

International Institute of Molecular  
and Cell Biology in Warsaw  
IIMCB

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[www.iimcb.gov.pl](http://www.iimcb.gov.pl)

**Cooperation in research and education between  
IIMCB in Warsaw and universities  
Kiev, 2016**

Jacek Kuznicki



**26<sup>th</sup> June, 1997**

**Bill by the Polish Parliament**



# **DZIENNIK USTAW**

## **RZECZPOSPOLITEJ POLSKIEJ**

LAW JOURNAL NUMBER 106, POSITION 674

**THE LAW**

of June 26, 1997

**on the International Institute of Molecular and Cellular Biology in Warsaw**

**Art. 1. 1.** The International Institute of Molecular and Cellular Biology (hereinafter called "the Institute") is being established.

2. The Institute is a State organizational entity, having the status of a legal person.

3. The Institute acts on the ground of this Law, of the Agreement between the Government of Republic of Poland and the United Nations Educational, Scientific and Cultural Organization regarding setting up and functioning of the International Institute of Molecular and Cellular Biology in Warsaw, drawn up in Paris on May 26, 1995 (Law Journal of 1996, No 109, pos. 521), hereinafter called "the Agreement", and under the Polish law.

4. The Institute has its seat in Warsaw.

**Art. 3. 1.** Polish Academy of Science, according to provisions included in art.III of the Agreement, will secure accommodations for the Institute and basic equipment indispensable for commencement of its activities.

2. Accommodations mentioned above in part 1 are being rendered accessible on the basis of a contract of loan for use.

**Art. 4. 1.** The Institute secures receipts from:

1) budget grant, being included in the State budget in the part concerning Polish Academy of Science,

2) funds (contributions) transferred by UNESCO,

3) payments by way of participation of other institutions in the Institute's works on the basis of agreements entered into,



**In 1998 we had empty building  
and about 400 000 Euro.**



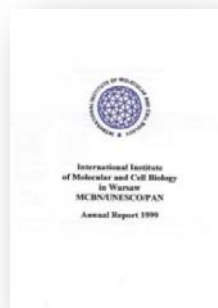


# Group Leaders Competitions

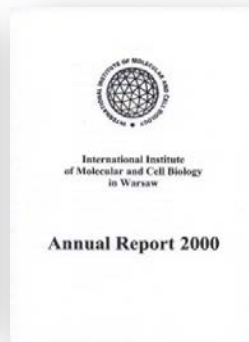
Competition	Year	# of candidates	Winners employed at IIMCB
I	1998	6	Jarosław Dastych
II	1999	3	Maciej Żylicz
III	2000	6	Michał Hetman
IV	2000	7	<u>Matthias Bochtler</u> , Leszek Rychlewski
V	2002	9	Janusz M. Bujnicki, Sławomir Filipek
VI	2002	9	-
VII	2003	18	Marta Miączyńska
VIII	2004	26	-
IX	2005	26	Jacek Jaworski
X	2005	17	<u>Ewa Paluch</u>
XI	2006	25	Marcin Nowotny
XII	2007	16	-
XIII	2008	14	Agnieszka Chacińska
XIV	2010	20	-
XV	2012	18 & 15	-
XVI	2013	14	<u>Cecilia L. Winata</u>
XVII	2015	17	-
XVIII-Warsaw	2016	54	Katarzyna Mleczko-Sanecka Wojciech Pokrzywa
XVIII-Poznan	2016	9	<u>Jan Brezovsky</u>



