Technology/ Title	A broad-spectrum pneumococcal vaccine induces mucosal immunity and protects against lethal Streptococcus pneumoniae challenge	
Subtitle	A pneumococcal vaccine based on proteins elicits systemic mucosal immunity, stimulates immune responses biased towards Th1/Th17 and is effective against both PCV13 and non-PCV13 serotypes.	
Technology Type	☐Biotechnology	☐Device/Diagnostics
	■Pharmaceutical	☐Others:_____
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Technology Description	We developed a protein-based pneumococcal vaccine containing three virulence factors: rlipo-PsaA, rPspAΔC, and rPspCΔC. Intranasal immunization with this vaccine induced higher IgG and IgA titers, indicating systemic mucosal immunity. It triggered Th1/Th17-biased immune responses, promoting opsonic phagocytosis against various Streptococcus pneumoniae serotypes. LAAC-immunized mice had reduced bacterial load for PCV13 and non-PCV13 serotypes, enhancing survival rates after bacterial challenge. This protein-based vaccine offers broad protection against *Streptococcus pneumoniae* serotypes.	

Intellectual Property	Taiwan (TWI745323B) PCT (WO/2017/096486)
Key Publications	Emerging Microbes & Infections 2023, VOL. 12, 2272656 (11 pages) https://doi.org/10.1080/22221751.2023.2272656
Business Opportunity	Technology transfer Co-development