



NAUKOWA
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2024

ANNUAL REPORT



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Contents

Advances in modern technologies bring new challenges	6
Scientific Council	6
Honorary Scientific Council	7
Artificial intelligence requires good teachers	10
We help people of science by being “closer”	12
Management Board of the Polpharma Scientific Foundation	12
Closer to the Scientific Community	16
A bioinformatics database of patients with genetically determined diseases will be established	18
It is time to prioritise coordinated care for patients with rare skin diseases	20
Digitisation of a repository of data from patients with CNS cancers to benefit future researchers	22
Summer school for young scientists	24



Competitions with a long-standing tradition and support for new technologies	26
Winner of Prof. Franciszek Kokot Award	28
Prof. Roman Kaliszan Prize and Medal	29
5th edition of Star-Up-Med Competition	27
Finalists of Explory competition	27
We are committed to improving compliance	30
New technologies in medicine	32
Better data means more effective therapies	33
How to use medical registries	34
Polpharma Scientific Foundation Gala: honouring the winners and reuniting with friends	35
Closer to the Medical Journalism Community	40



Advances in modern technologies bring new challenges

“Polpharma has always prioritised the needs of patients. The Polpharma Scientific Foundation adheres to the same philosophy”.

I am proud that over the years of its existence, the Foundation has steadfastly maintained its objectivity and upheld universal values that benefit Polish society and the Polish scientific community.

The most compelling evidence of the Foundation’s esteemed reputation in the world of science and medicine is our consistent success, over 20 years of operation, in securing the involvement of scientists in our projects. The number of projects is growing, and all of them originate from dialogue with experts in the scientific community.

Advances in modern technologies bring new challenges. The Foundation aims to effectively harness these challenges for the advancement of medicine. We are evolving into an innovation incubator.

We aspire to create optimal external conditions, a unique climate, and rapid adaptation to changing circumstances to foster the development of existing processes, implement new concepts, and facilitate the exchange of ideas and experiences.

The competition topics proposed by the Scientific Council encapsulate this idea perfectly. The 22nd edition of the scientific grant competition, which focused on “The Use of Databases to Improve Prevention, Diagnosis, and Therapy”, highlighted the importance of organising and improving the quality of medical databases, while also increasing their accessibility for scientific and R&D purposes.

Without addressing this topic, the next step – leveraging artificial intelligence (AI) in the realm

of medicine – will be challenging, if not outright impossible. Providing access to medical data is critical, so that AI can learn and achieve its potential. This year, the Polpharma Scientific Foundation invited scientists to tackle the topic of “Applications of Artificial Intelligence (AI) in the Analysis and Management of Medical Data”. Attending the annual grant award meetings is one of the highlights of the year for me.

I extend my gratitude to the scientists who have entrusted us with their projects for evaluation, as well as to our partners from various institutions, universities, and scientific societies.

We are launching a new competition and have many other upcoming projects, including the Foundation’s summer school — “Medical School of Your Future. Invest in Yourself!” — which has originated from discussions held during the Conference of Rectors of University Medical Schools. I am pleased that the Foundation is not only committed to advancing science but also prioritises the development of young scientists.

I wish all the beneficiaries of our programmes genuine satisfaction and continued success in their endeavours.

“I extend my gratitude to the scientists who have entrusted us with their projects for evaluation, as well as to our partners from various institutions, universities, and scientific societies”.



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Jerzy Starak

President of the Supervisory Board of Polpharma SA,
Founder of the Polpharma Scientific Foundation

SCIENTIFIC COUNCIL



Prof. Jarosław Reguła, MD, PhD

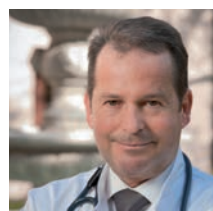
Chairman of the Scientific Council,
internal medicine and gastroenterology



Prof. Krzysztof Narkiewicz, MD, PhD
internal medicine, cardiology,
and hypertensiology



Prof. Grzegorz Opolski, MD, PhD
internal medicine and cardiology



Prof. Piotr Kuna, MD, PhD
internal diseases and allergology



Prof. Jacek Szaflik, MD, PhD
ophthalmology



Prof. Mirosław Wielgoś, MD, PhD
gynaecology and obstetrics,
perinatology



Prof. Katarzyna Życińska, MD, PhD
internal medicine, nephrology,
and family medicine



Prof. Marcin Gruchała, MD, PhD
internal medicine and cardiology



Adam Kobayashi, MD, PhD
internal medicine and neurology

New Members of the Scientific Council



Prof. Aleksander Prejbisz, MD, PhD
internal medicine, cardiology,
and hypertensionology

HONORARY SCIENTIFIC COUNCIL

- Prof. Waldemar Banasiak, PhD – cardiology
- Prof. Stefan Chłopicki, PhD – experimental pharmacology
- Prof. Zbigniew Gaciong, MD, PhD – internal medicine and hypertensionology
- Prof. Grzegorz Gryniewicz, PhD – organic, medical, and pharmaceutical chemistry
- Prof. Marek Jarema, PhD – psychiatry
- Wojciech Kuźmierkiewicz, PhD – pharmaceutical organic chemistry
- Prof. Roman Lorenc, PhD – medicine and biochemistry
- Prof. Adam Płaźnik, MD, PhD – pharmacology and psychopharmacology
- Prof. Edmund Przegaliński, PhD – pharmacology
- Prof. Jacek Roźniecki, PhD – neurology
- Prof. Cezary Szczylik, PhD – oncology
- Prof. Kazimierz Roszkowski-Śliż, PhD – clinical oncology
- Prof. Jerzy Szaflik, PhD – ophthalmology
- Prof. Edward Franek, PhD – internal medicine, endocrinology, nephrology

Prof. Marian Zembala, PhD – cardiac surgery and transplantology

Artificial intelligence requires good teachers

Artificial intelligence (AI) operates by analysing data, learning from it, and using the accumulated knowledge to make decisions or perform tasks. – Looking at the advancement of AI in medicine, the main challenge often revolves around ensuring the availability of data – says Prof. Jarosław Reguła.