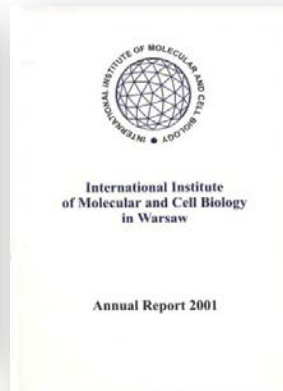
# IIMCB Annual Reports 1999-2007



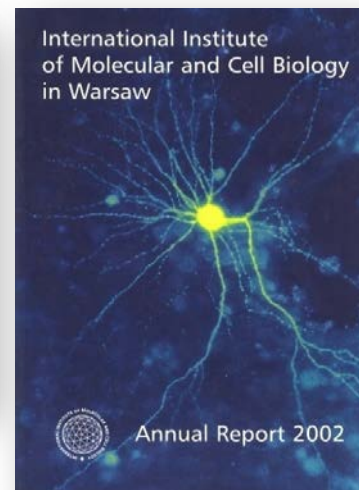
1999



2000



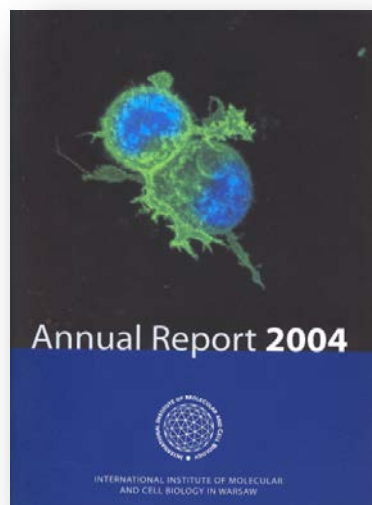
2001



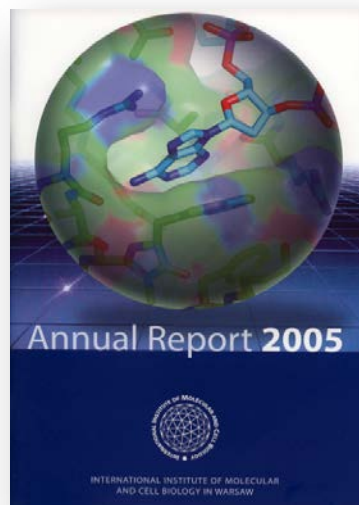
2002



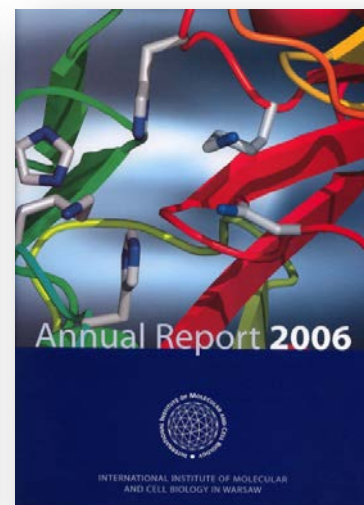
2003



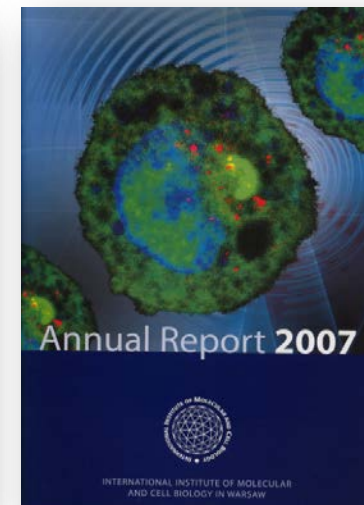
2004



2005



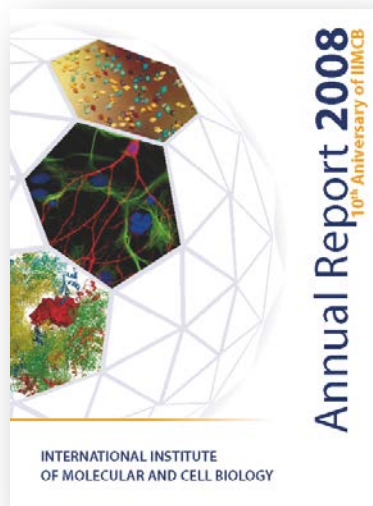
2006



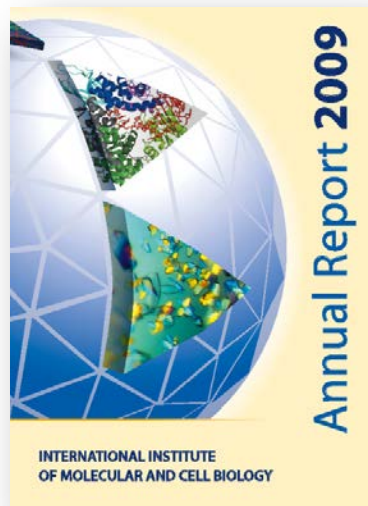
2007



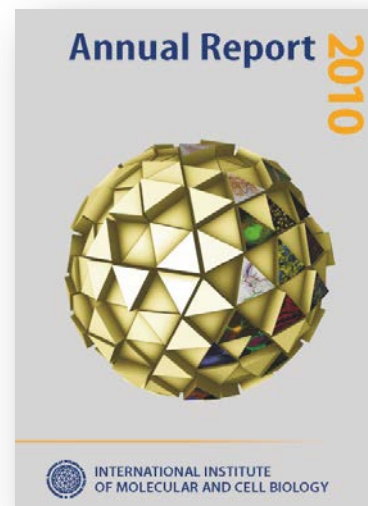
# IIMCB Annual Reports 2008-2015



2008



2009



2010



2011



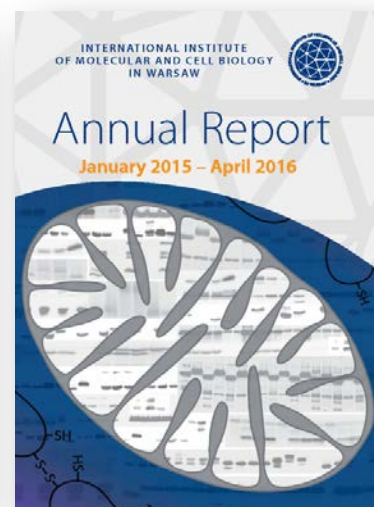
2012



2013



2014



2015



## Present groups - year of PhD degree

<b>Kuźnicki J</b>	<b>1980</b>	<b>Neurodegeneration</b>
<b>Miączyńska M</b>	<b>1997</b>	<b>Cell Biology</b>
<b>Bochtler M</b>	<b>1999</b>	<b>Structural Biology</b>
<b>Chacińska A</b>	<b>2000</b>	<b>Mitochondrial Biogenesis</b>
<b>Bujnicki JM</b>	<b>2001</b>	<b>Bioinformatics &amp; Protein Engineering</b>
<b>Jaworski J</b>	<b>2001</b>	<b>Molecular and Cellular Neurobiology</b>
<b>Nowotny M</b>	<b>2002</b>	<b>Protein Structure</b>
