International Institute of Molecular and Cell Biology in Warsaw

Supplement to the IIMCB Annual Report 2023

Scientific Publications in 2023

No.	Authors	Title	Journal
1	**Banasiak K,** Turek M, **Pokrzywa W.**	Preparation of Caenorhabditis elegans for Scoring of Muscle-derived Exophers.	Bio Protoc. 2023 Jan 5;13(1):e4586. doi: 10.21769/BioProtoc.4586
2	**Baulin EF, Mukherjee S, Moafinejad SN, Wirecki TK, Badepally NG, Jaryani F, Stefaniak F, Amiri Farsani M, Ray A, Rocha de Moura T, Bujnicki JM.**	RNA tertiary structure prediction in CASP15 by the GeneSilico group: Folding simulations based on statistical potentials and spatial restraints.	Proteins. 2023 Dec;91(12):1800-1810. doi: 10.1002/prot.26575
3	Bharadwaj P, **Sarkar DK**, Bisht M, Shet SM, Kotrappanavar NS, Lokesh V, Franklin G, **Brezovsky J**, Mondal D.	Nano-structured hydrotrope-caged cytochrome c with boosted stability in harsh environments: a molecular insight.	Green Chem. 2023; 25:6666-76. doi: 10.1039/d3gc01704d
4	Bohdan DR, Voronina VV, **Bujnicki JM**, **Baulin EF**.	A comprehensive survey of long-range tertiary interactions and motifs in non-coding RNA structures.	Nucleic Acids Res. 2023; 51(16):8367-8382. doi: 10.1093/nar/gkad605
5	Borek B, Nowicka J, Gzik A, Dziegielewski M, Jedrzejczak K, Brzezinska J, Grzybowski M, Stanczak P, Pomper P, Zagozdzon A, Rejczak T, Matyszewski K, Golebiowski A, Olczak J, Lisiecki K, Tyszkiewicz M, Kania M, Piasecka S, Cabaj A, Dera P, Mulewski K, Chrzanowski J, Kusmirek D, Sobolewska E, Magdycz M, Mucha L, Masnyk M, Golab J, **Nowotny M, Nowak E, Napiorkowska-Gromadzka A**, Pikul S, Jazwiec R, Dzwonek K, Dobrzanski P, Meyring M, **Skowronek K**, Iwanowski P, Zaslona Z, Blaszczyk R.	Arginase 1/2 inhibitor OATD-02: from discovery to first-in-man setup in cancer immunotherapy.	Mol Cancer Ther. 2023 Jul 5;22(7):807-817. doi: 10.1158/1535-7163.MCT-22-0721
6	Brouze A, **Krawczyk PS**, **Dziembowski A**, **Mroczek S**.	Measuring the tail: Methods for poly(A) tail profiling.	Wiley Interdiscip Rev RNA. 2023 Jan;14(1):e1737. doi: 10.1002/wrna.1737
7	**Cappannini A**, Mosca K, **Mukherjee S**, **Moafinejad SN**, Sinden RR, Arluison V, **Bujnicki J**, Wien F.	NACDDB: Nucleic Acid Circular Dichroism Database.	Nucleic Acids Res. 2023 Jan 6;51(D1):D226-D231. doi: 10.1093/nar/gkac829
8	**Chojnowski G**, **Zaborowski R**, Magnus M, **Mukherjee S**, **Bujnicki JM**.	RNA 3D structure modeling by fragment assembly with small-angle X-ray scattering restraints.	Bioinformatics. 2023 Sep 2;39(9):btad527. doi: 10.1093/bioinformatics/btad527