On 8 April 2024, the Polpharma Scientific Foundation announced the launch of the 23rd edition of its Research Project Competition. The theme of this year's competition is "Applications of Artificial Intelligence (AI) in the Analysis and Management of Medical Data". What does the process of providing AI with access to medical data for its development involve?

Artificial intelligence is a broad concept where the goals of using computer solutions or algorithms and their applications play a pivotal role. Typically, to have a tool broadly referred to as artificial intelligence, you need to provide it with data that will train it on what to do. The process relies on machine learning techniques or artificial neural networks which mimic aspects of human brains.

This learning process can be illustrated by the interpretation of histopathological images. First, you need to prepare a collection of histopathology sections and slides, digitise them, and annotate them with diagnoses provided by a human histopathologist. In the next step, based on the images shown,

the machine learns how to differentiate between diagnoses. After being trained on 100,000 images, it will be capable of making correct diagnoses independently.

This implies that AI will rely on the knowledge fed into it. It's a huge responsibility.

Exactly. It's important to recognise that any errors in a dataset will be remembered and subsequently replicated by AI. This also applies to radiological and endoscopic images, as well as algorithms for disease identification and diagnostic suggestions. Artificial intelligence will be able to do what it's trained to do. Hence, the quality of the training is so important. Anyone can develop AI; it's crucial that they have the tools and expertise to train their computer on what it will be required to do later.

Who will be accountable for errors made by AI when applied in medicine?

The responsibility for using artificial intelligence rests with the doctor – or the individual seeking AI's suggestions. Artificial intelligence itself can't be held medically liable. AI can assist in various



Prof. Jarosław Reguła, MD, PhD (Hab.)

Head of the Department of Oncological Gastroenterology, Maria Skłodowska-Curie National Research Institute of Oncology and Centre of Postgraduate Medical Education, Polish National Consultant in Gastroenterology, Chairman of the Scientific Council at the Polpharma Scientific Foundation.

processes in medicine, offering clear support in diagnosis and treatment, and recommending therapies, with the understanding that doctors must verify its recommendations.

The capabilities of artificial intelligence appear limitless, or perhaps we haven't yet discovered the limits. Therefore, there could be countless ideas for AI applications in medicine. This edition of the competition held by the Polpharma Scientific Foundation aims to inspire scientists to explore applications of AI methodologies, potentially yielding groundbreaking ideas.

Let me give you an example of research conducted in Israel, the results of which were published two or three years ago. Since all diagnostic laboratories performing blood tests in Israel are connected into one network, a vast database of patient information has been created. Consequently, it's possible, for instance, to track the bloodwork results of a specific individual over the past 10 years, regardless of where the tests were performed. Scientists thought that monitoring certain parameters (such as hemoglobin

level, complete blood count or red blood cells) over the years could potentially help in detecting certain abnormalities. The method identified patients whose red blood cell counts decreased within normal ranges. The authors of the study suggested that the decrease could indicate underlying bleeding, and thus it might be beneficial to screen these patients for conditions such as colon cancer. With the use of AI, millions of blood tests from across the country were analysed, leading to the detection of individuals with latent bleeding. So the study functioned as a screening test for colon cancer.

At the National Research Institute of Oncology, for example, we used artificial intelligence fuelled by data from the National Health Fund database to search for individuals diagnosed with specific types of cancer. By taking into account various aspects such as the type of surgery, treatment, or cancer characteristics, it was possible to identify individuals with a specific diagnosis, even if it wasn't explicitly documented in the National Health Service databases.

We help people of science by being “closer”

The Polpharma Scientific Foundation prioritises partnership relations and clear communication among all stakeholders. It is grounded on four pillars, each centred around the concept of being „closer”: closer to the patient, closer to the scientific community, closer to the pharmaceutical industry, and closer to the medical journalism community.

Every year, the Polpharma Scientific Foundation organises its Research Project Competition, promotes its activities extensively, holds and shares expert debates, hosts the Conference of Rectors, and produces podcasts. In addition, the Foundation supports other initiatives within the medical community, such as serving as a patron for competitions including the Golden Scalpel, Supertalents in Medicine, and Explory.

Every year, the Foundation introduces at least one new initiative. Last year, it launched the inaugural edition of the summer school programme for talented medical students, called “Medical School of Your Future. Invest in Yourself!” This year, we launched a series of debates titled “Medical Controversies”, featuring prominent experts, targeted at journalists covering health topics.

In our ongoing engagement with scientists, we work collaboratively to explore solutions across

various medical fields, aiming to innovate and develop new tools. We hosted an expert debate on this topic to gain insights into how artificial intelligence (AI) will change the future of healthcare. How can it support medical professionals in their work?

If you want to watch the debate, you are more than welcome to do so, for example, on the Foundation’s website!

