EUCAST news 2026

M. Ivanova

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Tartu

ELMÜ kliinilise mikrobioloogia sektsiooni koosolek

PST – faagide tundlikkuse määramise seis

Towards a reference methodology for bacteriophage susceptibility testing — position paper of the EUCAST Phage Susceptibility Testing Subcommittee

Annika Y. Classen, Martha R.J. Clokie, Christian G. Giske, Ran Nir Paz, Jean-Paul Pirnay, Gregory Resch, Frederic Laurent

Table 1
Comparison of conventional methodologies for phage susceptibility testing (table adapted and modified from Kolenda *et al.* [6] and Daubie *et al.* [7])

	Equipment		Testing					Interpretation		
	Specific reagents/ consumables	Specific equipment	Manual workload	Throughput	Turnaround time (h)	Real-time monitoring	Required expertise	Detection	Quantification phage-phage / phage-antibiotic synergy	Quantification resistance emergence
Spot dilution assay	No	No	++	++	~10–20	No	+++	Visual assessment[a]	No	No
DAO	No	No	+++	+	~18–20	No	+++	Visual assessment[a]	No	No
GKA (OD)	No	(Yes: plate reader)	++	+++	~ up to 72	Yes	++	Automated readout	Yes	Yes

DAO, double-agar overlay method; GKA, growth kinetic assay; OD, optical density.
[a] Usually with the naked eye, automation possible.

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Table 3
Overview about desirable key prerequisites for a phage susceptibility testing reference methodology

Domain	Key prerequisite	Examples
General criteria		
Reproducibility	High intra- and interlaboratory reproducibility	Standardized inoculum, plate conditions
Applicability	Simple, affordable, scalable methodology	Limited equipment requirements (e.g. plate reader)
Interpretation	Objective and ideally automated readout	Image- or graph-based analysis
Quality assurance	Defined quality control criteria	Maximum plate storage time, plate drying prevention
Clinical evidence	Evidence from clinical trials to correlate PST results to in human phage activity (incl. PK/PD and host-immune response)	Defined titer of phage therapeutic product for given application route and infection type
Experimental design		
Methodological standardization	Alignment with AST principles where applicable	Media, inoculum preparation, timing for readout
Phage-specific parameters	Defined phage concentration and phage-to-bacterium ratio (MOI) for different bacterial species	Adaptations for mucoid strains
Combination testing	Assessment of phage–phage and phage–antibiotic interactions	Checkerboard approaches
Accessibility		
Global accessibility	Worldwide feasibility and accessibility	Nonproprietary equipment, growth media available through providers operating in different countries
Culture collections	Availability of reference phages and bacterial isolates	Global access to curated reference phages and bacteria through certified culture collections

AST, antimicrobial susceptibility testing; MOI, multiplicity of infection; PK/PD, pharmacokinetics/pharmacodynamics; PST, phage susceptibility testing.

Steps towards a PST reference methodology I

- The PST reference methodology should be feasible for use in microbiology laboratories worldwide and independent of proprietary equipment. Although automated approaches to testing performance and interpretation would be desirable, it is pivotal to recognize that phage therapy could be particularly valuable in low-and middle-income countries, where laboratory infrastructure and resources may be limited. Regarding biosafety requirements, the applicable biosafety level is primarily determined by the bacterial host used for PST. In most cases, this corresponds to **biosafety level-2 laboratory conditions**. Phages themselves are traditionally classified as safety level 1, if they are not genetically modified and do not carry undesirable genes.

Steps towards a PST reference methodology II

- Currently, **no universally accepted reference phages or bacterial reference strains are available** for the standardized validation and quality assurance of PST methodologies. Therefore, the establishment of curated panels of reference phages and bacterial strains, ideally distributed through internationally accessible culture collections, would represent an important future step towards harmonization and interlaboratory comparability.
- Similarly, establishment of national and/or **international PST reference laboratories** could support methodological standardization, training, troubleshooting, and external quality assurance. In addition, PST media should be globally accessible either via providers operating in different countries or through the validation of equivalent media from multiple suppliers to ensure the worldwide applicability and reproducibility of PST methodologies.

