

Strategic Deciphering of *Salmonella* SiiE Adhesin Specificity for Advanced Anti-Adhesion Therapy

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Salmonellosis is a major foodborne health concern, with 1.35 million cases reported annually in the U.S., resulting in 26,500 hospitalizations and 420 deaths¹. The rise of antibiotic-resistant strains and the economic burden of disease management highlight the urgent need for new therapeutic strategies targeting *Salmonella*.

Salmonella adheres to host cells through specific interactions between bacterial adhesins and host cell receptors, often involving glycoproteins and glycans¹.

The non-fibrillar *Salmonella* SiiE giant adhesin targets Mucin-1 (MUC1) via sialic acid- containing O-glycans, playing a pivotal role in infection². Understanding SiiE's specificity and molecular interactions with mucin O-glycans is crucial for targeting the SiiE-MUC1 interaction, offering an alternative approach to combat bacterial resistance. Our methodology integrates glycan microarrays, mucin cell-based arrays, and Nuclear Magnetic Resonance (NMR) for high-throughput screening and detailed insights into molecular structure and dynamics. This approach is essential for understanding SiiE's molecular specificity, facilitating the development of novel anti-adhesion molecules to combat *Salmonella* infections.

References

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2. Li, X. et al. PLoS Pathog. **2019**, 15, e1007566

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