We anticipate that AI will come closer to doctors and patients over time. This is why the current edition of our Research Project Competition focuses on “Applications of Artificial Intelligence (AI) in the Analysis and Management of Medical Data”.

All the endeavours of the Foundation are consistently directed towards the welfare of patients. Our efforts to seek new solutions in medicine and pharmacy are driven by our dedication to improving patient care.



“In our ongoing engagement with scientists, we work collaboratively to explore solutions across various medical fields, aiming to innovate and develop new tools”.

Agata Łapińska-Smolińska
President of the Management Board
of the Polpharma Scientific Foundation

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MANAGEMENT BOARD OF THE POLPHARMA SCIENTIFIC FOUNDATION



Agata Łapińska-Smolińska
President of the Management Board
of the Polpharma Scientific Foundation



Krzysztof Kurowski
Vice President of the Management Board
of the Polpharma Scientific Foundation

Together, we are closer





Beata Kamosińska
Member of the Management
Board of the Polpharma
Scientific Foundation



Marcin Lewandowski
Member of the Management
Board of the Polpharma
Scientific Foundation



Daniela Piotrowska
Director of the Polpharma
Scientific Foundation



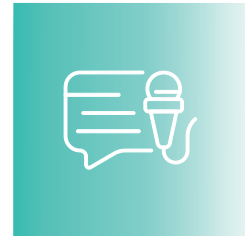
Polpharma Scientific Foundation: Pillars of Action



Closer to Patients



Closer to the Scientific
Community



Closer to the
Medical Journalism
Community



Closer to the
Pharmaceutical
Industry

Closer to the Scientific Community

The Management Board of the Foundation is brimming with new ideas. However, this does not mean we are abandoning the projects we have been pursuing so far. We will be continuing our Research Project Competition – a flagship initiative of the Polpharma Scientific Foundation.

However, the scope of the concept of 'research project' will be expanded. To date, the Foundation's efforts have primarily focused on supporting basic research. Moving forward with the times, we are now expanding into the vast field of digitalisation in medicine and pharmacy, alongside other areas of interest.

The Foundation owes its accomplishments to the invaluable support of the medical and scientific community, our loyal collaborators.

They are primarily members of the Polpharma Foundation Scientific Council, but also representatives of academic research centres and institutes interested in the Foundation's activities.

What does the future hold for us? Our mission statement – "We help people of science" – will forever remain the cornerstone of the Foundation's activities.





Beata Kamosińska

Member of the Management Board of the Polpharma Scientific Foundation

A bioinformatics database of patients with genetically determined diseases will be established

Securing the repository of over 72,000 DNA preparations from patients with genetic diseases stored at the Medical Genetics Department of the Mother and Child Institute (IMiD) in Warsaw is the core of the project submitted by Paweł Gawliński, MD, PhD, Professor at IMiD, one of the winners of the 22nd edition of the Research Project Competition held by the Polpharma Scientific Foundation to award grants supporting research projects. The theme of this year's competition was "The Use of Databases to Improve Prevention, Diagnosis, and Therapy".



Paweł Gawliński,
PhD

Head of the Molecular Genomics Laboratory and Biobank,
Medical Genetics Department,
Institute of Mother and Child
(IMiD) in Warsaw

Paweł Gawliński, PhD, heads the Molecular Genomics Laboratory and Biobank at the IMiD Medical Genetics Department. The project submitted by the researcher involves the development of a bioinformatics library storing the data of patients with genetically determined diseases.

According to the researcher, it is not possible to determine the exact percentage of individuals suffering from various types of genetic disorders or dysfunctions.

– It is estimated that genetically determined diseases affect at least 2.5 per cent of the population, which corresponds to approximately 950,000 people in Poland. Other authors claim that various forms of genetically-based diseases impairing life quality affect up to 8 percent of the population. Contrary to popular belief, these are not rare diseases, even though the term is commonly used in both scientific literature and public discourse – notes Dr Paweł Gawliński. The researcher studies the mechanisms underlying neurodevelopmental diseases in the human brain, such as neuronal migration defects, microcephaly, leukodystrophies, and hereditary leukoencephalopathy.

Importance of DNA repositories

Low- and high-throughput molecular techniques are increasingly being integrated into routine genetic diagnostics to decode DNA-encoded data.

– Biobanking and DNA repositories play a crucial role in advancing medical diagnostics, developing new therapeutic modalities – such as personalised treatment including gene therapies – and driving

innovation in vaccine and drug development – states Dr Paweł Gawliński.

The DNA repository at the Medical Genetics Department of the Mother and Child Institute in Warsaw was founded on 13 September 1987. As of now, it houses over 72,000 DNA preparations from patients affected by various genetic disorders, including developmental defects of the central nervous system (intellectual disability, epilepsy), diseases linked to DNA methylation disorders, metabolic diseases, congenital hearing loss, and many other conditions.

Prevent the loss of valuable knowledge

The title of the winning project submitted by Paweł Gawliński, PhD, is: “Application of a bioinformatics database containing data derived from the repository of DNA preparations/Biobank at the Medical Genetics Department of the Institute of Mother and Child in Warsaw for the diagnosis and prevention of genetically determined diseases”. The goal of the project is to leverage resources from the DNA preparation repository to establish a bioinformatics database with genetic data with a view to enhancing the diagnosis and prevention, and developing future therapies for genetically determined diseases.