Steps towards a PST reference methodology III

Over the past year, the EUCAST PST SC has set up a protocol for **PST in liquid medium**. This protocol is currently being evaluated in a pilot study conducted across five specialized laboratories and includes phages targeting *Escherichia coli, Pseudomonas aeruginosa,* and *Staphylococcus aureus*.

The results of this study will inform the design of a more extensive multicentre evaluation and guide the gradual refinement of both the PST protocol and its interpretation. Interested readers may contact the EUCAST PST SC via the contact form available at the homepage for further information and updates regarding protocol development

The development of a broth-based reference method does not imply that methods based on solid media will lose their place in PST, as the methods can complement each other and provide different types of information

Current public consultations

Subject	Deadline	Description
EUCAST public consultation on Proposal for Dosing in Paediatric Patients	27 November 2026	Dosages which are commonly used in paediatric patients are presented in relation to EUCAST breakpoints.
Second consultation on revision of breakpoints for meropenem against Pseudomonas and Acinetobacter species (28th September) A further consultation on meropenem breakpoints in Pseudomonas and Acinetobacter species	31 October 2026	This 2nd public consultation addresses comments made during the first consultation on the same topic.

Pediaatriliste dooside tabel tulemas

Paediatric Dosages (beyond neonatal age)

BP tabel 2027, v17 on plaanis publitseerida

Konsultatsioon kuni 27.11.2026

Meropenem

Species	ECOFF	Current breakpoints (v 16.0, 2026)	New breakpoints V 17, 2027
Pseudomonas spp. (indications other than meningitis)	2	2/8	0.001/4
Pseudomonas aeruginosa, (meningitis),	2	2/2	2/2
Acinetobacter spp (indications other than meningitis)	2	2/8	0.001/4
Acinetobacter spp (meningitis)	2	2/2	2/2

Meropeneemi BP *Pseudomonas* ja *Acinetobacter* jaoks, tähtaeg 31.10.2026

Diagnoosist sõltuvad BP ja ELHR

Diagnoosiga seotud BP, nt *Streptococcus pneumoniae* – pole hetkel rakendatav LIS-is?

ELHR

Vald.	Sort	T lühend	Kasutatav nimetus	T nimetus
AB	341	Is-Ceftriaxone Disc	Tseftriaksoon Disk	Tseftriaksoon Disk
AB	342	Is-Ceftriaxone Grad	Tseftriaksoon Grad	Tseftriaksoon Grad
AB	343	Is-Ceftriaxone MIC	Tseftriaksoon MIK	Tseftriaksoon MIK
AB	344	Is-Ceftriaxone	Tseftriaksoon	Tseftriaksoon
AB	345	Is-Ceftriaxone LL Grad	Tseftriaksoon LL Grad	Tseftriaksoon madalas kontsentratsioonis Grad

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Ceftriaxone (indications other than endocarditis and meningitis)	0.5	2
Ceftriaxone (endocarditis and meningitis)	0.5	0.5

Diagnoosiga seotud BP, nt *Viridans grupi streptokokid* – pole hetkel rakendatav LIS-is?

ELHR

T lühend	Kasutatav nimetus
Is-Penicillin Disc	Penitsilliin Disk
Is-Penicillin MIC	Penitsilliin MIK
Is-Penicillin	Penitsilliin
Is-Penicillin G Disc	Penitsilliin G Disk
Is-Penicillin G Grad	Penitsilliin G Grad
Is-Penicillin G MIC	Penitsilliin G MIK
Is-Penicillin G	Penitsilliin G
Is-Penicillin V Disc	Penitsilliin V Disk
Is-Penicillin V Grad	Penitsiliin V Grad
Is-Penicillin V	Penitsilliin V
Is-Penicillin LL Grad	Penitsilliin madalas kontsentratsioonis Grad

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Benzylpenicillin (screen only)	0.25[1]	0.25[1]
Benzylpenicillin (indications other than endocarditis)	0.25	1
Benzylpenicillin (endocarditis)	0.25	0.25
Benzylpenicillin (endocarditis, in combination with other antimicrobial treatment)	(1)[2]	(1)[2]