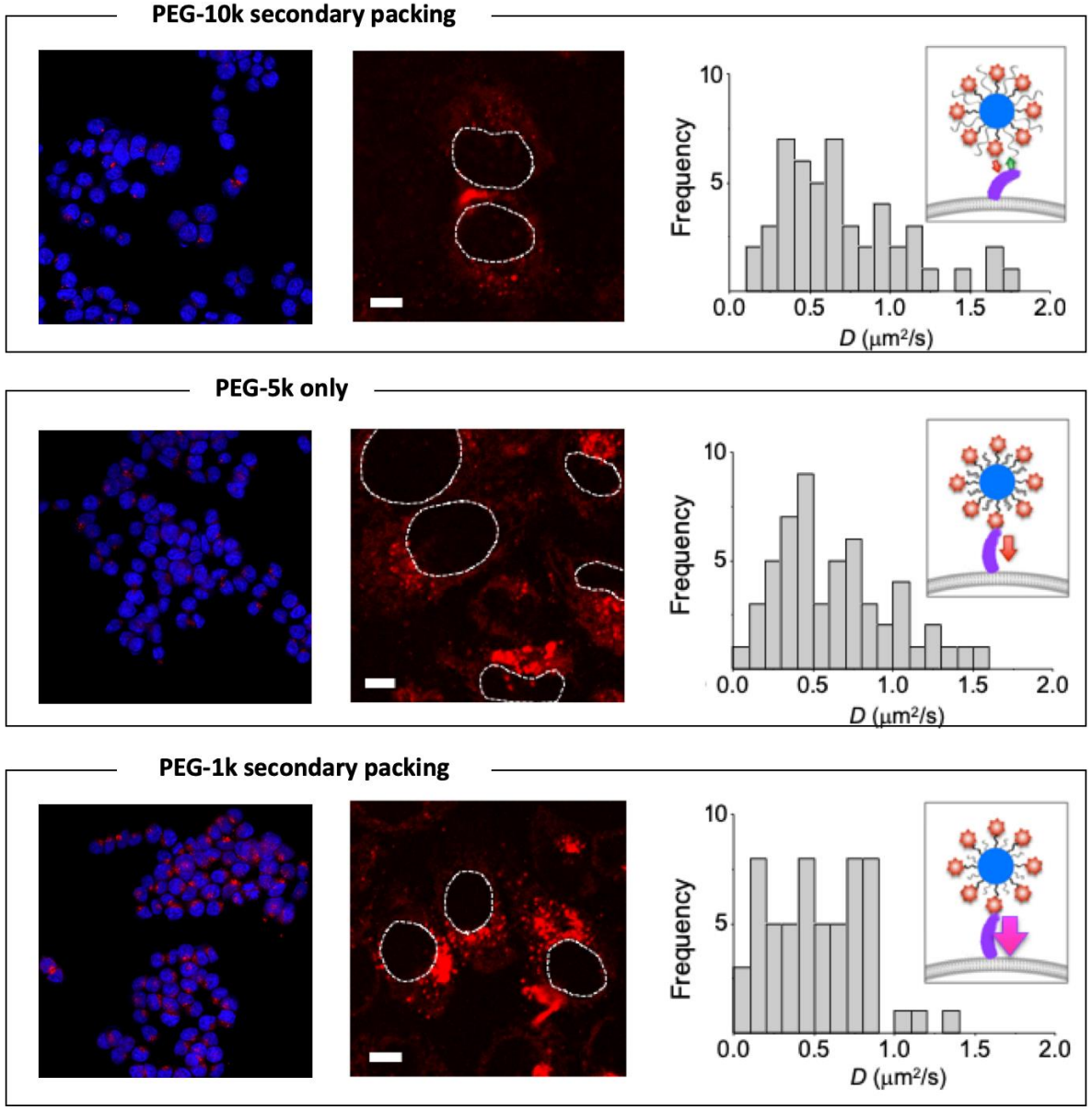


Molecular building block on nanoparticle for cellular uptake

Dense PEG packing mitigates protein corona on nanoparticle cell targeting.

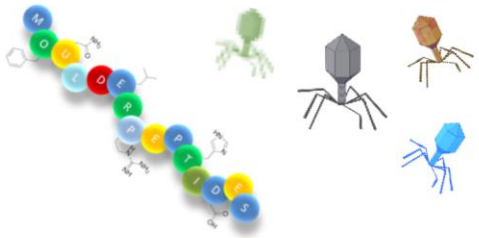




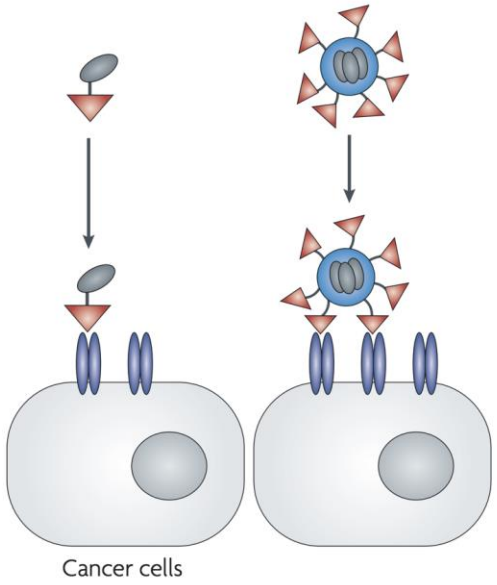


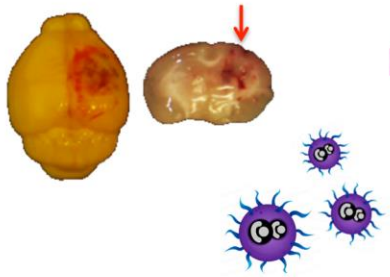
Korea-US collaborative research in nanomedicine

Targeting motif

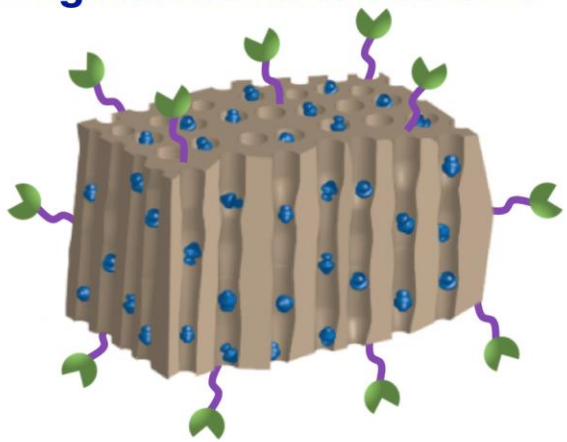


Dynamic & Static interactions





Engineered nanomedicine



Disease

- ✓ Tumor
- ✓ Brain injury (neurons)
- ✓ Bacterial infection