Uus EUCAST resistentsuse dokument

P.aeruginosa ja Acinetobacter MBL+

24.10.17

Eelmine 2013 a

EUCAST EUROPEAN COMMITTEE ON ANTIMICROBIAL SUSCEPTIBILITY TESTING

European Society of Clinical Microbiology and Infectious Diseases

EUCAST guidelines for detection of resistance mechanisms and specific resistances of clinical and/or epidemiological importance

Version 2.0[1]

July 2017

Contents

Miks just **MBL**?

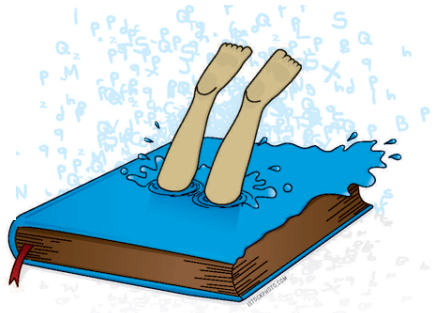
IVKH andmed TA-st

2016 a kokku 7 Acinet MBL+ neist 4 IVKH

- alaraporteerimine (määrus? + muud põhjused)
- fenotüüpiline meetod

Tabel 16. Teatised ravimresistentsete haigustekitajate kohta NAKISes, 2016. a

	Laboriteatiste arv NAKISes	Patsientide arv	Teatisi edastatud laborite arv
ESBL *E. coli*	672	476	6
ESBL *K. pneumoniae*	715	458	7
MRSA	109	93	7
Enterococcus faecium VanB	7	7	1
Pseudomonas aeruginosa MBL+	5	4	2
Acinetobacter sp. MBL+	10	8	2
Streptococcus pneumoniae PenNS	6	5	3



Carbapenemase producing *P. aeruginosa* and *Acinetobacter*

Importance of detection of resistance mechanism	
Required for clinical antimicrobial susceptibility categorization	No
Infection control purposes	Yes
Public health purposes	Yes

For *P. aeruginosa* the MBL Etest® as well as disk-based assays have been used for several decades, but are hampered by poor specificity (5-7). Recently, several authors have also suggested various

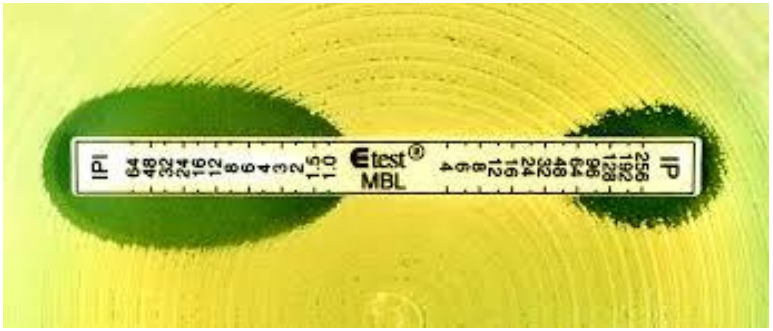
modifications of the combination disk tests (of either imipenem or meropenem in combination with various class B inhibitory compounds (EDTA or DPA) but these have been validated in single center studies, and their robustness in their settings is difficult to ascertain in other (8, 9). The

probably the tests with best proven specificity at the moment. Still, no test seems sufficiently specific to be used as a stand-alone test without molecular confirmation.

Eesti

IVKHs ROSCO. Alternatiiv?