No.	Authors	Title	Journal
9	Clason CC, Baccolo G, Łokas E, Owens PN, Wachniew P, Millward GE, Taylor A, Blake WH, Beard DB, **Poniecka E**, Selmes N, Bagshaw EA, Cook J, Fyfe R, Hay M, Land D, Takeuchi N, Nastasi M, Sisti M, Pittino F, Franzetti A, Ambrosini R, Di Mauro B.	Global variability and controls on the accumulation of fallout radionuclides in cryoconite.	Sci Total Environ. 2023 Oct 10:894:164902. doi: 10.1016/j.scitotenv.2023.164902
10	Saha D, Vishwakarma S, **Gupta RK**, Pant A, Dhyani V, Sharma S, Majumdar S, Kaur I, Giri L.	Non-prophylactic resveratrol-mediated protection of neurite integrity under chronic hypoxia is associated with reduction of Cav1.2 channel expression and calcium overloading.	Neurochem Int. 2023 Mar:164:105466. doi: 10.1016/j.neuint.2022.105466
11	**Dubey AA**, Krygier M, **Szulc NA**, Rutkowska K, Kosińska J, Pollak A, Rydzanicz M, Kmieć T, Mazurkiewicz-Bełdzińska M, **Pokrzywa W**, Płoski R.	A novel de novo FEM1C variant is linked to neurodevelopmental disorder with absent speech, pyramidal signs, and limb ataxia.	Hum Mol Genet. 2023 Mar 20;32(7):1152-1161. doi: 10.1093/hmg/ddac276
12	Fantuzzi A, **Haniewicz P**, Farci D, Loi MC, Park K, Büchel C, **Bochtler M**, Rutherford AW, **Piano D**.	Bicarbonate Activation of the Monomeric Photosystem II-PsbS/Psb27 Complex.	Plant Physiol. 2023 Aug 3;192(4):2656-2671. doi: 10.1093/plphys/kiad275
13	Gómez-Tortosa E, Baradaran-Heravi Y, Dillen L, Choudhury NR, Agüero Rabes P, Pérez-Pérez J, Kocoglu C, Sainz MJ, Ruiz González A, Téllez R, Cremades-Jimeno L, Cárdaba B; EU EOD Consortium; Van Broeckhoven C, **Michlewski G**, van der Zee J.	TRIM25 mutation (p.C168*), coding for an E3 ubiquitin ligase, is a cause of early□onset autosomal dominant dementia with amyloid load and parkinsonism.	Alzheimers Dement. 2023 Jul;19(7):2805-2815. doi: 10.1002/alz.12913
14	Holko P, Kawalec P, Sajak-Szczerba M, Avedano L, **Mossakowska M**.	Indirect Costs of Inflammatory Bowel Diseases: A Comparison of Patient-Reported Outcomes Across 12 European Countries.	Inflamm Bowel Dis. 2023 May 2;29(5):752-762. doi: 10.1093/ibd/izac144
15	Holko P, Kawalec P, Sajak-Szczerba M, Avedano L, **Mossakowska M**.	Out-of-pocket expenses of patients with inflammatory bowel disease: a comparison of patient-reported outcomes across 12 European countries.	Eur J Health Econ. 2023 Sep;24(7):1073-1083. doi: 10.1007/s10198-022-01536-9
16	Huschner F, Głowacka-Walas J, Mills JD, Klonowska K, Lasseter K, Asara JM, Moavero R, Hertzberg C, Weschke B, Riney K, Feucht M, Scholl T, Krsek P, Nabbout R, Jansen AC, Petrák B, van Scheppingen J, Zamecnik J, Iyer A, Anink JJ, Mühlebner A, Mijnsbergen C, Lagae L, Curatolo P, Borkowska J, Sadowski K, Domańska-Pakieła D, Blazejczyk M, Jansen FE, Janson S, Urbanska M, **Tempes A**, Janssen B, Sijko K, Wojdan K, Jozwiak S, Kotulska K, Lehmann K, Aronica E, **Jaworski J**, Kwiatkowski DJ.	Molecular EPISTOP, a comprehensive multi-omic analysis of blood from Tuberous Sclerosis Complex infants age birth to two years.	Nat Commun. 2023; 14(1):7664. doi: 10.1038/s41467-023-42855-6
17	**Hyjek-Składanowska M**, Anderson BA, Mykhaylyk V, Orr C, Wagner A, Poznański JT, **Skowronek K**, Seth P, **Nowotny M**.	Structures of annexin A2-PS DNA complexes show dominance of hydrophobic interactions in phosphorothioate binding.	Nucleic Acids Res. 2023 Feb 22;51(3):1409-1423. doi: 10.1093/nar/gkac774
18	Jia X, Pan Z, Yuan Y, Luo B, Luo Y, **Mukherjee S**, Jia G, Liu L, Ling X, Yang X, Miao Z, Wei X, **Bujnicki JM**, Zhao K, Su Z.	Structural basis of sRNA RsmZ regulation of Pseudomonas aeruginosa virulence.	Cell Res. 2023 Apr;33(4):328-330. doi: 10.1038/s41422-023-00786-3
19	**Korzh V.**	Development of the brain ventricular system from a comparative perspective.	Clin Anat. 2023 Mar;36(2):320-334. doi: 10.1002/ca.23994