<b><u>Potente M</u></b>	<b>2003</b>	<b>Angiogenesis&amp;Metabolism MPG-IIMCB,Bad Nauheim</b>
<b>Winata C</b>	<b>2009</b>	<b>Zebrafish Develop. Genomics - IIMCB/MPG</b>
<b>Pokrzywa W</b>	<b>2009</b>	<b>- under organization</b>
<b>Mleczko-Sanecka K</b>	<b>2011</b>	<b>Iron Homeostasis - under organization</b>
<b><u>Brezovsky J</u></b>	<b>2011</b>	<b>Biomolecular Interaction &amp;Transport in Poznan - u.o.</b>

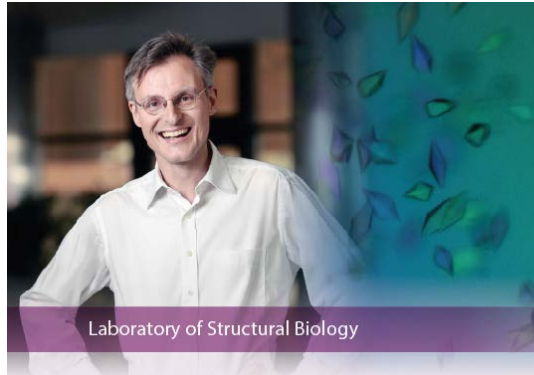
### Former Laboratories

<b>Bioinformatics, L.R.</b>	<b>(2000-2002)</b>
<b>Neurobiology, M.H.</b>	<b>(2000-2003)</b>
<b>Molecular Immunology, J.D.</b>	<b>(1999-2004)</b>
<b>Biomodelling, S.F.</b>	<b>(2002-2010)</b>
<b>Cell Cortex Mechanics MPG/PAN, E.P.</b>	<b>(2008-2012)</b>
<b>Molecular Biology, M.Ż.</b>	<b>(2000-2016)</b>

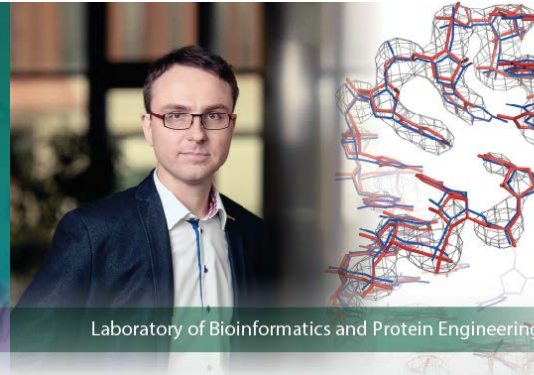




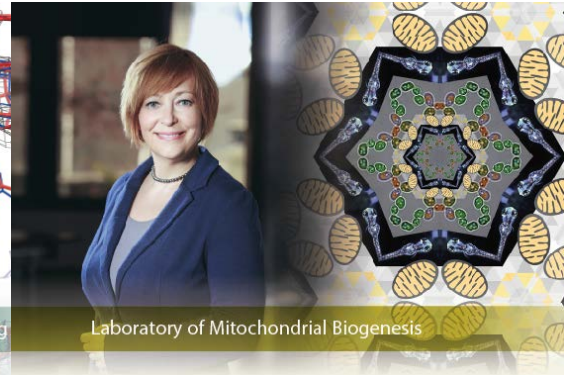
# Present research groups



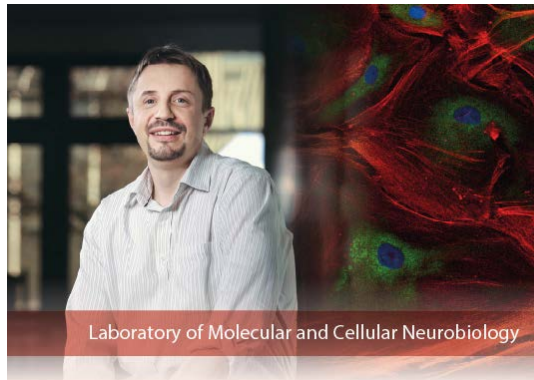
Laboratory of Structural Biology



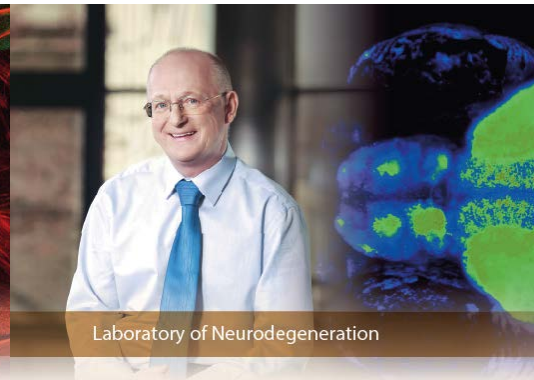
Laboratory of Bioinformatics and Protein Engineering



