Single-Molecule Motions of Oligoarginine Transporter Conjugates on the Plasma Membrane of CHO Cells

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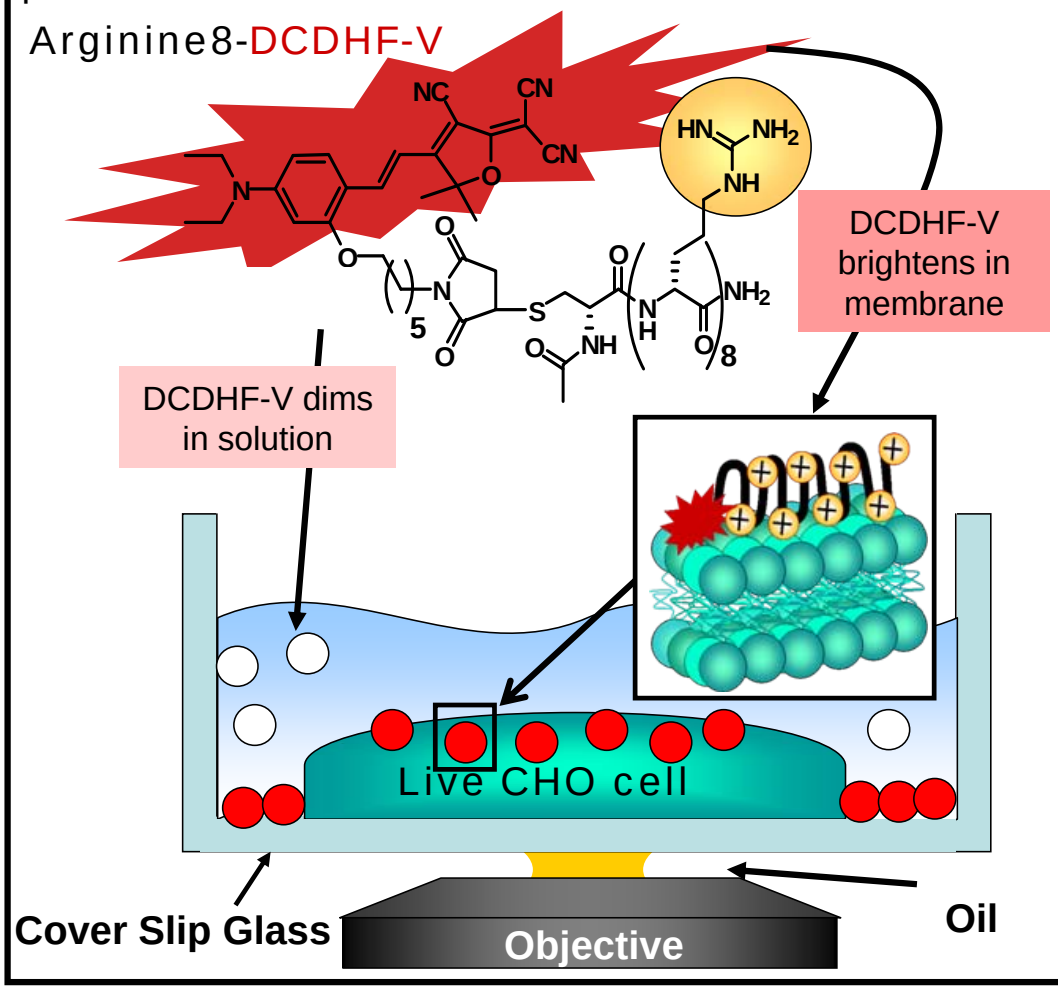
Motivation: Understand membrane interactions of cell penetrating peptides (CPPs), key potential drug delivery agents.

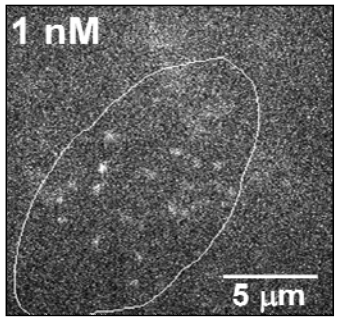
Approach:

We tracked single Arg8 CPPs labeled by DCDHF-V on the plasma membrane, and extracted diffusion coefficients and residence times. A comparison with probes of known cell entry mechanism (i.e. lipid analog, endocytotic Transferrin) was performed.

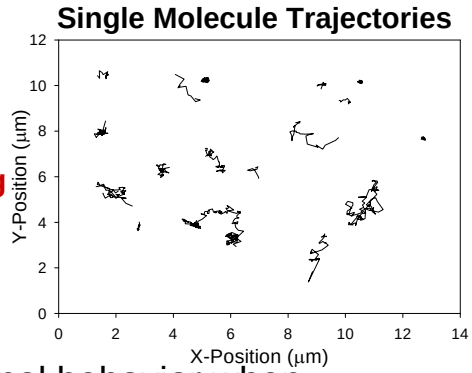


Results:

Tracking of Arg8 shows heterogeneous motion on the membrane.



SM Tracking



Arg8 shows distinct diffusional behavior when compared to Transferrin and a lipid analog (D-V-12).