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20	Kretsch RC, Andersen ES, **Bujnicki JM**, Chiu W, Das R, Luo B, Masquida B, McRae EKS, Schroeder GM, Su Z, Wedekind JE, Xu L, Zhang K, Zheludev IN, Moult J, Kryshtafovych A.	RNA target highlights in CASP15: Evaluation of predicted models by structure providers.	Proteins. 2023 Dec;91(12):1600-1615. doi: 10.1002/prot.26550
21	Lange N, Kujawska-Danecka H, Wyszomirski A, Suligowska K, Lange A, Raczyńska D, Jędrychowska-Jamborska J, **Mossakowska M**.	Significant improvements in cataract treatment and persistent inequalities in access to cataract surgery among older Poles from 2009 to 2019: results of the PolSenior and PolSenior2 surveys.	Front. Public Health, 2023 Oct 10:11:1201689. doi: 10.3389/fpubh.2023.1201689
22	Luo B, Zhang C, Ling X, **Mukherjee S**, Jia G, Xie J, Jia X, Liu L, **Baulin EF**, Luo Y, Jiang L, Dong H, Wei X, **Bujnicki JM**, Su Z.	Cryo-EM reveals dynamics of Tetrahymena group I intron self-splicing.	Nat Catal. 2023; 6:298–309 doi: 10.1038/s41929-023-00934-3
23	**Migdał M**, Arakawa T, Takizawa S, Furuno M, Suzuki H, Arner E, **Winata CL**, Kaczkowski B.	xcore: an R package for inference of gene expression regulators.	BMC Bioinformatics. 2023 Jan 11;24(1):14. doi: 10.1186/s12859-022-05084-0
24	**Mlostek M**, **Zeng J**, **Urbanska M**, **Jaworski J**.	Dendritic arbor dynamics and stability in health and disease.	Acta Neurobiol Exp (Wars). 2023 Nov 22;83(4):331-358. doi: 10.55782/ane-2023-2456
25	**Moafinejad SN, Pj IPN, Jaryani F, Shirvanizadeh N, Baulin E, Bujnicki J.**	1D2DSimScore: A novel method for comparing contacts in biomacromolecules and their complexes.	Protein Sci. 2023 Jan;32(1):e4503. doi: 10.1002/pro.4503
26	NCD Risk Factor Collaboration (NCD-RisC) within **Mossakowska M.**	Diminishing benefits of urban living for children and adolescents' growth and development.	Nature. 2023 Mar;615(7954):874-883. doi: 10.1038/s41586-023-05772-8
27	NCD Risk Factor Collaboration (NCD-RisC) within **Mossakowska M.**	Global variation in diabetes diagnosis and prevalence based on fasting glucose and hemoglobin A1c.	Nat Med. 2023 Nov;29(11):2885-2901. doi: 10.1038/s41591-023-02610-2
28	**Nirwal S, Czarnocki-Cieciura M, Chaudhary A, Zajko W, Skowronek K, Chamera S, Figiel M, Nowotny M.**	Mechanism of RecF–RecO–RecR cooperation in bacterial homologous recombination.	Nat Struct Mol Biol. 2023 May;30(5):650-660. doi: 10.1038/s41594-023-00967-z
29	Osmola M, Gierej B, **Mleczko-Sanecka K**, **Jończy A**, Ciepiela O, Kraj L, Ziarkiewicz-Wróblewska B, Basak GW.	Anemia, Iron Deficiency, and Iron Regulators in Pancreatic Ductal Adenocarcinoma Patients: A Comprehensive Analysis.	Curr Oncol. 2023 Aug 18;30(8):7722-7739. doi: 10.3390/curroncol30080560
30	Pakuła K, **Sequeiros-Borja C**, Biała-Leonhard W, Pawela A, Banasiak J, Bailly A, Radom M, Geisler M, **Brezovsky J**, Jasiński M.	Restriction of access to the central cavity is a major contributor to substrate selectivity in plant ABCG transporters.	Cell Mol Life Sci. 2023 Mar 23;80(4):105. doi: 10.1007/s00018-023-04751-6
31	**Palchevskyi S**, **Czarnocki-Cieciura M**, Vistoli G, Gervasoni S, **Nowak E**, Beccari AR, **Nowotny M**, Talarico C.	Structure of human TRPM8 channel.	Commun Biol. 2023; 6(1):1065. doi: 10.1038/s42003-023-05425-6
32	Paul AA, **Szulc NA**, Kobiela A, Brown SJ, **Pokrzywa W**, Gutowska-Owsiak D.	In silico analysis of the profilaggrin sequence indicates alterations in the stability, degradation route, and intracellular protein fate in filaggrin null mutation carriers.	Front Mol Biosci. 2023 May 2:10:1105678. doi: 10.3389/fmolb.2023.1105678

