BIO TECHNOLOGY
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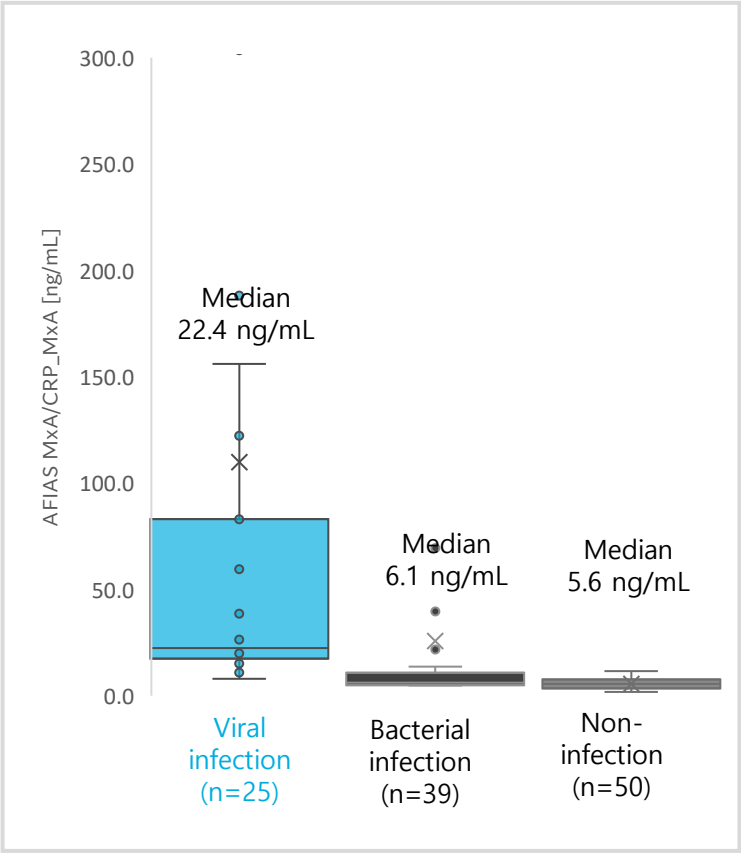
MxA/CRP
Published article & poster

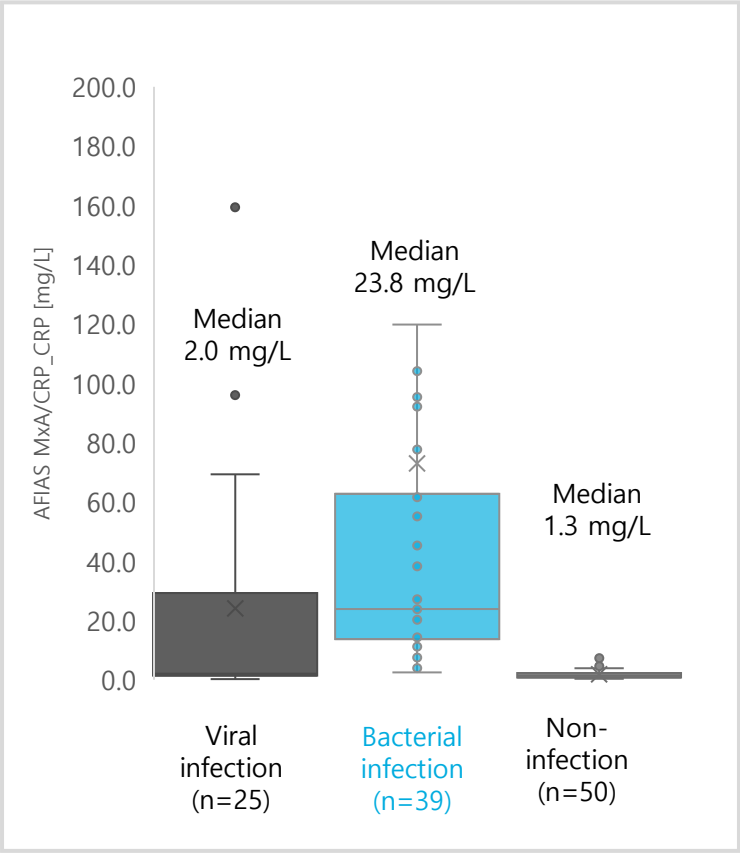
Boditeh Med
Marketing team

AFIAS & ichroma MxA/CRP Performance

<MxA level in viral infection, bacterial infection and non-infection>



<CRP level in viral infection, bacterial infection and non-infection>



Viral infection (n=25)
Species : SARS-CoV-2(15)
CMV(Cytomegalovirus(7)
EMV(Epstein-Barr Virus(3)