The project aims to secure the existing repository of over 72,000 DNA preparations and to establish a new bioinformatics database for storing the data of patients affected by genetically determined diseases.

– Transferring the samples to the fully automated Arctic platform will provide multi-level protection for the genetic material, protecting it against the potential risks of loss or degradation. Creating an electronic database that integrates all DNA preparations from the repository available at the IMiD Medical Genetics Department, with links to the diagnostic and clinical data of patients, will also streamline the management of these research resources.

Various forms of genetically-based diseases impairing life quality affect up to 8 percent of the population.



It is time to prioritise coordinated care for patients with rare skin diseases

The skin is the largest organ of the human body, and skin disorders have a substantial adverse impact on the quality of life of patients. Contrary to popular belief, the number of rare and complex skin diseases is quite extensive, and their effects on both the skin condition and the clinical symptoms observed in patients vary significantly.



Prof. Joanna
Narbutt, MD, PhD
Head of the Department of
Dermatology, Paediatric and
Oncologic Dermatology,
Medical University of Lodz



Diagnosing rare skin disorders is a complex process because it usually requires genetic testing in addition to clinical and histopathological examinations.

Unlike commonly occurring skin diseases such as psoriasis, atopic dermatitis, and acne vulgaris, which are well-known and have a variety of treatment options available, rare skin diseases are often undiagnosed and, consequently, inadequately treated.

Before the development of Polish diagnostic and therapeutic guidelines

“Coordinated Care for Patients with Rare Skin Diseases in the Polish Population” is one of the winning projects in the 22nd edition of the Polpharma Scientific Foundation’s Research Project Competition. The competition centred around the theme of “The Use of Databases to Improve Prevention, Diagnosis, and Therapy”.

The leader of the project outlined above is Prof. Joanna Narbutt, MD, PhD, Head of the Department of Dermatology, Paediatric and Oncologic Dermatology at the Medical University of Lodz.

– Some rare skin disorders are known to clinically mimic common diseases, such as atopic dermatitis or psoriasis. Diagnosing these disorders is a complex process because it usually requires genetic testing in addition to clinical and histopathological examinations. Another challenge is treatment, which often relies on clinical experience. It is necessary to develop Polish diagnostic and therapeutic guidelines for these disorders – says Prof. Joanna Narbutt.

Database will help determine the actual number of patients

The objective of the winning project is to compile a database of patients affected by rare skin diseases. The database will help determine the actual number of patients in the Polish population and facilitate coordinated care. This will foster improvements in multidisciplinary clinical care and, in subsequent stages, contribute to the development of Polish diagnostic and therapeutic guidelines that are tailored to societal needs.

– We believe now is an opportune moment to start creating a database of these patients and try to estimate their number. We hope that by identifying the number of patients with genetically confirmed diagnosis, we might potentially contribute to an increase in the number of innovative clinical trials conducted for various diseases worldwide – explains Prof. Joanna Narbutt.

Many centres will need to be involved

The proposed database will serve as a crucial instrument for clinicians managing patients with rare skin diseases, facilitating collaboration among doctors across Poland to discuss and analyse clinical cases and choose the most effective therapies.

– Our first step will be to establish an IT database. Then, we will reach out to colleagues from other centres to request their assistance in developing and coordinating the project. Dermatologists from major centres have already expressed their interest in joining our initiative – adds Prof. Narbutt.

Sharing knowledge and fostering cooperation between clinicians in Poland is one of the main goals of the project, which aims to reduce disparities in access to therapeutic options for patients suffering from rare skin diseases.

Digitisation of a repository of data from patients with CNS cancers to benefit future researchers

Research on cancers of the central nervous system (CNS), and especially highly aggressive and incurable gliomas, contributes to the advancement of experimental therapies and novel diagnostic methods. Archival materials deposited for decades at the Institute of Experimental and Clinical Medicine of the Polish Academy of Sciences, containing clinical data on Polish neuropathological and neurooncological patients, will facilitate a retrospective analysis of genetic and molecular abnormalities underlying the development and progression of CNS tumours.



Robert P.
Ostrowski, PhD
Department of Neurooncology
Institute of Experimental and
Clinical Medicine
Polish Academy of Sciences
(PAN)



The project is unique in that it integrates data from classic oncological neuropathology with analyses of cancerous mutations and characteristics of non-coding RNAs for each sample.

One of the winning projects in the 22nd edition of the Polpharma Scientific Foundation's Research Project Competition focuses on digitising clinical resources including descriptive clinical data (diagnoses, clinical outcomes) along with material collected from patients affected by CNS cancers.

Valuable material for research

– There is a need to create an easily accessible research resource to facilitate the discovery of new approaches to managing cancers of the brain. The data and samples already collected prove highly valuable for this purpose, given the challenges involved in obtaining new research material. Significantly, brain tumours are less common than cancers affecting organs like the lungs or gastrointestinal tract. Hence, it would take years to collect enough new samples for research purposes – explains the grant winner, Robert Paweł Ostrowski, PhD, from the Department of Neurooncology at the PAN's Institute of Experimental and Clinical Medicine.

While the Institute of Psychiatry and Neurology in Warsaw maintains a digital neuropathological database with numerous records, Dr Ostrowski highlights that the resource lacks neurooncological profiling, unlike the database he has designed. The planned database will initially contain more than 1,000 cases of brain tumours.

Expected content of the database

The database will be built upon the initially created website connected to a data server, with data search capabilities (initially available offline).