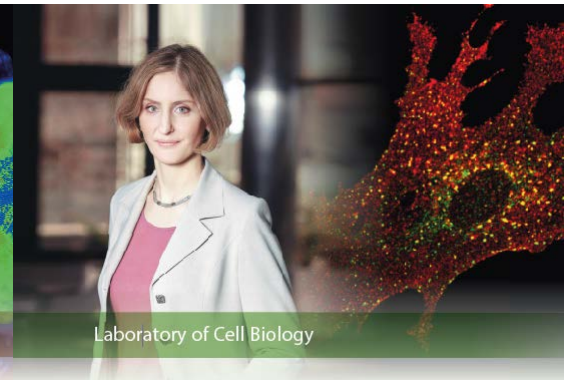
Laboratory of Mitochondrial Biogenesis



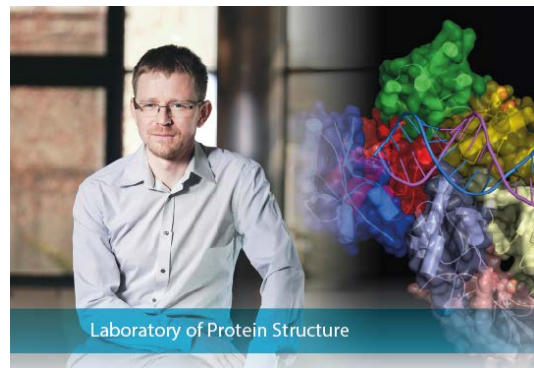
Laboratory of Molecular and Cellular Neurobiology