Bacterial infection (n=39)
Acinetobacter Species(4)
Proteus Species(3)
Salmonella Species(2)
Stenotrophomonas *Maltophilia*(3),
Streptococcus Species(26)
Serratia marcescens(1)

Non-infection (n=50)

Clinical diagnosis	Sensitivity		Specificity	
	%	95% CI	%	95% CI
Viral infection	88.0	75.3 – 100.0	94.4	89.6 – 99.2
Bacterial infection	87.2	76.7 – 97.7	88.0	80.6 – 95.4

Published article

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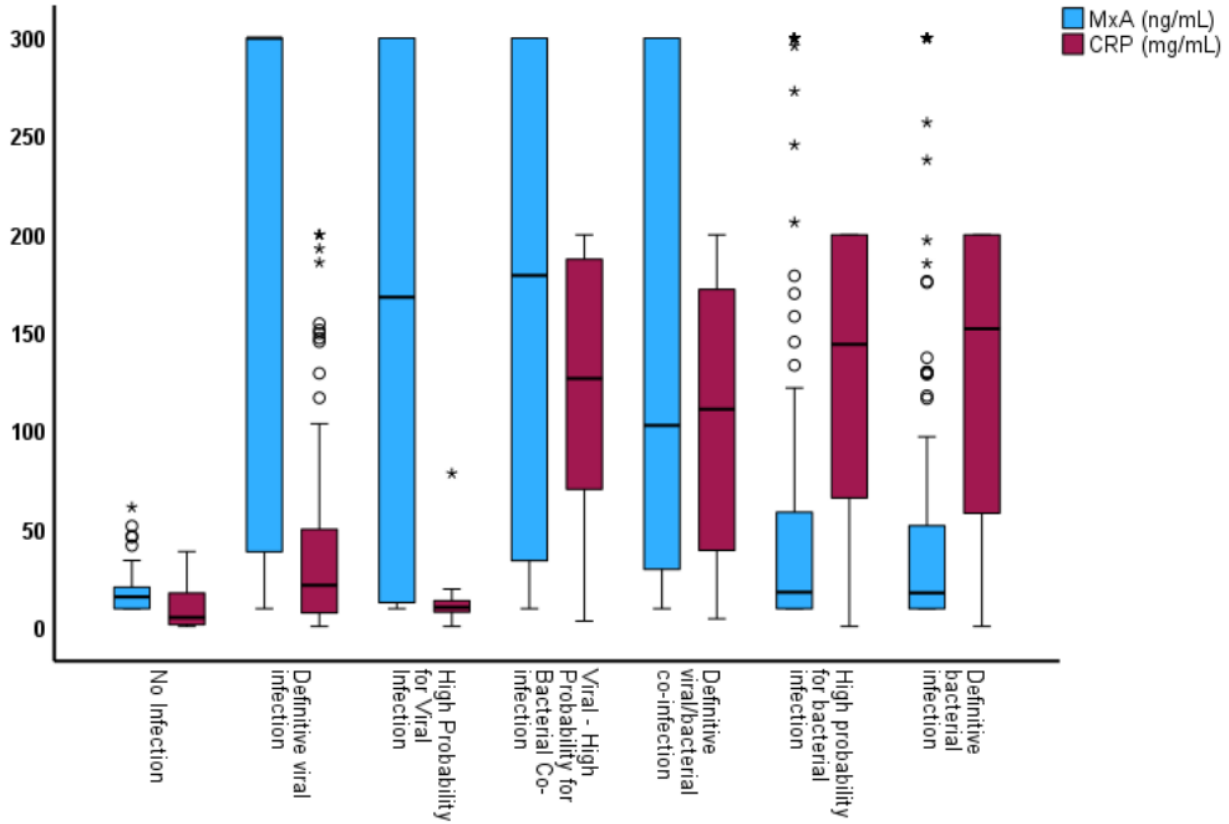
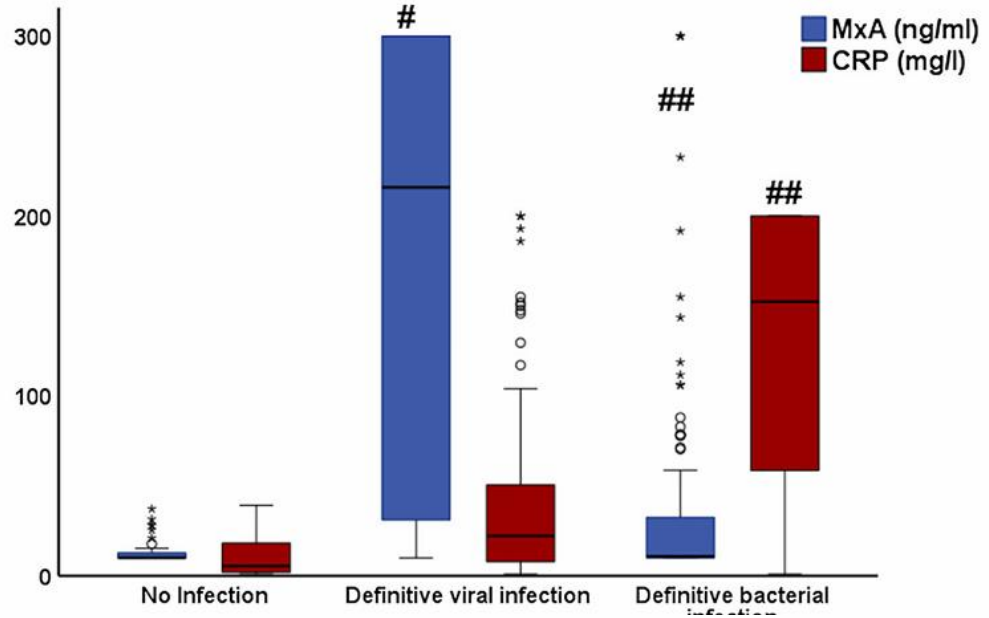
DEVELOPING A TOOL USING MxA AND CRP FOR THE DIAGNOSIS OF BACTERIAL AND VIRAL INFECTIONS