– Each case will have a dedicated sub-page, segmented into sections displaying clinical data. Additionally, there will be sections with an integrated graphics viewer and high-resolution photographs of routine stained histological and immunohistochemical slides including immunohistochemical surrogates for cancer mutations – clarifies Dr Robert P. Ostrowski.

Other sections will include pilot data on the expression of non-coding RNAs for each case.

– The database will be populated with data in the specified order. However, creating a more comprehensive atlas of non-coding RNAs will require an additional effort and more resources in the future – explains the scientist.

Potential benefits of the project

The project is unique in that it integrates data from classic oncological neuropathology with analyses of cancerous mutations and characteristics of non-coding RNAs for each sample.

– By identifying cancerous mutations, we can gain insights into various aspects such as the pathomechanisms underlying brain tumours and their trigger factors. And by isolating non-coding RNAs that regulate cancer invasion, including those that suppress the maturation of factors inhibiting tumour growth, we might be able to identify targets for cutting-edge molecular therapies – summarises Dr Robert P. Ostrowski.

Summer school for young scientists

This year marks the launch of “Medical School of Your Future. Invest in Yourself!”, a special event organised by the Polpharma Scientific Foundation. Twenty-nine of the most talented students from 15 medical universities across Poland had the opportunity to participate in the inaugural edition.



The programme took place over five days at the Mała Wieś Palace near Warsaw, where 4th and 5th-year students of medical majors could learn the practical aspects of conducting scientific research, publishing their findings, interviewing patients, and public speaking. Above all, however, the School provided an opportunity to meet outstanding scientists and internationally renowned doctors who took on the responsibility of preparing future medical professionals for pursuing scientific projects. The Summer School organised by the Foundation is an elite project – in the best sense of the word – which provides substantive and practical support

to the most talented students involved in scientific clubs at medical universities – remarked Prof. Katarzyna Życińska, MD, PhD, who serves as the School’s ambassador.

What would the participants of the School’s first edition like to see in future editions?

First of all, more practical activities including workshops (“practising communication skills with patients-actors, creating a sample short grant application or an abstract for publication”), English-speaking guest speakers, and a broader range of session topics including paediatrics, surgery, internal medicine, medical law, pharmacy, and other areas. Students would also appreciate more practical guidance on building research teams, launching start-ups, drafting business plans, and managing projects. While these topics are not directly related to medicine and pharmacy, they are highly beneficial for future professional and scientific careers. The strongest indication of the success of the new initiative launched by the Polpharma Scientific Foundation was the feedback of the participants. When asked if they would take part in the next edition of the “Medical School of Your Future”, all of them answered unanimously: “Yes!”.



Prof. Janina Stępińska,
MD, PhD



Lidia Woźniak-Mielczarek,
PhD



Prof. Mirosz Jaguszewski,
MD, PhD



Bartosz Krzowski, PhD



Prof. Adam Torbicki



Aleksandra Gąsecka
- van der Pol, MD, PhD



Prof. Paweł Balsam,
MD, PhD



Kpt. Krzysztof Puwalski



Piotr Kraśko



Zbigniew Kowalski



Prof. Marcin Grabowski,
MD, PhD

Lecturers Medical School of Your Future 2023



Competitions with a long-standing tradition and support for new technologies

“The Polpharma Scientific Foundation is also close to the pharmaceutical community.”

Since 2020, in collaboration with the Medical University of Gdańsk and the Gdańsk Scientific Society, we have been awarding the Prof. Roman Kaliszan Prize and Medal. The award is granted to scientists with outstanding achievements in biomedical or biopharmaceutical sciences, which pave the way for new applications in medicine and pharmacy. The Foundation is also a partner of the “Start-Up-Med” competition. The primary goal of this initiative is to recognise and reward start-ups that develop

the most creative innovative products or processes, resulting in substantial benefits for patients and the healthcare system, with potentially significant profitability of implementation. The competition’s submissions encompass a wide range of medical technologies, including both pharmaceutical and non-pharmaceutical innovations.

For many years, we have sponsored prizes for the winners of the National Competition for Master’s Theses of Pharmacy Faculties, organised by the Polish Pharmaceutical Society for over 40 years. The competition is highly regarded by pharmacy students, and achieving finalist status is a noteworthy accomplishment.



Krzysztof Kurowski

Vice President of the Management Board
of the Polpharma Scientific Foundation

Winner of Prof. Franciszek Kokot Award

The Professor Roman Kaliszan Award and Medal are awarded by the chapter for an outstanding scientific achievement in biomedical or biopharmaceutical sciences, opening up new application possibilities in medicine and pharmacy.

The recipient of this year's award for outstanding scientific achievements in internal medicine is Professor Jacek Musiał, MD, PhD. Professor Musiał, an alumnus of Professor Andrzej Szczeklik, has extensive professional experience gained over more than 40 years at the Department of Allergology and Immunology at the Nicolaus Copernicus Medical Academy in Krakow and later at the 2nd Department of Internal Medicine, Jagiellonian University Medical College. He is an outstanding researcher

specialising in autoimmune mechanisms in various diseases associated with an increased risk of thromboembolic incidents, with a special focus on antiphospholipid syndrome. Without any doubt, Prof. Musiał is the leading expert on antiphospholipid syndrome in Poland, having researched it for 30 years. The winner of the Award is an exemplary internist who remains scientifically active, successfully integrating basic research with clinical studies spanning a broad spectrum of topics.

