



Omniose Awarded \$3.6 Million Grant from NIH to Develop Vaccines against *Klebsiella pneumoniae*

BOSTON and ST. LOUIS, October 11, 2022 – OmniOSE, a company developing polysaccharide conjugate vaccines against serious bacterial threats, has been awarded a \$3.6 million grant for the development of a *Klebsiella pneumoniae* vaccine from the National Institute of Allergy and Infectious Diseases of the U.S. National Institutes of Health. *Klebsiella pneumoniae* is a leading cause of life-threatening sepsis in newborns¹ as well as healthcare-associated infections, including pneumonia, bloodstream infections, wound or surgical site infections, and meningitis². *Klebsiella pneumoniae* has developed resistance to many classes of antimicrobials and was attributed to or associated with an estimated 600,000 deaths globally in 2019³.

“We are grateful for the continued support from the NIH and look forward to further developing our multivalent bioconjugate vaccines targeting both the capsular and O-antigen polysaccharides of *Klebsiella pneumoniae*” said Christian Harding, Ph.D., Chief Scientific Officer and co-founder of OmniOSE (previously known as VaxNewMo). Timothy Cooke, CEO, added “This NIH grant funding allows OmniOSE to extend our on-going efforts to combat serious infections due to *Klebsiella*.

Omniose Approach to *Klebsiella pneumoniae* Vaccine

Omniose is utilizing its proprietary bioconjugation platform to develop novel polysaccharide protein conjugate vaccines targeting *K. pneumoniae*⁴. *K. pneumoniae* produces multiple surface polysaccharides, including a capsular polysaccharide (capsule) and a lipopolysaccharide decorated with an O-antigen polysaccharide (O-antigen). Both capsule and the O-antigen are known *K. pneumoniae* virulence factors and were previously identified as potential vaccine candidates. Funds from this award as well as other NIH grants awarded to OmniOSE will support the development and IND-enabling studies of bioconjugate vaccines that target the most clinically relevant capsular polysaccharides and O-antigen polysaccharides of *K. pneumoniae*.

About OmniOSE

The OmniOSE bioconjugate vaccine platform enables the precise enzymatic attachment of virtually any bacterial polysaccharide (sugar) antigen to engineered carrier proteins within a single *E. coli* cell. Bioconjugation is a much simpler process than conventional chemical conjugation methods and has the potential to produce higher quality vaccines. However, the enzymes used for bioconjugation thus far could only address a limited range of bacterial targets. OmniOSE is breaking through this barrier by expanding the range of bacterial vaccines that can be developed, while leveraging the already established benefits of bioconjugation.

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References

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- 2 *Klebsiella pneumoniae* in Healthcare Settings, <<https://www.cdc.gov/hai/organisms/klebsiella/klebsiella.html>> (2010).
- 3 Antimicrobial Resistance, C. Global burden of bacterial antimicrobial resistance in 2019: a systematic analysis. *Lancet* **399**, 629-655 (2022). [https://doi.org:10.1016/S0140-6736\(21\)02724-0](https://doi.org:10.1016/S0140-6736(21)02724-0)
- 4 Feldman, M. F. *et al.* A promising bioconjugate vaccine against hypervirulent *Klebsiella pneumoniae*. *Proc Natl Acad Sci U S A* **116**, 18655-18663 (2019). <https://doi.org:10.1073/pnas.1907833116>