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Poster abstract submission

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Poster title
Digital Phagogram Platform for Rapid Matching of Phages to Multidrug-Resistant Pathogens (Patent Filled)

Poster abstract

Introduction:
Precise Health is revolutionizing how we combat antimicrobial resistance (AMR) with an AI-powered phage discovery and delivery platform that radically accelerates and simplifies access to bacteriophage-based therapies worldwide. We empower clinicians and researchers to rapidly identify, match, and deploy phages for treating multidrug-resistant (MDR) infections, especially in urgent or life-threatening cases where antibiotics failed. Traditional methods can take up to eight weeks to identify a suitable phage, often requiring the empirical finding and screening of thousands of candidates in the wet lab. Our platform compresses this process to mere hours by analyzing full-genome with an AI-driven matching engine, significantly reducing the time to identify the phage. Our AI models are continuously trained to improve matching precision and therapeutic success. Currently focused on E. coli and we are achieving strong pre-clinical alignment and plan to expand coverage to all ESKAPE pathogens.
Methods:
The Precise Health platform's core module, PhageMatch, uses machine learning to analyze bacterial isolate genomes and rapidly match and identify optimal phages from connected phage banks worldwide. Matched phages were subsequently tested and validated in vitro and in vivo using Galleria mellonella and murine infection models to confirm and validate our in silico matching model predictions.
Results:
Phages matched and identified by the PhageMatch platform demonstrated strong efficacy against multidrug-resistant Escherichia coli and clinical isolates. In vitro assays confirmed robust bactericidal activity, while in vivo studies using Galleria mellonella and murine infection models validated the therapeutic potential and confirmed the accuracy of our in silico matching predictions. These findings support the platform's capability to rapidly deliver personalized phage therapies for urgent clinical applications.
Conclusion:
By combining AI-driven rapid phage matching with validated predictive accuracy through in vitro and in vivo models, Precise Health offers a practical, scalable solution for personalized phage therapy. This platform directly addresses the clinical urgency and logistical barriers imposed by AMR, enabling faster,

broader access to effective bacteriophage treatments. This innovation was recently awarded at the 8th World Conference on Phage Therapy 2025 for its transformative potential.

Research topic

Phage or phage products

If you wish to submit a graphic with your abstract you can upload it here.

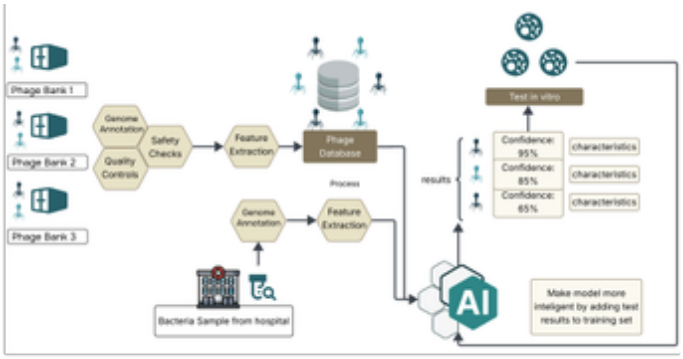

Figure 1: Workflow of the Phage Match platform
Phages genomes are collected from various phage banks around the world, processed, quality-checked, and stored in the database. Bacterial samples from clients are processed and analyzed to extract features. The machine learning model then tests each bacterium against all stored phages in silico, generating confidence scores and ranking phages by predicted effectiveness. Newly validated bacteria–phage interactions are iteratively added to the training set, continuously improving the AI model's predictive performance.