Award winner
prof. Jacek Musiał –
second from the left



Prof. Roman Kaliszan Prize and Medal

The award is granted by the Polpharma Scientific Foundation, the Medical University of Gdańsk, and the Gdańsk Scientific Society to scientists with outstanding achievements in biomedical or biopharmaceutical sciences, which pave the way for new applications in medicine and pharmacy.

Winner of the latest edition of the award, Professor Tomasz Bączek, MD, PhD, is a graduate of the Medical University of Gdańsk. His main research interests encompass pharmaceutical and biomedical analysis, separation sciences, bioanalytics, and proteomics. Prof. Bączek is the author or co-author of over 250 original papers published in peer-reviewed specialised journals, and serves as a lecturer at the Medical University of Gdańsk and the Pomeranian University in Słupsk.



Award winner – Prof. Tomasz Bączek

5th edition of Star-Up-Med Competition

This year's winners of the competition are: in the medical/scientific centre category: University Clinical Centre in Gdańsk and its ZWR – HOSPANEL project; in the Start-Up Innovations category: Diagendo and the EndoRNA project. Winners of the reader poll for the most innovative project conducted at the rynekzdrowia.pl website were: the University Clinical Centre in Gdańsk for its ZWR – HOSPANEL project (medical/scientific centre category) and NABIO Medical Technologies for the HydRe technology ecosystem (Start-Up Innovations category). In this year's edition of the competition, one of the jury members was Krzysztof Kurowski, who serves as the Vice President of the Management Board of the Polpharma Scientific Foundation



Finalists of Explory competition

Explory is Poland's largest and most prestigious competition for young scientists aged 13 to 20, organised by the Advanced Technologies Foundation.

The award of the Polpharma Scientific Foundation was granted to the team consisting of Maciej Szymczyk, Adam Siemiątkowski, Tytus Magolewski, and Antoni Deja for their project titled "Spectrum – AI app for breast cancer grading". The award was presented to the winners by Marcin R. Lewandowski, Member of the Management Board of the Polpharma Scientific Foundation who served on the competition jury.

Congratulations to all the winners of the Explory competition! We eagerly await the progress of your fantastic projects.



We are committed to improving compliance

“One of the pillars of action of the Polpharma Scientific Foundation encompasses patient-centred activities aimed at disseminating knowledge across various fields of medicine and science. We are committed to improving compliance. However, addressing this issue requires effort and awareness from both parties involved.”

The doctor needs to communicate recommendations clearly and comprehensibly, while the patient needs to listen, understand, and comply with the doctor's instructions. The Polpharma Scientific Foundation has been dedicated to improving compliance for many years through educational activities within the medical community and direct campaigns aimed at patients.

In addition to addressing compliance and adherence, we also want to focus our efforts on other medically important topics that benefit every patient. In the pursuit of this goal, we create podcasts and livestreams featuring recognised experts in their respective fields.

The round of debates organised by the Foundation in 2023 on topics related to medicine and science focused specifically on medical registries. Undoubtedly, these are areas where there is still much to be done and improved. However, high-level discussions have highlighted how crucial databases, their accuracy, and their usefulness are in advancing research today.



Marcin Lewandowski

Member of the Management Board of the Polpharma Scientific Foundation

New technologies in medicine

Revolutionary drugs and the growing adoption of diagnostic imaging technologies and artificial intelligence were the topics addressed during the debate „New Developments in Medicine in 2023”.



The discussion began with new drugs, focusing on both innovative molecules and combinations of already known compounds, and the search for new applications for them.

– When it comes to diabetes, we’re witnessing a triumphant rise of flozins, which, apart from diabetes, are also used in cardiology and nephrology – said Prof. Krzysztof Narkiewicz, MD, PhD, from the Department of Hypertension and Diabetology, Medical University of Gdańsk. – Another class of drugs with great potential are GLP-1 agonists, which may also have important implications for cognitive function. When it comes to lipid management, one of the available options is inclisiran, which can be administered once every three months and then every six months. Psychiatry has also expanded its pharmacological arsenal over the

past year – as highlighted by Piotr Wierziński, MD, PhD. – In the US, a combination of dextromethorphan and bupropion has been approved for the treatment of depression. Another drug recently approved by the FDA is sublingual dexmedetomidine, indicated for the treatment of agitation in patients with schizophrenia. In Poland, dexmedetomidine is used intravenously in anaesthesiology – he added. – We also have some game changers such as esketamine, approved for people with treatment-resistant depression. The onset of action occurs within a few hours after administration.

Have there been comparable advancements in ophthalmology? – We have something new in the treatment of glaucoma: Rho-kinase inhibitors. A major breakthrough is gene therapy for Leber congenital amaurosis and some patients with retinitis pigmentosa – explained Prof. Jacek P. Szaflik, MD, PhD, from the Department of Ophthalmology, Faculty of Medicine, Medical University of Warsaw.

Participants of the debate also deliberated on the extent to which non-invasive imaging tests could supplant other diagnostic procedures. This is particularly relevant in cardiology – as highlighted by Jacek Kwieciński, MD, PhD, working at the Department of Interventional Cardiology and Angiology, Institute of Cardiology in Warsaw-Anin.

A discussion on the analysis of imaging findings evolved into a conversation about the applications of artificial intelligence in medicine. – In diagnostic imaging, a vast amount of information is condensed into a brief description of findings. Well-trained AI can speed up the process of analysis, leading to more accurate diagnoses and improved treatment outcomes – he added.