No.	Authors	Title	Journal
33	**Piechota M**, **Latoszek E**, **Liszewska E**, Hansíková H, Klempíř J, Mühlbäck A, Landwehrmeyer GB, **Kuźnicki J**, **Czeredys M**.	Generation of two human iPSC lines from dermal fibroblasts of adult- and juvenile-onset Huntington's disease patients and two healthy donors.	Stem Cell Res. 2023; 71:103194. doi: 10.1016/j.scr.2023.103194
34	Piotrowicz K, Kujawska-Danecka H, Jagiełło K, Hajduk A, Skalska A, **Mossakowska M**, Zdrojewski T, Grodzicki T, Gąsowski J.	The national burden of frailty and disproportionate distribution of its components-the predominance of slow gait speed: a 2018-19 face-to-face epidemiologic assessment representative of population of older Poles.	Aging Clin Exp Res. 2023 Mar;35(3):571-579. doi: 10.1007/s40520-022-02331-5
35	Polakowska M, Steczkiewicz K, **Szczepanowski RH**, Wysłouch-Cieszyńska A.	Toward an understanding of the conformational plasticity of S100A8 and S100A9 Ca2+-binding proteins.	J Biol Chem. 2023 Apr;299(4):102952. doi: 10.1016/j.jbc.2023.102952
36	Sabir AJ, Singh PP, **Trus I**, Le NPK, Karniychuk U.	Asian Zika virus can acquire generic African-lineage mutations during in utero infection.	Emerg Microbes Infect. 2023 Dec;12(2):2263592. doi:10.1080/22221751.2023.2263592
37	Schneor L, Kaltenbach S, Friedman S, Tussia-Cohen D, Nissan Y, Shuler G, Fraimovitch E, **Kolodziejczyk AA**, Weinberg M, Donati G, Teeling EC, Yovel Y, Hagai T.	Comparison of antiviral responses in two bat species reveals conserved and divergent innate immune pathways.	iScience. 2023 Jul 20;26(8):107435. doi: 10.1016/j.isci.2023.107435
38	**Sequeiros-Borja C, Surpeta B, Marchlewski I, Brezovsky J.**	Divide-and-conquer approach to study protein tunnels in long molecular dynamics simulations.	MethodsX. 2023; 10:101968. doi: 10.1016/j.mex.2022.101968
39	**Slusarczyk P**, **Mandal PK**, **Zurawska G**, **Niklewicz M**, **Chouhan K**, **Mahadeva R**, **Jończy A**, **Macias M**, **Szybinska A**, Cybulska-Lubak M, Krawczyk O, Herman S, Mikula M, Serwa R, Lenartowicz M, **Pokrzywa W**, **Mleczko-Sanecka K**.	Impaired iron recycling from erythrocytes is an early hallmark of aging.	eLife, 2023 Jan 31;12:e79196. doi: 10.7554/eLife.79196
40	**Stroynowska-Czerwinska AM**, **Klimczak M**, **Pastor M**, **Kazrani AA**, **Misztal K**, **Bochtler M**.	Clustered PHD domains in KMT2/MLL proteins are attracted by H3K4me3 and H3 acetylation-rich active promoters and enhancers.	Cell Mol Life Sci. 2023 Jan 4;80(1):23. doi: 10.1007/s00018-022-04651-1
41	Szczęśniak K, Veillard F, Scavenius C, Chudzik K, Ferenc K, **Bochtler M**, Potempa J, Mizgalska D.	The Bacteroidetes Q-rule and glutaminyl cyclase activity increase the stability of extracytoplasmic proteins.	mBio. 2023 Oct 31;14(5):e0098023. doi: 10.1128/mbio.00980-23
42	Szewczyk LM, Lipiec MA, **Liszewska E**, Meyza K, Urban-Ciecko J, Kondrakiewicz L, Goncerzewicz A, Rafalko K, Krawczyk TG, Bogaj K, Vainchtein ID, Nakao-Inoue H, Puscian A, Knapska E, Sanders SJ, Jan Nowakowski T, Molofsky AV, Wisniewska MB.	Astrocytic β-catenin signaling via TCF7L2 regulates synapse development and social behavior.	Mol Psychiatry. 2023 Oct 5. doi: 10.1038/s41380-023-02281-y
43	**Szulc NA, Mackiewicz Z, Bujnicki JM, Stefaniak F.**	Structural interaction fingerprints and machine learning for predicting and explaining binding of small molecule ligands to RNA.	Brief Bioinform. 2023; 24(4):bbad187. doi: 10.1093/bib/bbad187