- MBL total kit
- KPC, MBL P.aeurog, Acineto

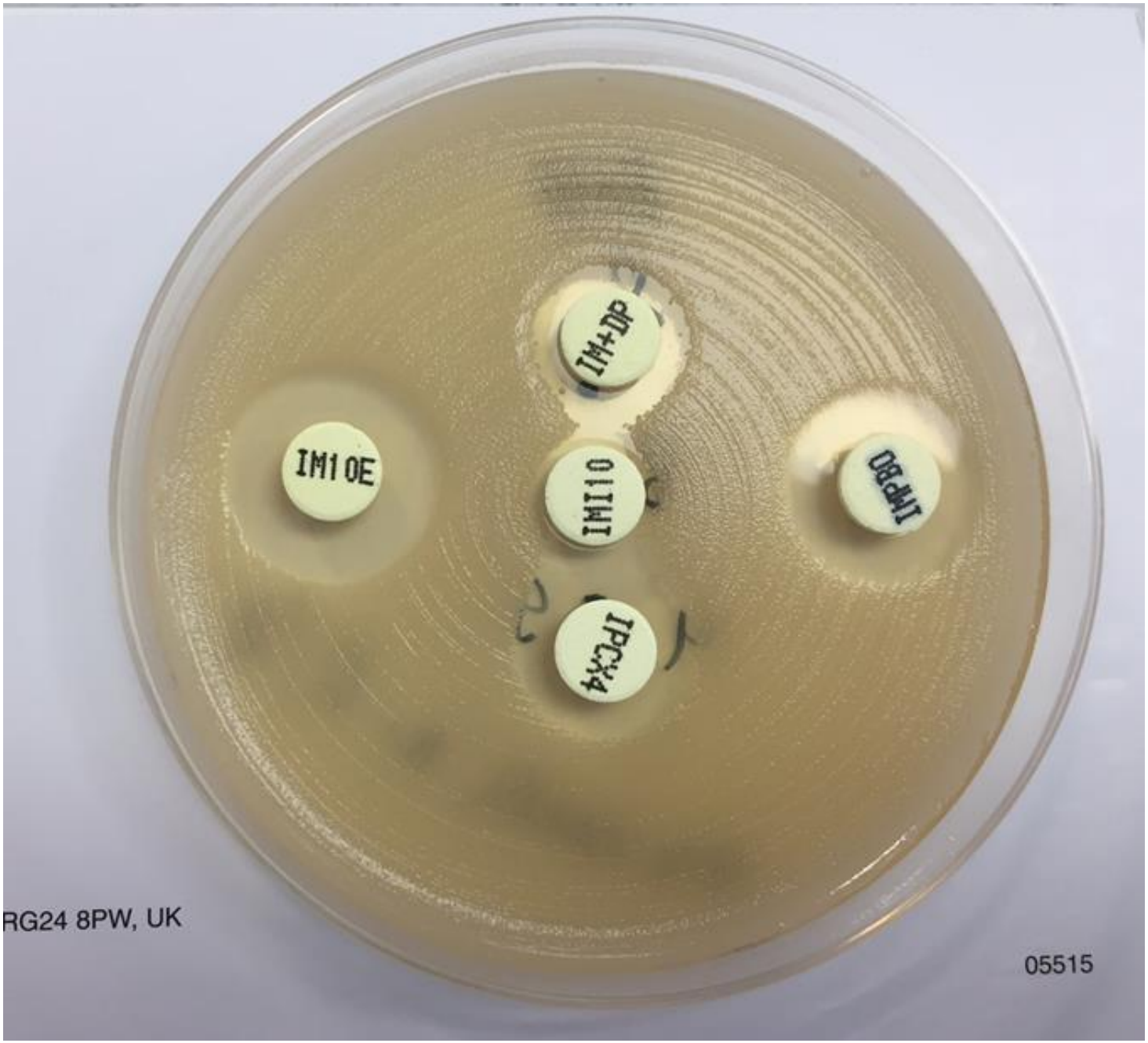


DATE OF ISSUE: 10.02.2017

- The organism produces a metallo-beta-lactamase (MBL) that hydrolyses carbapenems efficiently. MBLs are inhibited by dipicolinic acid (**DPA) and EDTA**. Synergy (ghost zone) between imipenem and DPA or/and EDTA indicates the presence of a MBL. If here is no zone around Imipenem 10µg, synergy should be checked at a closer distance between Imipenem 10µg and Imipenem + DPA.

- ? Mueller-Hinton agar should be used for the test.

NB! MacConkey agar increase activity of the carbapenems on the medium (Yong et al 2012; Hansen et al 2013.)