Particularly intense emotions were stirred by concerns over liability for errors and the risk of doctors being replaced by machines – two issues raised by Prof. Janina Stępińska, Chair of the Scientific Council of the Polpharma Scientific Foundation.

Better data means more effective therapies

The main takeaway from the debate is that medical information collected by public institutions represents a valuable resource that should be leveraged to improve diagnosis and treatment.

While clinical trials provide an objective source of data and form the basis for drug approval, real-world data should take precedence in making treatment decisions – argued the debate participants. “Can modern diagnostic and therapeutic modalities benefit from the use of Real-World Data (RWD) and Real-World Evidence (RWE)?” It turns out, however, that even medical practitioners themselves do not always know the meanings of the terms RWD and RWE, as indicated by the debate moderator, Prof. Mirosław Wielgoś, MD, PhD, from the Łazarski University. – RWD stands for ‘real-world data’, which are distinct from data generated in randomised clinical trials. Such information could be obtained, for example, from the payer or the hospital systems – explained Łukasz Kołtowski, MD, PhD, 1st Department of Cardiology, Medical University of Warsaw. – RWE, on the other hand, constitutes scientific evidence derived from analyses of RWD. Study evidence is not the same as evidence derived from medical registries. They differ, sometimes resulting in a big disappointment and, at other times, in a pleasant surprise. Why? Because data from clinical trials are restricted to a specific subset of the study population, which is subject to multiple limitations. For RWD/RWE, there are no such restrictions. Better data translating into more effective therapies,



and representing the cornerstone of the drug approval process, rely on double-blind placebo trials. For years, it has been mandatory that every study. These studies require very rigorous patient selection criteria, resulting in study subjects who differ greatly from the patients we typically treat in clinical practice – underlined Prof. Piotr Kuna, MD, PhD, Head of the Department of Internal Medicine, Asthma and Allergy, Medical University of Lodz. Limitations related to the selection of patient groups in clinical trials affect the safety and efficacy of therapies in real-world settings. The importance of this topic was highlighted by Jarosław Woronó, MD, PhD, Head of the Department of Clinical Pharmacology, Chair of Pharmacology, Faculty of Medicine, Jagiellonian University Medical College. – We transfer experience from a population that doesn’t exist in clinical reality to the patient. It’s uncommon to include elderly patients or individuals with multiple morbidities in clinical trials. The experts underscored that all RWD/RWE data were available in Poland. They include National Health Fund registries, e-prescription data, and patient files. – They are available for free, but we don’t use them. Why? Because there’re no biostatisticians, and there’s no funding for such analyses – stated Prof. Kuna. These observations were shared by Dr. Jarosław Woronó: – Often, institutions deciding on drug reimbursement focus solely on double-blind studies. By not utilising available information, we’re committing a sin of omission.

How to use medical registries

Existing regulations regulating access to medical databases make their use difficult, said experts in the debate „Medical registers – do we have a problem with their availability and quality?”

All therapeutic and health monitoring decisions must be based on data collected in registries – argued the debaters. At the same time, they stressed that challenges with access to information was just one of the obstacles to overcome.

The debate was initiated by Prof. Jarosław Reguła, MD, PhD, from the Department of Oncological Gastroenterology, National Research Institute of Oncology: – Our dream is to improve access to these databases for both scientists and doctors. Above all, our aim is to enhance data quality and integrate diverse information sources.

The first part of the debate centred on the deficiencies of Polish medical registries and, as pointed out by the debate participants, limited efforts of the National Health Fund to make registry data available to a wider community.

– We face several challenges in the area of public registries – noted Ligia Kornowska, Managing Director of the Polish Hospital Federation and President of the ‘Podaruj Dane’ Foundation. – One of them relates to the quality of data. They are frequently transcribed manually from hospital records.



The process is highly error-prone. The next aspect is information about the patient’s course of treatment, including whether they completed hospitalisation and details of their ongoing care. Yet another issue is fragmentation: we have over a dozen registries, each addressing a different health condition or situation.

These observations were confirmed by Adam Kobayashi, MD, PhD, Head of the Department of Pharmacology and Clinical Pharmacology, Institute of Medical Sciences, Faculty of Medicine, Cardinal Stefan Wyszyński University.

– The National Health Fund maintains databases for specific diseases, but access to this information is restricted. Specialists also maintain their own databases, sometimes international in scope, but these registries are incompatible – said Dr Kobayashi.

The issue of quality and structure of the information in the National Health Fund registers was also highlighted by Prof. Maciej Banach, MD, PhD, from the Medical University of Lodz.

– These data are transferred using standardised coding procedures. Typically, the procedure that offers the most favourable financial settlement is coded. However, the most frustrating issue for the experts is availability, or rather, the lack thereof.

Polpharma Scientific Foundation Gala: honouring the winners and reuniting with friends

On 29 June 2023, a gala ceremony took place to officially announce the winners of the 21st edition of the Research Project Competition held by the Polpharma Scientific Foundation. The theme of this edition was “Digitisation to improve treatment outcomes”.



Agata Łapińska-Smolińska, President of the Management Board of the Polpharma Scientific Foundation, introduced new initiatives.