Laboratory of Neurodegeneration



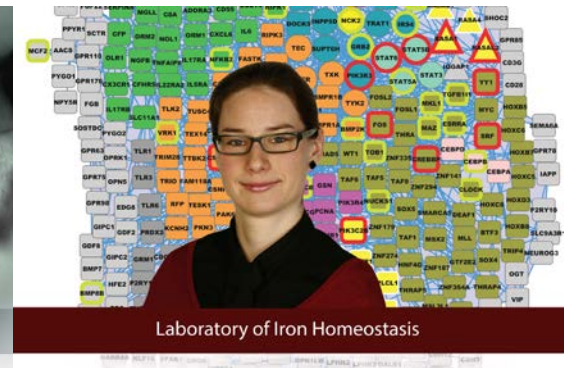
Laboratory of Cell Biology



Laboratory of Protein Structure



Laboratory of Zebrafish Developmental Genomics

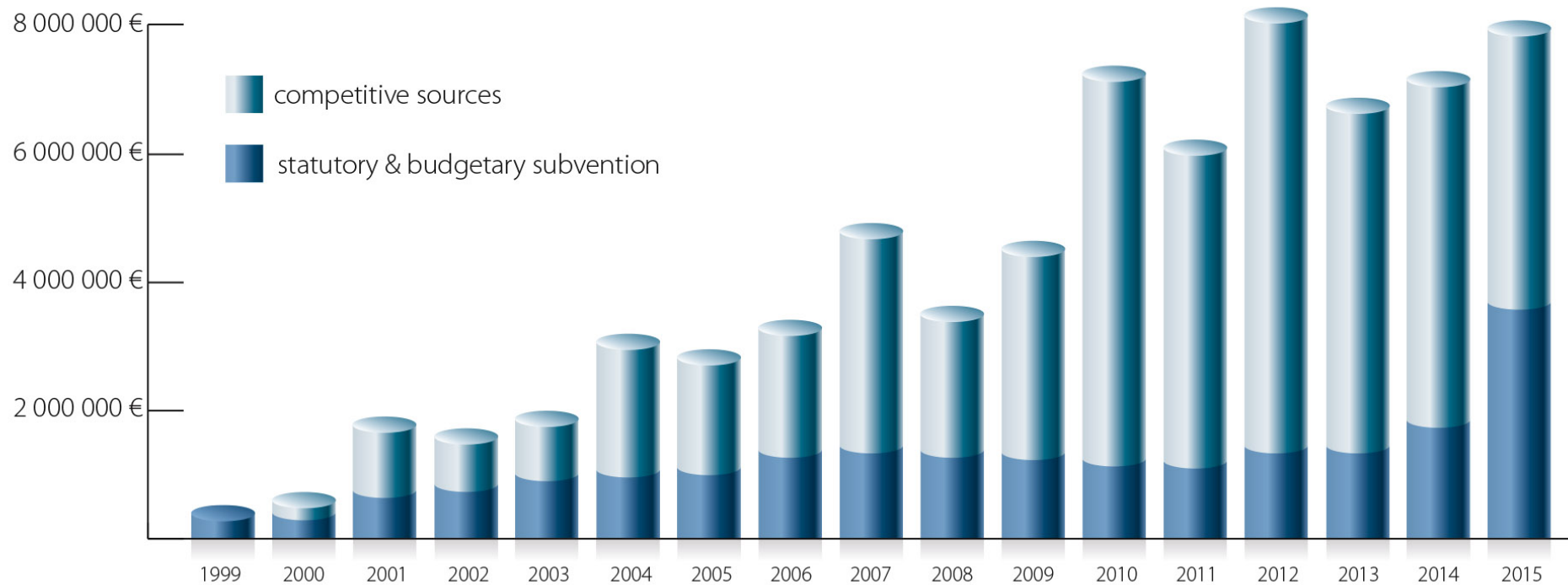


Laboratory of Iron Homeostasis





# Annual incomes of IIMCB





# Number and average IF of journals with IIMCB's publications 2000-2015

**Hirsch index = 66**

Average IF





# Evaluation of biology institutes by the Ministry of Science

**2005 - 2008 - IIMCB was number 1**

**2009 - 2012 - IIMCB was 1-3 with A+ category**

Lp.	GWO	Nazwa jednostki	Identyfikator jednostki	Kryterium I	Kryterium II	Kryterium III	Kryterium IV	Ocena ostateczna	Kategoria naukowa
466	NZ2B	Miedzynarodowy Instytut Biologii Molekularnej i Komórkowej	73	105,59	372,00	27,05	100,00	72,32	A+
467	NZ2B	Instytut Biochemii i Biofizyki Polskiej Akademii Nauk	741	92,50	794,00	33,60	90,00	60,51	A+
468	NZ2B	Instytut Biologii Doświadczalnej im. Marcelego Nenckiego Polskiej Akademii Nauk	94	89,90	589,00	16,77	90,00	51,13	A+
469	NZ2B	Instytut Paleobiologii im. Romana Kozłowskiego Polskiej Akademii Nauk	879	105,27	292,00	5,36	40,00	46,71	A
470	NZ2B	Instytut Chemii Bioorganicznej Polskiej Akademii Nauk	41	82,81	567,00	22,30	90,00	35,14	A
471	NZ2B	Muzeum i Instytut Zoologii Polskiej Akademii Nauk	795	91,33	400,00	8,82	40,00	35,13	A
472	NZ2B	Instytut Biologii Ssaków Polskiej Akademii Nauk	538	89,52	311,00	6,51	25,00	23,17	A
473	NZ2B	Instytut Systematyki i Ewolucji Zwierząt Polskiej Akademii Nauk	543	91,68	184,00	2,45	25,00	18,60	A
474	NZ2B	Instytut Ochrony Przyrody Polskiej Akademii Nauk	777	83,85	305,00	10,72	40,00	18,12	A
475	NZ2B	Instytut Immunologii i Terapii Doświadczalnej im. Ludwika Hirszfelda Polskiej Akademii Nauk	623	65,05	534,00	16,83	80,00	-14,78	A
476	NZ2B	Instytut Medycyny Doświadczalnej i Klinicznej im. Mirosława Mossakowskiego Polskiej Akademii Nauk	850	70,86	562,00	6,99	70,00	-15,65	A
477	NZ2B	Instytut Farmakologii Polskiej Akademii Nauk	434	66,48	414,00	18,41	60,00	-19,53	A
478	NZ2B	Instytut Botaniki im. Władysława Szafera Polskiej Akademii Nauk	164	76,26	281,00	3,81	20,00	-20,84	A
479	NZ2B	Instytut Genetyki Człowieka Polskiej Akademii Nauk	551	68,73	390,00	4,61	75,00	-24,51	A
480	NZ2B	Europejskie Regionalne Centrum Ekohydrologii	729	66,28	235,00	3,74	20,00	-45,38	B
481	NZ2B	Instytut Parazytologii im. Witolda Stefańskiego Polskiej Akademii Nauk	450	65,23	155,00	1,03	15,00	-51,37	B
482	NZ2B	Instytut Biologii Medycznej Polskiej Akademii Nauk	321	51,48	323,00	12,68	25,00	-58,65	B





# Institute in numbers (as of May 31, 2016)

## Staff:

**Total 182**

Employed scientists	64
PhD students	33
Other people in labs	31
Administration	37
Volunteers	17

## Budgets:

1999	0.4 mi EUR
2015	~ 8 mi EUR
<b>1999-2015</b>	<b>~ 72 mi EUR</b>

## Publications 2000-2015

**713 papers with IF**

Citations per paper **25**

Hirsch index **66**



# Means of collaborations with universities

## 1. Popularization of Science

- BIOCB with Life Science University in Warsaw and Warsaw University

## 2. Joint Master's program

- Life Science University in Warsaw; internships for any university students

## 3. Joint PhD programmes (Polish and international)

- SMM at Warsaw Medical University, International PhD via FNP (EU funds)
- Utrecht University (past), Leiden University (planned)
- Nencki PAS and IBB PAS

## 4. Joint grants (Polish and international)

- CePT (UW, WUM, PW), FishMed (Uni-s in England, Germany, Switzerland)

## 5. Joint laboratories

- University of Gdansk (Biotechnology)
- University of Adam Mickiewicz, Poznan
- Nencki PAS and IBB PAS; Max Planck Society

