Protective Monoclonal Antibodies for Reducing Pseudomonas aeruginosa Burden

High-affinity monoclonal antibodies derived from cystic fibrosis patients' B cells show potent activity against Pseudomonas aeruginosa, offering a promising treatment for vulnerable patients.

What is the Problem?

Pseudomonas aeruginosa (PA) is a dangerous, multidrug-resistant bacterium that poses a significant threat to vulnerable patients, such as those with cystic fibrosis (CF). These individuals often suffer from chronic PA infections, leading to severe respiratory issues and diminished quality of life. PA is also a prevalent pathogen in severe healthcare-associated infections, leading to high rates of illness and death among these vulnerable populations. Furthermore, the bacteria's resistance to multiple antibiotics makes current treatments less effective, highlighting the urgent need for new therapeutic options.

What is the Solution?

The technology offers high-affinity monoclonal antibodies (mAbs) isolated from the B cells of cystic fibrosis patients. These mAbs specifically target the PA virulence factor PcrV, which is essential for the bacteria's ability to cause disease. In preclinical studies, these antibodies have shown potent anti-PA activity, significantly reducing bacterial burden in a mouse model of pneumonia. This approach harnesses the natural immune response of CF patients to create targeted therapies that can effectively combat PA infections.

What is the Competitive Advantage?

Targeted Action: The mAbs specifically target the PcrV virulence factor, minimizing the risk of off-target effects.

High Affinity: Derived from human B cells, these antibodies exhibit high binding affinity, enhancing their effectiveness.

Preclinical Efficacy: Demonstrated significant reduction in PA burden in animal models, indicating strong potential for clinical success.

Reduced Resistance: By targeting a specific virulence factor, these mAbs may reduce the likelihood of resistance development compared to traditional antibiotics.

References

Technology ID

BDP 8905

Category

Selection of Available Technologies

Therapeutics/Other

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