IM10E
IMI10
IPCX4
IM+DP
IMPBD
RG24 8PW, UK
05515

Tõenduspõhisus

Evaluation of the total MBL confirm kit (ROSCO) for detection of metallo-β-lactamases in *Pseudomonas aeruginosa* and *Acinetobacter baumannii*☆

Frank Hansen [a,*], Anette M. Hammerum [a], Robert Skov [a], Bjørg Haldorsen [b], Arnfinn Sundsfjord [b], Ørjan Samuelsen [b]

2013 a

Kontrollideks molekulaarselt kinnitatud MBL-id

Table 1
Test outcomes and statistical parameters for the four

	P. aeruginosa	
	MBL-pos (n = 28)	MBL-neg (n = 43)
MEM ± DPA		
Test positive	25	37
Test negative	3	6
Sensitivity	89%	
Specificity	14%	
PPV	40%	
NPV	67%	
IMI ± EDTA		
Test positive	28	41
Test negative	0	2
Sensitivity	100%	
Specificity	5%	
PPV	41%	
NPV	100%	
IMI ± DPA		
Test positive	24	14
Test negative	4	29
Sensitivity	83%	
Specificity	67%	
PPV	63%	
NPV	88%	
MBL Etest		
Test positive	28	20
Test negative	0	23
Sensitivity	100%	
Specificity	53%	
PPV	58%	
NPV	100%	

NPV = negative predictive value.

- Madal spetsiifilisus 5-67% ja PPV (40-63%);
- kuid kõrge tundlikkus

	A. baumannii	
	MBL-pos (n = 5)	MBL-neg (n = 48)
MEM ± DPA		
Test positive	5	16
Test negative	0	32
Sensitivity	100%	
Specificity	67%	
PPV	24%	
NPV	100%	
IMI ± EDTA		
Test positive	4	28
Test negative	1	20
Sensitivity	80%	
Specificity	42%	
PPV	13%	
NPV	95%	
IMI ± DPA		
Test positive	4	0
Test negative	1	48
Sensitivity	80%	
Specificity	100%	
PPV	100%	
NPV	98%	
MBL Etest		
Test positive	5	29
Test negative	0	19
Sensitivity	100%	
Specificity	40%	
PPV	15%	
NPV	100%	

IMI-DPA kõrge spetsiifilisusega (100%) ja PPVga (100%)

Teistel spetsiifilisus ja PPV madal.

J Antimicrob Chemother. 2008 Apr;61(4):827-30. doi: 10.1093/jac/dkn016. Epub 2008 Jan 28.

Evaluation of phenotypic tests for the detection of metallo-beta-lactamase-producing Pseudomonas aeruginosa in a low prevalence country.

Samuelsen O[1], Buarø L, Giske CG, Simonsen GS, Aasnaes B, Sundsfjord A.

E-test ja IMP-EDTA madal tundlikkus ja spetsiifilisus+ ***PPV*** *(suboptimal MBL detekteerimiseks riigis madala MBL levimusega)*

Eur J Clin Microbiol Infect Dis. 2014 Jul;33(7):1133-41. doi: 10.1007/s10096-014-2059-1. Epub 2014 Jan 23.

Evaluation of phenotypic detection methods for metallo-β-lactamases (MBLs) in clinical isolates of Pseudomonas aeruginosa.

Peter S[1], Lacher A, Marschal M, Hölzl F, Buhl M, Autenrieth I, Kaase M, Willmann M.

Kõikidel fen testidel MBL detekteerimiseks madal tudnlikkus ja spetsiifilisus. Madala levimusega riikides direct molekulaarne approach might be appropriate

IVKH andmed

- Juuni-Oktoober 2017 väljastatud **44** A.baum MBL+ (3 kir; 12 sise; 27 IRO; 1 nakkus)
- 21 patsient
- 95% IMI-EDTA kombinatsiooniga (EDTA increase permeability of the outer cell membrane and give false-positive MBLs)

Kokkuvõte

1. MBL Etest (with specificity rates of ≤53% for both species) did not add more specific diagnostic information than the tablet-based kit for the isolates included in this study.