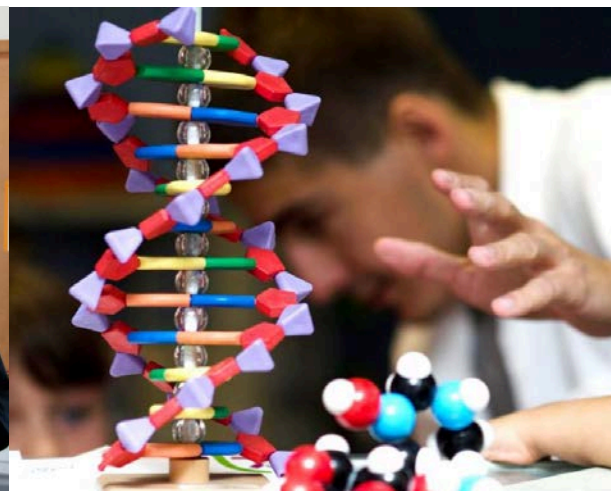


# Popularization of science by Centre for Innovative Bioscience Education (BioCEN)



**MAIN SPONSOR: IIMCB**

Additional supporters: Nencki PAS, IBB PAS,  
Life Science Uni in Warsaw, Faculty of Biology Uni Warsaw, and Bio-Education Foundation



**More than 21 000 children  
participated in hands on workshops!**





# Means of collaborations with universities

## 2. Joint Master's program

- Life Science University in Warsaw; internships for any university students



# Summer internships laureates at IIMCB





# Means of collaborations with universities

## 3. Joint PhD programmes (Polish and international)

- **SMM at Warsaw Medical University**, International PhD via FNP (EU funds)
- **Utrecht University** (past), **Leiden University** (planned)
- **Nencki PAS and IBB PAS**





# Postgraduate School of Molecular Medicine (SMM)

**Created in 1997 on the basis of agreement with:**

- Medical Unis of Warsaw, Gdańsk, and later Łódź, Wrocław, Poznań, Szczecin
- Nencki Institute of Experimental Biology
- **International Institute of Molecular and Cell Biology**
- Foundation for Experimental and Clinical Oncology

**Collaborating with:**

- Paris VI - **Pierre and Marie Curie University**
- Max Delbrück Center for Mol. Medicine Berlin

**PhD program:**

research and teaching network of medical universities and scientific institutes for young active physicians and biologists working in molecular medicine.





# Means of collaborations with universities

## 4. Joint grants (Polish and international)

- CePT (UW, WUM, PW), FishMed (Uni-s in England, Germany, Switzerland)



# Centre of Pre-clinical Research and Technology (CePT)

**EU Structural funds IE OP 2.2.2; **about 100 mi Euro**, 2008–2013**

The main goal is close cooperation between local research units, to investigate the most prevalent civilization diseases, in particular cancer, neurological and cardiovascular diseases, and diseases associated with ageing. This project created the dynamic scientific centre in Warsaw with state-of-the-art equipment. CePT Consortium consists of 10 institutions:

- [Medical University of Warsaw](#) (**project coordinator**)
- [University of Warsaw; Warsaw University of Technology](#)
- **International Institute of Molecular and Cell Biology in Warsaw**
- Nencki Institute of Experimental Biology PAS
- Institute of Biochemistry and Biophysics PAS
- Mossakowski Medical Research Centre PAS
- Institute of Fundamental Technological Research PAS
- Institute of High Pressure Physics PAS
- Nałęcz Institute of Biocybernetics and Biomedical Engineering PAS





# Centre for Analysis of Protein Structure and Function



## Protein crystallography platform

The platform is composed of:

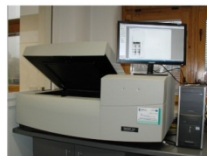
- AKTApurify FPLC system which can automatically purify up to four proteins,
- Multiangle Light Scattering unit connected to an UPLC system for biophysical protein characterization prior to crystallization trials,
- Crystallization robot (Art Robbins Phoenix), which allows for quick set up of crystallization experiments using small volumes of material,
- Automated incubator for crystallization plates with an imaging unit (Rigaku Minstrel HT), which takes high quality pictures of the crystallization drops at programmed intervals. It allows for fast screening of a large number of plates,
- Microfocus high-flux X-ray diffractometer equipped with a CCD detector, which allows for fast crystal screening and collection of diffraction data of near-synchrotron quality.

## Mass spectrometry workstation for analysis of protein and RNA modification

The workstation consists of two mass spectrometers with all add-ons necessary for analyzing proteins and nucleic acids:

- MALDI TOF/TOF mass spectrometer (UltrafleXtreme),
- Ion trap mass spectrometer (amaZon),
- Two nano-LC systems (Easy nanoLC),
- MALDI target spotter (fcProteineerII),
- Nitrogen generator (LC MS 20-1),
- Informatic infrastructure (three workstations, two proteomics servers) with software for proteomics and custom analysis.

Workstation is used to develop methods of analyzing nucleic acids, especially to analyze RNA modifications. We also perform fast quality control of purified recombinant proteins and modified oligonucleotides as well as in-depth analysis of partially purified proteins aimed at identifying interacting partners or posttranslational modifications.



## Workstation of visualization/documentation/quantitation of gel electrophoresis and blots

The workstation includes laser scanner Typhoon Trio+, CCD camera system LAS 4010 and software for image processing and quantification (Image Quant TL) with network license. Laser scanner is equipped with three lasers: red (633 nm), green (532 nm) and blue (488 nm) and covers all important fluorophores excitable in visible light range. It allows also to read data from phosphorous screens. CCD system is equipped with white and UV transilluminators and tri-color diode epi-illumination and camera cooled to -25°C. Workstation covers all our needs concerning gel and blot analysis except for IR detection which is handled by Odyssey system. The dynamic range of laser and CCD camera are 5 and 4 orders of magnitude, respectively.

