



Antimicrobial efficacy against the world's worst superbugs.

EVÖQ Bio is a preclinical-stage nanotherapeutics company pioneering a nanomedicine platform with demonstrated antimicrobial efficacy.

The company's lead asset, EVQ-218, has demonstrated efficacy against a range of pathogens, including the top 6 antibiotic-resistant strains identified by the World Health Organization.¹

- *Acinetobacter baumannii*, CR
- *Escherichia coli*, 3GCR
- *Klebsiella spp.*, CR
- *Pseudomonas aeruginosa*, CR
- *Klebsiella spp.*, 3GCR
- *Enterobacter spp.*, SGCR

Silver's Efficacy Transformed for Therapeutic Use

EVQ-218 is the first and only non-ionic silver nanoparticle, opening possibilities for widespread therapeutic use.^{2,3} The ions in traditional silver have hindered its medical applications due to toxicity risks and limited stability. With its non-ionic properties, EVQ-218 delivers effective antimicrobial action devoid of cytotoxicity.

“Antimicrobial resistance, I do believe, is the existential threat of this century.”

Admiral Brett P. Giroir, U.S. assistant secretary for health; Pew online, July 27, 2020

Novel Mechanism of Action

The antimicrobial efficacy of EVQ-218 is rooted in its ability to disrupt bacteria's metabolic processes, without triggering antimicrobial resistance (AMR).

EVQ-218

- Stops bacterial growth by sequestering sulfur.
- The sequestration of sulfur inhibits metabolic activity within the bacterial cell without compromising cell structures or lysing the cell wall. This blocks activation of bacterial mutations that contribute to AMR.
- In contrast, nanosilvers with ions rupture cell walls, triggering activation of AMR pathways.

Combating Chronic Lung Disease

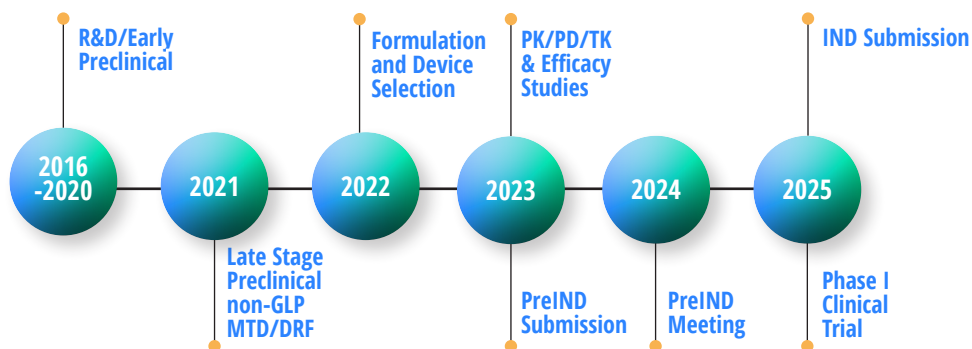
The first therapeutic in development is for the treatment of pulmonary bacterial infections in patients with cystic fibrosis.

Supported by 2 grants from the Cystic Fibrosis Foundation, research found an inhaled therapeutic using EVQ-218 demonstrated efficacy against pathogens linked to pulmonary infections:

- Killed 64 strains from 9 known drug-resistant bacteria, including:
 - *Pseudomonas*, *Burkholderia*, *MSSA*, *MRSA*, *Achromobacter*, *Stenotrophomonas*, *Candida*, and *Scedosporium*.
- Showed efficacy against 14 biofilms tested.
- Eradicated multiple yeast and filamentous fungi.
- Exhibited no toxicity in lung epithelial cells.
- Developed no bacterial resistance during 28-day testing assay. Resistance to other antibiotics typically occurs in 4-5 days.⁴⁻⁸



PRODUCT DEVELOPMENT TIMELINE



References

1. World Health Organization, "Prioritization of Pathogens to Guide Discovery, Research and Development of New Antibiotics for Drug-Resistant Bacterial Infections, including Tuberculosis," 2017, 77. (Survey of world health experts) 2. Dimpka, C.O. Calder, A. Gajjar, P. Merugu, S. Huang, W. Britt, D.W. McLean, J.E. Johnson, W.P. Anderson, A.J. Interaction of silver nanoparticles with an environmentally beneficial bacterium, *Pseudomonas chlororaphis*. *J. Haz. Mat.* 2011; 188:428-435. DOI: 10.1016/j.jhazmat.2011.01.118 3. Niedermeyer, W. Method and apparatus for production of uniformly sized nanoparticles. US 9 849 512, 2017. 4. Cakic M., Glisic S., Nikolic G. Synthesis, characterization and antimicrobial activity of dextran sulphate stabilized silver nanoparticles. *J. Mol. Struct.* 2016;1110:156–161. doi: 10.1016/j.molstruc.2016.01.040 5. Yan X., He B., Liu L., Qu G., Shi J., Hu L., Jiang G. Antibacterial mechanism of silver nanoparticles in *Pseudomonas aeruginosa*: Proteomics approach. *Metallomics*. 2018;10:557–564. doi: 10.1039/C7MT00328E 6. Gamboa S.M., Rojas E.R., Martínez V.V., Vega-Baudrit J. Synthesis and characterization of silver nanoparticles and their application as an antibacterial agent. *Int. J. Biosen. Bioelectron* 7. Rajeshkumar S., Bharath L.V. Mechanism of plant-mediated synthesis of silver nanoparticles—A review on biomolecules involved, characterisation and antibacterial activity. *Chem. Biol. Interact.* 2017;273:219–227. doi: 10.1016/j.cbi.2017.06.019 8. Silver Nanoparticles: Mechanism of Action and Probable Bio-Application. *J. Funct. Biomater.* 2020 Dec; 11(4): 84. Published online 2020 Nov 26. doi: 10.3390/jfb11040084

NANOTHERAPEUTICS PIPELINE

EVQ Bio's novel platform has the potential to enable therapeutic development for a broad spectrum of diseases.

DISEASE INDICATION	TARGET	R&D	IND ENABLING
Pulmonary Infection (Cystic Fibrosis)	<i>Pseudomonas aeruginosa</i> <i>Burkholderia cepacia</i> <i>Stenotrophomonas</i>	EVQ-218	
Pulmonary Infection (Bacterial Pneumonia)	<i>Streptococcus pneumoniae</i> <i>Streptococcus aureus</i> <i>Streptococcus pyogenes</i> <i>Klebsiella pneumoniae</i> <i>Haemophilus influenzae</i>	EVQ-218	
Pulmonary Infection (Fungal)	<i>Candida albicans</i> <i>Aspergillus</i>	EVQ-218	
Tuberculosis	<i>Mycobacterium tuberculosis</i>	EVQ-218	
Cellulitis	Group A B-hemolytic streptococcus <i>Streptococcus pneumoniae</i>	EVQ-221	
Staph MRSA (Skin)	Methicillin-resistant <i>Staphylococcus aureus</i>	EVQ-221	
Diabetic Foot Ulcer	<i>Staphylococcus aureus</i> <i>Streptococcus aureus</i> <i>Pseudomonas aeruginosa</i>	EVQ-221	
Seasonal Flu	Influenza A	EVQ-222-VIA	
COVID-19	SARS-CoV2	EVQ-222-VIA	

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