

UV-C radiation can either make a vesicle stickier or less sticky depending on the context; for some photo-activated adhesives, UV-C can **increase** stickiness by disrupting the structure of molecules like azobenzene, while in other biological contexts, UV-C light can damage vesicle proteins and alter their secondary and tertiary structures, which could **decrease** or change their stickiness. Additionally, for fatty acid vesicles, UV-C radiation can be scattered, which can offer a photo-protective effect and influence the chemical reactions occurring within the vesicle. [1, 2, 3, 4]

How UV-C affects stickiness

- **Photo-activated adhesives:** Some materials designed to be sticky, like those inspired by a gecko's foot, use azobenzene crystals that reconfigure when exposed to UV light. This reconfiguration changes the structure of the adhesive, causing it to bend and become less sticky, allowing attached items to fall off.
- **Proteins in vesicles:** For biological vesicles, UV-C radiation can damage proteins by altering their structure. This can lead to changes in the protein's folding, exposure of hydrophobic residues, and aggregation, all of which can significantly alter the vesicle's surface properties, including its stickiness.
- **Fatty acid vesicles:** Fatty acid vesicles can act as a shield against "hard" UV-C photons by scattering them. The scattering of these photons can influence the chemical reactions happening inside the vesicle, which could have indirect effects on its stickiness, for example, by promoting certain molecular structures or disrupting others. [1, 2, 3, 4, 5]

AI responses may include mistakes.

- [1] <https://www.biorxiv.org/content/10.1101/2023.01.01.522439v1.full-text>
[2] <https://www.biorxiv.org/content/biorxiv/early/2023/01/03/2023.01.01.522439.full.pdf>
[3] <https://phys.org/news/2017-01-gecko-adhesive-detach-uv.html>
[4] <https://www.sciencedirect.com/science/article/pii/S1011134416306959>
[5] <https://aerospace.honeywell.com/us/en/about-us/blogs/interesting-facts-uvc-light>