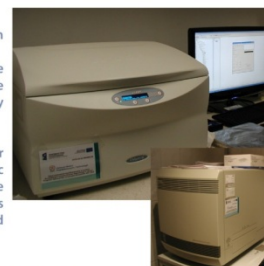
## Workstation for quantitative measurements of gene expression levels and protein levels based on fluorescence detection

The workstation consists of two systems enabling quantitative measurements of mRNA and protein levels based on detection of fluorescence.

- Applied Biosystems 7900HT Fast Real-Time PCR System to provide quantitative detection of mRNA using real-time analysis, and nucleic acid sequencing using end-point and dissociation-curve analysis. Several assay types can be performed on the 7900HT Fast System using PCR array reactions plate in the 96-well, 384-well, or TaqMan® Low Density Array format.

- LI-COR Bioscience laser system „Odyssey“ for analyses of fluorescence objects.

The system enables visualization and quantitative analyses of proteins immunodetected in polyacrylamide gels in 1D or 2D formats, on protein blots, and in ELISA plates. Using fluorescently labeled antibodies rather than an enzymatic reaction, the Odyssey system offers a broad linear dynamic range to accurately detect strong and weak signals on the same Western blot. The detection and quantification of proteins can be performed in two colors what enables simultaneous detection of two targets on the same membrane and increases the accuracy of quantification and comparison.



## Workstation for physico-chemical analysis of proteins

The workstation is equipped with: Infinite M1000 Multimode Microplate Reader (fluorescence intensity measurements, time-resolved fluorescence, fluorescence resonance energy transfer FRET, time-resolved fluorescence resonance energy transfer TR-FRET, fluorescence polarization FP and luminescence), NanoDrop 8000 Spectrophotometer (nucleic acid and protein concentration measurements of samples as small as 1 µL), ProteomeLab XL-I Analytical Ultracentrifuge (estimation of purity, molecular weight, stoichiometry, sedimentation coefficient, diffusion coefficient and equilibrium constant), and two Preparative Centrifuges Avanti J-25 and J-30 (to support protein purification and protein analysis).

## Maintenance station for laboratory rodents

The station is composed of:

- Six individually ventilated cage systems for small rodents (40 animals and 240 animals cages for rats and mice, respectively)
- Air control units for all cages, - four safety cabinets for animal care and surgery - double-door autoclave. This facility is designed for maintenance of small rodents in experiments requiring highly controlled and sterile environment e.g.
- Viral vector injections, cross-species cell grafting, in vivo brain electroporation, etc. Currently major users of the station are neurobiology oriented laboratories of IIMCB, mainly Laboratory of Molecular and Cellular Neurobiology.





# Fishing for medicines and their drugs using zebrafish models of human diseases

**RegPot EU 7FP**







**Coordinator  
Manager  
Duration**

**Prof. Jacek Kuźnicki  
Dr. Ula Wyrzykowska  
2012 – 2016**

**Budget:**

**European Commission  
Ministry of Science**

**3.6 million EURO  
1.4 million PLN**

**20 grants (39 applications) to support new projects € 4.3 mi**

## FishMed Partners:



**The  
University  
Of  
Sheffield.**



**Universiteit  
Leiden**  
The Netherlands



**UNIVERSITÉ  
DE GENÈVE**



**UNIVERSITY OF  
CAMBRIDGE**



# Means of collaborations with universities

## 5. Joint laboratories

- University of Gdansk (Biotechnology)
- University of Adam Mickiewicz, Poznan
- Max Planck Society; Nencki PAS and IBB PAS





# Programs with Max Planck Society (MPG)

First cooperation programme started in 2001  
to establish 2 MPG/PAS labs:

Lab at IIMCB **in Warsaw** headed by **Matthias Bochtler**

Lab in Inst. of Mol. Cell Biol. & Genetics **in Dresden** headed by **Ewa Paluch**

Second cooperation programme started in 2012  
to establish 2 new MPG/IIMCB labs:

Lab in Inst. of Heart and Lung Research **in Bad Nauheim** headed by **Michael Potente**

Lab at IIMCB **in Warsaw** headed by **Cecilia Winata**



**Agreement between IIMCB and [University of Gdansk](#) signed on May 11, 2012**



# What could be done better in reforming science in Poland?

## 1. Cohesion funds

- more for new PI positions and labs & higher salaries
- less for new buildings
- heavy equipment mostly for national core facilities
- new institutes with status similar to IIMCB

## 2. Authentic reforms

- quality not quantity of research and scientists
- to make Academy like Max Planck Society
- few university institutes from best Academy institutes

## 3. Basic research - not applied

- much less funds for „innovations”
- more for education in patenting, company organization & funding





**Białobrzegi, 2016**



**Mierki 2003**



**Łacha 2007**



**Jachranka 2012**



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## Are there benefits for faculty members to mentor undergraduates from other institutions?

