

# Institute of Medical Biology Polish Academy of Sciences (IMB PAS)

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„The close collaboration with experts from the EU-OPENSREEN network allows for effective and mutually beneficial know-how transfer, development of personnel in R&D area and facilitates the discovery of innovative bioactive compounds.”

## At a glance

- The research is focused on the body-environment relationships at the interface of pathogen, and the host at the molecular, cellular and body level with emphasis on infectious diseases, both viral and bacterial. Level 1, 2, and 3 biosafety laboratories are available.
- Expertise in microbiology, particularly host-pathogen interactions
- Biological chemistry and pharmaceutical sciences focus on chemical synthesis and testing of chemical compounds aimed at identifying new derivatives exhibiting antiviral, antimicrobial, and anti-cancer activity.

## Infrastructure and technical focus

- National Library of Chemical Compounds with a target collection of more than 10,000 original molecules from academic institutions
- Specialized Screening Laboratory Bacteriology-Virology
- Automated platform for microbiological screening (Gramm-negative and -positive bacteria as well as tubercle bacilli)
- Huge collection of mycobacterial directed mutants available - [http://ibmpan.pl/images/pracownie/pgifm/tabela\\_DCO\\_PGIFM.htm](http://ibmpan.pl/images/pracownie/pgifm/tabela_DCO_PGIFM.htm)
- Development of biochemical assays for automatic screening
- Assessment of antiviral activity of chemical compounds against HCMV, HSV-1, EMCV, HPIV-3 and selected other BSL2 category viruses; real-time cell analysis (RTCA).



## Projects past and present

- 2020** | Epigenetic immunomodulation dependent on elements of the microbiome. Model of direct and indirect interactions of Th17 and Treg cells with *Staphylococcus aureus* in the course of psoriasis
- 2020** | The course of COVID-19 disease in the aspect of immune response and genetic variability of the host and SARS-CoV-2
- 2019** | The use of evolutionary patterns in the optimization of chemotherapy of tuberculosis
- 2018 - 2023** | **POL-OPENSREEN** (Polish Screening Infrastructure Platform for Chemical Biology)

## Our science in selected publications

Novel Isoniazid-Carborane Hybrids Active in Vitro against *Mycobacterium tuberculosis*  
➔ [Pharmaceuticals \(Basel\)](#). 2020, 13:465

1H-benzo[d]imidazole derivatives affect MmpL3 in *Mycobacterium tuberculosis*  
➔ [Agents Chemother.](#) 2019, pii: AAC.00441-19

Synthesis of naphthalimide-carborane and metallacarborane conjugates: anticancer activity, DNA binding ability  
➔ [Bioorg. Chem.](#), 2020, (94), 103432

Comparative study of the effects of *ortho*-, *meta*- and *para*-carboranes (C<sub>2</sub>B<sub>10</sub>H<sub>12</sub>) on the physicochemical properties, cytotoxicity and antiviral activity of uridine and 2'-deoxyuridine boron cluster conjugate  
➔ [Bioorg. Chem.](#), 2019

## Further info and site-contact

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