Published article

Primary endpoint: to develop an algorithm which uses blood levels of MxA, CRP, and their ratio to classify patients into viral and bacterial infections or co-infection.



	Definitive bacterial (n)	Definitive viral (n)	Total (n)
P ≥0.5 AND/OR MxA/CRP <2, n	120 Se: 91.6% (85.6-95.2) PPV: 78.4% (71.3-84.2)	33	153
P <0.5 AND MxA/CRP ≥2, n	11	103 Sp: 75.7% (67.9-82.2) NPV: 90.4% (83.5-94.5)	114
Total (n)	131	136	267

- Prospective study
- between July 2022 and February 2023 in six departments of internal medicine located at public hospitals in Greece
- A total of **537 patients**
- any of the following clinical signs of infection: **fever, cough, dyspnea, sore throat, headache, nasal congestion, or diarrhea.**

Calculated probability and/or MxA to CRP ratio povided **91.6% sensitivity and 90.4% negative predictive value** for the diagnosis of bacterial infections.

Konstantina Iliopoulou. et al, Infect Dis Ther (2024) 13:105–119

Published poster

The MxA protein is a marker of respiratory viral infections.

[1] Gasymova Sh.H., [2] Tagizade R.K., [3] Mamedova J.

[1] MediClub MMM, [2] Azerbaijan State Institute for Advanced Medical Training named after A. Aliyev, KLM Help

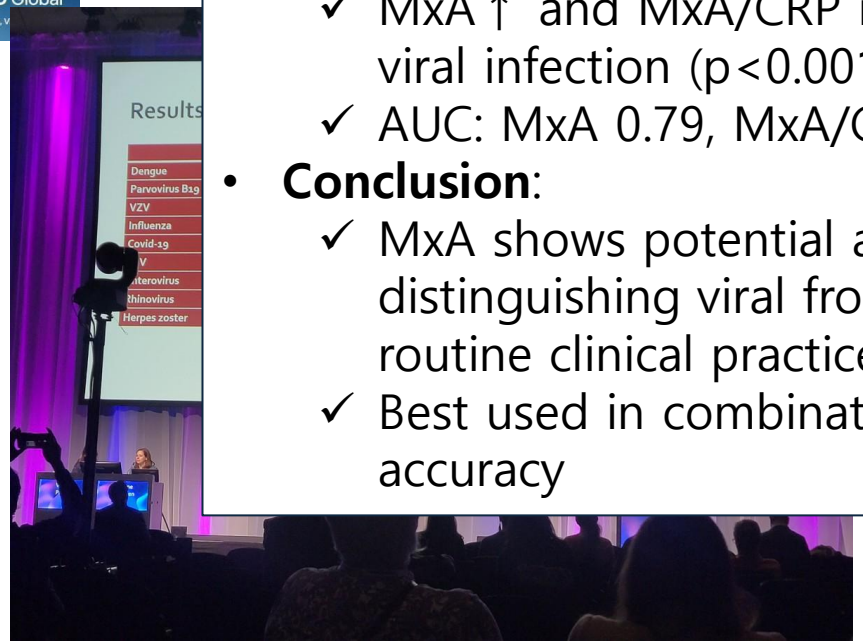
Materials And methods : 160 respiratory infectious patients and 48 healthy people measured MxA and CRP protein levels with AFIAS immunofluorescence device (Boditech Med , Korea). The detection of respiratory infections was performed using the PCR (CFX-96, Bio-Rad; Allplex, Seegene) and ELISA (Vircell, Spain).

Results : MxA protein levels were elevated in 150 out of 160 patients (93.75%).
The average level of MxA protein in patients was 217.69 (range: 19.52 – 300).

Detected viruses	Detected viruses in percentage	MxA protein level Normal <15 (ng/ml)	CRP level Normal <10 (mg/l)
Adenovirus	4.7%	300	9.5
Rhinovirus	1.3%	225.6	20.50
Parainfluenza	0.7%	281.6	0.98
Coronavirus SARS-CoV-2	14 %	74.28	45.72
Bocavirus	2%	295.8	5.57
Respiratory syncytial virus	2.7%	287.3	1.14
Enterovirus	2%	19.5	88.64
Influenza A	52%	263.38	3.96
Influenza B	11.3%	271.26	1.78
Measles virus	8 %	300	2.92
Epstein Barr virus	1.3%	75.81	1.47

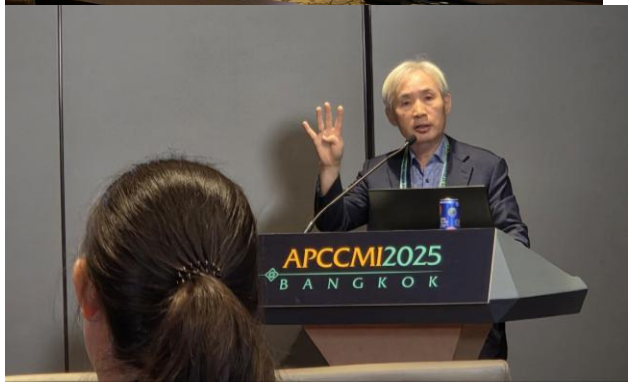
Summary: In patients with respiratory viral infections, the levels of MxA protein were elevated. Since MxA protein is elevated in the most common respiratory viral infections, it can be considered an informative marker.