### DIVERSITY

#### **Mentoring as value added**

The benefits of faculty-mentored undergraduate research experiences are well known. Interinstitutional research training programs ensure that these opportunities are available to all science, technology, engineering, and math students, but how do you convince faculty to mentor undergraduates from other institutions? Morales *et al.* surveyed faculty members at 13 U.S. institutions to identify factors

leading to their willingness to mentor undergraduate students from other universities and the incentives that they value most in return. Increasing diversity was the main motivation for faculty participation, although incentives varied based on faculty career stage and funding status. Overall, results suggest that promoting faculty awareness of the positive impacts of mentoring students from underrepresented backgrounds and/or underresourced institutions, especially in terms of increasing diversity, would increase faculty engagement. —MM

*CBE Life Sci. Educ.* 10.1187/  
cbe.16-01-0039 (2016).

## Main motivation is increasing diversity!



# Selected FishMed activities

- Zebrafish Core Facility and equipment (Lightsheet microscope)
- Lab by CL Winata (Singapore) - Zebrafish Developmental Genomics
- Scientific results presented at 40 international meetings
- 20 papers published, 6 manuscripts under revision
- 20 grants/39 applications to support projects & ZCF ty (€ 4.3 mi)
- Educational campaign *Be Healthy as a Fish*







**UNESCO director; Chief Biological Div PAS; PAS President; IIMCB Director**  
**Maciej Nalecz      Leszek Kaczmarek      Jerzy Duszynski      Jacek Kuznicki**





# International PhD Programme from EU cohesion funds organized by Foundation for Polish Research

OP 1.1.2. MPD FNP “**PhD Programme in Molecular Biology: Studies of nucleic acids and proteins – from basic to applied research**” 2,265,421 PLN (EU Structural Funds); 2010-2015

This programme started in 2010 based on funds from the Foundation for Polish Science available within the MPD Programme. PhD projects are being carried out in the Institute of Biochemistry & Biophysics PAS and in the International Institute of Molecular and Cell Biology, in collaboration with a number of foreign partner institutions. PhD projects were made available in the major areas of molecular biology, such as DNA metabolism, RNA biogenesis and its control, mechanisms of cellular signalling and trafficking and in the field of applied molecular biology. Out of seven PhD topics, four persons affiliated with IIMCB defended their theses so far :

- Kamil Jastrzębski, PhD thesis: *Role of the Rho GTPases in trafficking and signaling of platelet-derived growth factor*  
Supervisor: Marta Miączyńska; Foreign partner: Carl-Henrik Heldin (Sweden)
- Małgorzata Kurkowiak, PhD thesis: *Analysis of new genes involved in Primary Ciliary Dyskinesia (PCD)*  
Supervisor: Michał Witt; Foreign partner: Heymut Omran (Germany)
- Joanna Lipka, PhD thesis: *Sorting out polarized transport mechanisms in neurons*  
Supervisor: Jacek Jaworski; Foreign partner: Casper Hoogenraad (The Netherlands)
- Michał Miętus, PhD thesis: *Structural and biochemical characterization of the DNA substrate recognition mechanism by Rad2 nucleases catalytic core*  
Supervisor: Marcin Nowotny; Foreign partner: Titia K. Sixma (The Netherlands)
- **Anna Jaworska, PhD thesis, calcium in AD**  
**Supervisor: Jacek Kuznicki; Foreign partner: Jochen Herms, (Germany)**



# Max Planck Society (MPG) agreements

## 2001

**The Polish Academy of Sciences / Polska Akademia Nauk**  
PRESIDIUM of the POLISH ACADEMY of SCIENCES  
PKiN, pl. Defilad 1, 00-901 Warsaw  
— hereinafter called 'PAN' —  
represented by its President

and

**the Max-Planck-Gesellschaft zur Förderung der Wissenschaften e. V.,**  
Hofgartenstraße 8, D-80539 Munich  
- hereinafter called 'MPG' —  
represented by its Managing Board

have decided to set up a junior research group, between the Institute of Molecular  
and Cell Biology, Warsaw — hereinafter called 'IIMCB' — and the Max Planck  
Institute of Molecular Cell Biology and Genetics, Dresden — hereinafter called 'MPI'

—  
and hereto conclude the following

### AGREEMENT

#### PREAMBLE

The Polish Academy of Sciences and the Max Planck Gesellschaft are endeavouring to intensify scientific cooperation in certain areas between establishments of the MPG and establishments of the Polish Academy of Sciences and to secure the organisational framework for these links. They have therefore agreed, for example, to create junior research groups at scientific establishments in Poland. These groups shall be under the direction of MPG scientists who work in selected Max Planck Institutes. The



2012



MAX-PLANCK-GESELLSCHAFT

**Cooperation Agreement****The International Institute of Molecular and Cell Biology,**

represented by the Directors,

Professor Dr. Jacek Kuznicki and Professor Dr. Michal Witt

4 Ks. Trojdena Street

02-109 Warsaw

**(hereinafter referred to as "IIMCB")**

and

**the Max-Planck-Gesellschaft****zur Förderung der Wissenschaften e.V.,****(hereinafter referred to as "MPG")**

represented by the President

Prof. Dr. Peter Gruss

and the Secretary General Dr. Ludwig Kronthaler

Hofgartenstraße 8, 80539 München

(hereinafter referred to as "Party" or collectively as "the Parties")

# Calcium signals in zebrafish neurons (in vivo, GCaMP5, larvae 5 dpf)