2. Tundlikkus ≥ 80%, spetsiifilisus ja PPV kriitiliselt madal. Va IMI-DPA Acineto-l

3. Madala spetsiifilisusega vale pos MBL kasv

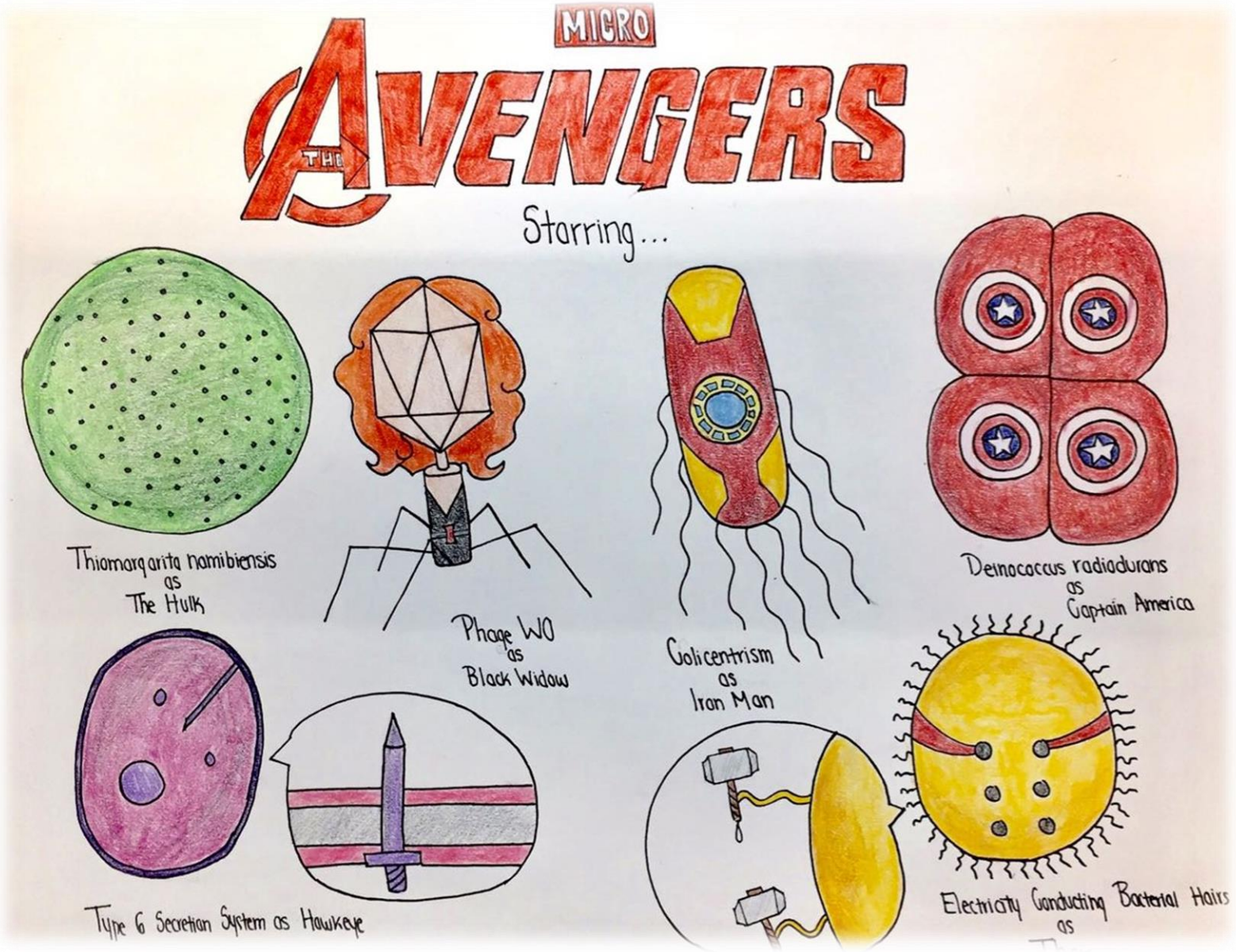
4. Molekulaarne kinnitamine vajalik

5. MBL detekteerimine jääb väljakutseks

Infoks

IVKH Acinetobact MBL+ kollektsioon rocket science

Tänan


MICRO
THE AVENGERS
Starring...
Thiomargarita namibiensis as The Hulk
Phage WO as Black Widow
Colicentrism as Iron Man
Deinococcus radiodurans as Captain America
Type 6 Secretion System as Hawkeye
Electricity Conducting Bacterial Hairs as