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## Molecular Insights into the Disruption of Pulmonary Surfactant by Vaping Additives

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E-cigarette additives, such as Vitamin E acetate (VEA), have been implicated in vaping-associated lung injury (EVALI). In this study, we investigate the molecular mechanisms by which VEA disrupts pulmonary surfactant (PSurf), a lipid-protein membrane critical for alveolar stability. Using an in vitro vapor exposure system and molecular dynamics simulations, we demonstrate that VEA aggregates on the PSurf surface, inducing structural deformations and impairing its elastic properties. Additionally, we observe that common e-liquid components, including propylene glycol and vegetable glycerin, or their thermal byproducts, further alter surfactant behavior. Our findings provide key molecular-level insights into the detrimental effects of vaping product additives on lung function, emphasizing the need for stricter regulation.