Jerzy Starak, originator and founder of the Polpharma Scientific Foundation, President of the Supervisory Board of Polpharma SA



Bogusz Aksak-Wąs, MD, PhD;



Dawid Lipski, PhD;

“There’s no doubt that the theme of last year’s competition was aptly selected. We received a total of 180 submissions. Given the number of competitors, even more congratulations are due to the winners. The Scientific Council evaluated the submissions based on reviews and their own assessment, taking into account prior accomplishments of the authors and the originality and innovation of proposed projects. The Council compiled a ranking list and submitted it to the Foundation’s Management Board, which then decided to award two grants. The total cost of implementing both projects is PLN 955,212 – summarised Prof. Janina Stępińska, Chair of the Scientific Council at the Polpharma Scientific Foundation.

One of the winning projects was: “App for the care of HIV-infected patients”.

“Thanks to the implementation of the mobile app developed by my team, HIV-infected patients will achieve better disease management and gain improved opportunities to contact their doctor” – explained Bogusz Aksak-Wąs, MD, PhD from the Department of Infectious, Tropical Diseases and Acquired Immunodeficiencies of the Pomeranian Medical University in Szczecin, the author of the project.

The other winning project, titled “Telemedicine care system for the treatment of arterial hypertension using recommendation algorithms to support diagnostic and therapeutic decisions”, was submitted by Paweł Uruski, MD, PhD from Poznań University of Medical Sciences. According to the project’s hypothesis, increased utilisation of ICT tools to support physicians will result in better control of blood pressure levels in hypertensive patients.

“Vision, passion, and perseverance bring together people from the worlds of science, medicine, and pharmacy in activities that advance knowledge. The vision of supporting Polish science formed the cornerstone of the Polpharma Scientific Foundation and continues to inspire us. Passion drives all individuals affiliated with the Foundation and plays a pivotal role in the development of its programmes. Perseverance is a trait shared by all our winners, who pursue their scientific goals with determination and steadfastness” – said Jerzy Starak, originator and founder of the Polpharma Scientific Foundation, President of the Supervisory Board of Polpharma SA. During the meeting, he expressed gratitude to the Scientific Council, the Honorary Scientific Council, and the Management Board of the Foundation for



their dedication and heartfelt commitment to the Foundation's growth. He also conveyed appreciation to all friends of the Foundation, recognising that their support has been indispensable for achieving all the milestones over the past 20 years. "The year 2022 marked a breakthrough in the Foundation's activities. In addition to our flagship competition, we launched another two important initiatives. One of them was the Conference of Rectors held under the theme "Science and Industry". This meeting would not have been possible without the commitment of Professor Janina Stępińska and Professor Mirosław Wielgoś, alongside active



Jerzy Starak; Dawid Lipski, PhD; Bogusz Aksak-Wąs, PhD;



Daniela Piotrowska

involvement of Professor Piotr Kuna and Professor Grzegorz Opolski. Thank you so much” – said Agata Łapińska-Smolińska.

The Conference of Rectors is a platform for mutual dialogue between the communities of science and industry, where experiences and needs can be shared, while keeping in mind that patients are the ultimate beneficiaries of these efforts.

The Conference of Rectors marked the inception of the Foundation’s other new initiative, “Medical School of Your Future”, dedicated to outstanding students of medical schools. During the gala, the main assumptions of the programme were outlined by Prof. Katarzyna Życińska, who serves as the ambassador of the new scientific programme.

During the official ceremony, two scientific lectures were presented. One of the speakers was Joanna Petryka-Mazurkiewicz, MD, PhD, who talked about



Joanna Petryka-Mazurkiewicz, MD, PhD



Prof. Maciej Banach

“Cardiac magnetic resonance imaging: an innovative and challenging technique in cardiology”, while the other speaker, Prof. Maciej Banach from the Medical University of Lodz and Johns Hopkins University School of Medicine in Baltimore, discussed the topic of “Role of registries in advancing modern medicine”. Prof. Banach made a reference to the theme of the 22nd Research Project Competition titled “The Use of Databases to Improve Prevention, Diagnosis, and Therapy”, emphasizing the significance of investing in data, and highlighting its inherent scientific value.



Prof. K. Życińska and Joanna Petryka-Mazurkiewicz, MD, PhD



Prof. J. Stępińska and Joanna Petryka-Mazurkiewicz, MD, PhD

Winners of the 21st edition of the Research Project Competition:

- Bogusz Aksak-Wąs, MD, PhD; Pomeranian Medical University in Szczecin; project: "App for the care of HIV-infected patients"; project cost: PLN 235,872;
- Paweł Uruski, MD, PhD; Poznań University of Medical Sciences; project titled: "Telemedicine care system for the treatment of arterial hypertension using recommendation algorithms to support diagnostic and therapeutic decisions"; project cost: PLN 719,340.



Closer to the Medical Journalism Community

„Another new initiative on the Foundation’s agenda involves debates featuring journalists specialising in health topics. Every year, we intend to organise a series of debates with invited guests discussing socially relevant issues in the realm of health. This year, we launched a round of debates titled “Medical Controversies”, focusing on facts and myths concerning the use of antibiotics, statins, and vaccines.”

The Management Board of the Polpharma Scientific Foundation places great importance on ensuring that the Foundation’s activities are communicated on an ongoing basis and shared as frequently as possible across various mass media and social media platforms. In today’s rapidly changing world, where we learn about events on the other side of the planet at the speed of light, delivering reliable and up-to-date information to the target audience is crucial for the image of the organisation.

To stay connected with the friends of the Polpharma Scientific Foundation, we also publish the Memo newsletter, where we share updates about interesting events that occur in every quarter.



Daniela Piotrowska

Director of the Polpharma Scientific Foundation



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