Paweł Zmora, PhD

Head of the Department of Molecular Virology
Research interests

Novel antiviral strategies

MONITORING
- Diagnostic tests development
- SARS-CoV-2 infection seroprevalence
- Wastewater-based epidemiology

PREVENTION
- Analysis of the population immunity
- Novel vaccines development

TREATMENT
- Novel drugs development
# Development of the first Polish diagnostic test for the SARS-CoV-2 infection

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**Detection limits (virus copies/ml)**
- Bosphore 2019-nCoV: 519
- Viasure SARS-CoV2 RT-PCR: ≥500
- DiaPlexQ™ 2019-nCoV: 200
- GeneFinder COVID-19 Plus RealAmp: 500
- Liferiver 2019-nCoV Multiplex RT-PCR: 1000
- Vazyme 2019-nCoV RT-qPCR: 200
- Vitassay qPCR SARS-CoV2: ≥500
- MediPAN 2G+ FAST COVID: 200

**Reaction time**
- Bosphore 2019-nCoV: 1h 27min
- Viasure SARS-CoV2 RT-PCR: 1h 44min
- DiaPlexQ™ 2019-nCoV: 1h 48min
- GeneFinder COVID-19 Plus RealAmp: 1h 56min
- Liferiver 2019-nCoV Multiplex RT-PCR: 1h 11min
- Vazyme 2019-nCoV RT-qPCR: 1h 28min
- Vitassay qPCR SARS-CoV2: 1h 39min
- MediPAN 2G+ FAST COVID: 1h 3min

*Tymoniuk B., Zmora P., et al., 2021, Epidemiological Review*
'True' scale of COVID-19 pandemic

1500 ELISA tests

14 volunteers with anti-SARS-CoV2 IgG antibodies

Lorent D., Nowak R., et al., 2021, Vaccines
Wastewater-based epidemiology

Samendra P., et al., 2020, Science of the Total Environment
The SARS-CoV-2 presence in the Poznan sewage system
SARS-CoV-2 seroprevalence among healthcare workers

Seropositivity (anti-SARS-CoV-2 IgG)
- September 2020: 0%
- December 2020: 26.5%
- February 2021: 52.5%

Level of anti-SARS-CoV-2 IgG
- High-risk work environment: 31.3% 50%
- Low-risk work environment: 24% 62.1%
- no significant differences
- significant differences

Lorent D., et al., Vaccines, in review
The anti-SARS-CoV-2 antibody level after the infection

Lorent D., et al., Vaccines, in review
SARS-CoV-2 seroprevalence among HCWs

- **September 2020**: 0%
- **December 2020**: 26.5%
- **February 2021**: 100%

Seropositivity (anti-SARS-CoV-2 IgG)
- 100% after two doses of the Pfizer-BioNTech mRNA vaccine

High-risk work environment
Low-risk work environment

Lorent D., *et al.*, Vaccines, in review
Anti-SARS-CoV-2 antibody level after the vaccination against COVID-19

Lorent D., et al., Vaccines, in review
SARS-CoV-2 seroprevalence among HCWs

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<tr>
<th>Month</th>
<th>DIDaCP</th>
<th>OGW</th>
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<tr>
<td>September</td>
<td>0%</td>
<td>0%</td>
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<tr>
<td>December</td>
<td>26.5%</td>
<td>52.5%</td>
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<tr>
<td>February</td>
<td>100%</td>
<td>100%</td>
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<tr>
<th>Antibody</th>
<th>DIDaCP</th>
<th>OGW</th>
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<tr>
<td>Anti-S</td>
<td>94.4%</td>
<td>94.1%</td>
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<tr>
<td>Anti-NCP</td>
<td>5.7%</td>
<td>36.7%</td>
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1Department of Infectious Diseases and Child Neurology PUMS, Poznan
2Obstetrics and Gynecology Ward, Września

Lorent D., et al., Vaccines, in review
Anti-SARS-CoV-2 antibody level six months after the vaccination

Lorent D., et al., Vaccines, in review
Proteolytic activation of emerging coronaviruses
Antiviral activity of the TMPRSS2 mRNA secondary structure-based ASOs

Manuscript in preparation
Science popularization – media expert

Testy na COVID-19

9 czerwca 2021 godz. 19.00

dr Paweł Zmora
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- Katarzyna Wysocka
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- Markus Hoffmann, PhD
Thank you for your attention!