ESCMID 2025, Vienne



- **Background**: Differentiating viral vs bacterial infections is challenging and often leads to antibiotic misuse.
- **Methods**: Prospective study (n=225 adults, acute illness <7 days) measuring MxA & CRP.
- **Results**:
  - ✓ Viral: 34%, Bacterial: 28%, Mixed: 8%
  - ✓ MxA ↑ and MxA/CRP ratio >2 strongly linked to viral infection ($p<0.001$)
  - ✓ AUC: MxA 0.79, MxA/CRP 0.86
- **Conclusion**:
  - ✓ MxA shows potential as a diagnostic marker for distinguishing viral from bacterial infections in routine clinical practice.
  - ✓ Best used in combination to improve diagnostic accuracy

LMCE 2025_Korea & APCCMI 2025_Bangkok



Analysis of Blood Myxovirus Resistance Protein A For Diagnosis of Upper Respiratory Viral Infections

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Table 1. Clinical performance, area under the ROC curve, and optimal cutoff of the AFIAS MxA using EDTA blood for diagnosis of respiratory viral infections

AFIAS MxA	RT-PCR		Sensitivity	Specificity	AUC-ROC	Optimal Cutoff (ng/ml)
	Positive	Negative	%(95%CI)	%(95%CI)	%	
AFIAS1						
Positive	65	3	98(92-100)	94(83-99)	98.7	47.57
Negative	1	45				
AFIAS3						
Positive	66	4	100(95-100)	92(80-98)	99.7	58.69
Negative	0	44				
AFIAS6						
Positive	66	4	100(92-100)	92(80-98)	99.6	48.28
Negative	0	44				
AFIAS10						
Positive	66	4	100(95-100)	92(80-98)	99.6	35.04
Negative	0	44				

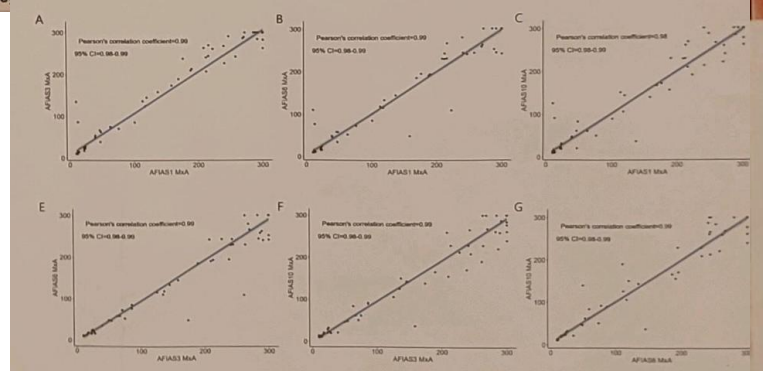

Fig. 1. Correlation analysis of four different AFIAS models, 1, 3, 6, and 10 for MxA for the EDTA blood.

Table 2. Sensitivity and specificity of the AFIAS1 MxA for EDTA- and capillary blood

Sample type	RT-PCR		Sensitivity	Specificity	AUC-ROC	Optimal Cutoff (ng/ml)
	Positive	Negative	%(95%CI)	%(95%CI)	%	
EDTA blood						
Positive	65	3	98(92-100)	94(83-99)	98.7	47.57
Negative	1	45				
Capillary blood						
Positive	65	4	98(92-100)	92(80-98)	99.3	65.54
Negative	1	44				

Conclusions

- ✓The sensitivity (98-100%) and specificity (92-94%) of all AFIAS models were exceedingly high for EDTA blood. Optimal cutoff is slightly higher than the recommended (30 ng/ml) by the manufacturer.
- ✓The sensitivity and specificity of EDTA and capillary blood were excellent, indicating POC MxA could be applied in the outpatient clinic.
- ✓Regardless of the AFIAS model (1, 3, 6, 10), the MxA measurements were all highly correlated to each other (all correlation coefficients ≥ 0.98).
- ✓ Excellent sensitivity (100%) and specificity (92%) were confirmed regardless of virus type (SARS-CoV-2, n=19; FluA, n=11; FluB, n=39; HRV, n=4).
- ✓ In conclusion, blood MxA analysis proved to be useful to screen viral RTIs.