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Table 1. Overview of Bioinspired Design Strategies for Lipid-Based RNA Carriers (109–112)

Design strategy (with description)	Example schematic
<p>Natural lipid substitution (e.g., substituting traditional ionizable lipids in existing LNP formulation with naturally occurring alkenyl amino alcohol lipids)</p> <p><i>Image adapted with permission from ref¹⁰⁸. Copyright 2016, John Wiley & Sons, Inc.</i></p>	<p>Naturally Occurring Lipids</p> <p>Cell</p> <p>OH</p> <p>NH</p> <p>Alkenyl Amino Alcohol (AAA)</p> <p>Lipid Nanoparticle (LNP)</p> <p>mRNA DOPE Cholesterol AAA ionizable lipid PEG-lipid</p>
<p>Mimicking endogenous molecules (e.g., mimicking HDL by decorating the lipid bilayer membrane of a miRNA carrier with apoA-I, which is highly expressed on the surface of HDLs)</p> <p><i>Image adapted from ref¹⁰⁹. Copyright 2017, American Chemical Society.</i></p>	<p>phospholipid cholesterol sodium cholate apo A1 anti-miR155 acid labile PEG</p>
<p>Mimicking viruses through virosomes (e.g., incorporating viral proteins, such as influenza hemagglutinin (HA), in lipid bilayer membranes)</p> <p><i>Image adapted from ref¹¹⁰. Copyright 2022, with permission from Elsevier.</i></p>	<p>siRNA</p> <p>Phospholipid bilayer</p> <p>Viral Protein</p> <p>Chol</p>

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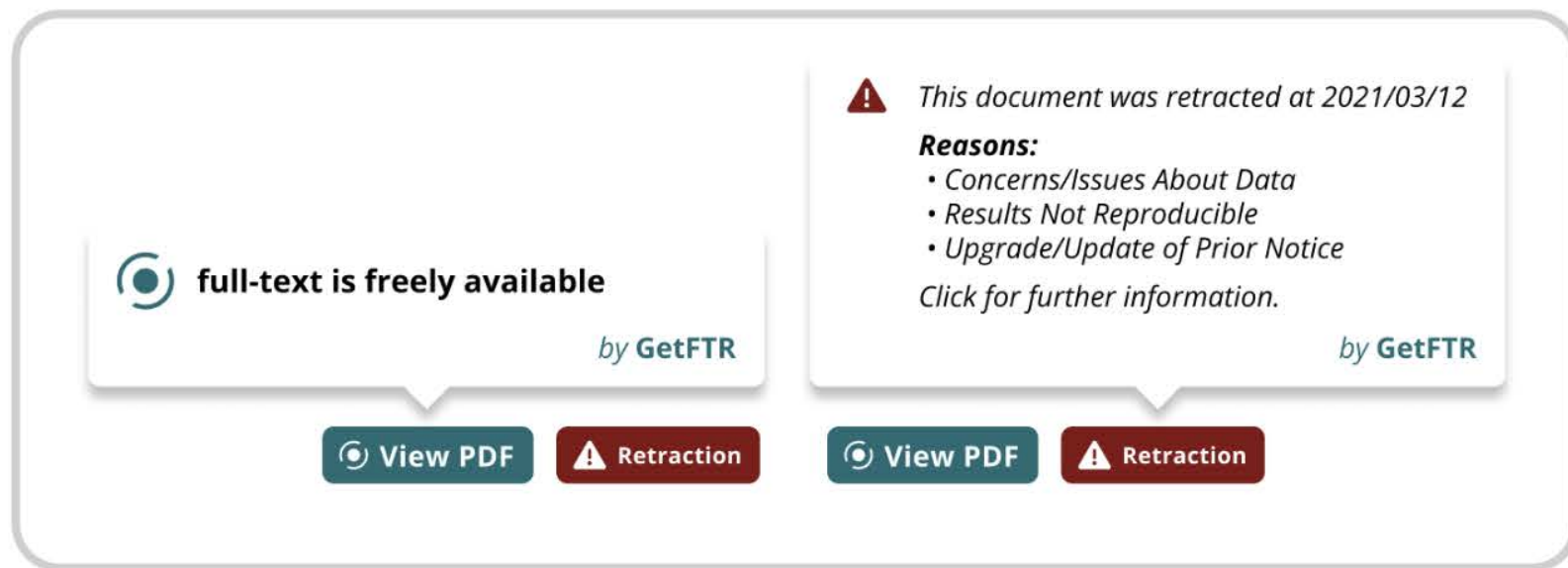
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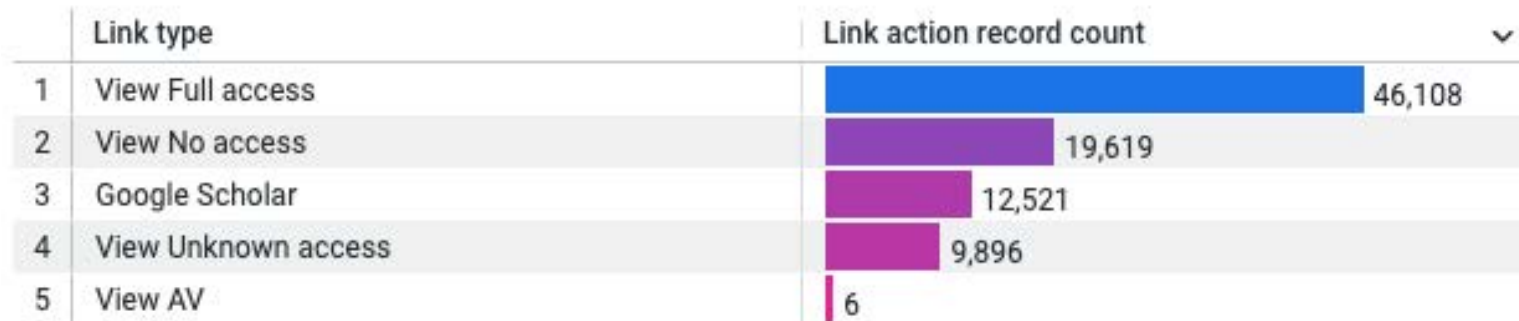
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