No.	Authors	Title	Journal
44	**Szulc NA, Piechota M, Biriczova L, Thapa P, Pokrzywa W.**	Lysine deserts and cullin-RING ligase receptors: Navigating untrodden paths in proteostasis.	iScience, 2023 Oct 28;26(11):108344. doi: 10.1016/j.isci.2023.108344
45	**Thapa P, Olek K, Kowalska A,** Serwa RA**, Pokrzywa W.**	SAM, SAH and C. elegans longevity: insights from a partial AHCY deficiency model.	NPJ Aging. 2023; 9(1):27. doi: 10.1038/s41514-023-00125-1
46	Udenze D, **Trus I**, Lipsit S, Napper S, Karniychuk U.	Offspring affected with in utero Zika virus infection retain molecular footprints in the bone marrow and blood cells.	Emerg Microbes Infect. 2023 Dec;12(1):2147021. doi:10.1080/22221751.2022.2147021
47	Van Reeth K, Parys A, Gracia JCM, **Trus I**, Chiers K, Meade P, Liu S, Palese P, Krammer F, Vandoorn E.	Sequential vaccinations with divergent H1N1 influenza virus strains induce multi-H1 clade neutralizing antibodies in swine.	Nat Commun. 2023 Nov 27;14(1):7745. doi: 10.1038/s41467-023-43339-3
48	**Wasilewska I, Majewski Ł**, Adamek-Urbańska D, **Mondal SS, Baranykova S, Gupta RK, Bielecki D, Winata CL, Kuznicki J**.	Lack of Stim2 Affects Vision-Dependent Behavior and Sensitivity to Hypoxia.	Zebrafish. 2023 Aug;20(4):146-159. doi: 10.1089/zeb.2022.0068
49	Wegrzyn K, Oliwa M, **Nowacka M**, Zabrocka E, Bury K, Purzycki P, Czaplewska P, Pipka J, Giraldo R, Konieczny I.	Rep protein accommodates together dsDNA and ssDNA which enables a loop-back mechanism to plasmid DNA replication initiation.	Nucleic Acids Res. 2023 Oct 27;51(19):10551-10567. doi: 10.1093/nar/gkad740
50	Wrzosek M, **Hojka-Osińska A**, Klimczak-Tomaniak D, Żarek-Starzewska AK, Dyrla W, Rostek-Bogacka M, Wróblewski M, Kuch M, Kucia M.	Identification of cardiac-related serum miRNA in patients with type 2 diabetes mellitus and heart failure: Preliminary report.	Adv Clin Exp Med. 2023 Jan;32(1):125-130. doi: 10.17219/acem/157303
51	Zhao L, Fong S, Yang Q, Jiang YJ, **Korzh V**, Liou YC.	The prolyl isomerase Pin1 stabilizes NeuroD during differentiation of mechanoreceptors.	Front Cell Dev Biol. 2023 Sep 18:11:1225128. doi: 10.3389/fcell.2023.1225128
	Book Chapters		
52	**Doszyn O, Dulski T, Zmorzynska J.**	The zebrafish model of Tuberous sclerosis complex to study epilepsy.	Handbook of Animal Models in Neurological Disorders
53	**Korzh V.**	Development of the ventricles, choroid plexus and CSF outflow system: comparative perspective.	Cerebrospinal Fluid and Subarachnoid Space: Volume 1: Clinical Anatomy and Physiology. Academic Press: Elsevier; 2023:17–38

Grants Running in 2023

56 grants with total awarded funding 194 247 882 PLN

EU FRAMEWORK PROGRAMMES

6 projects
70 490 040 PLN

HORIZON EUROPE

- **TEAMING FOR EXCELLENCE** RACE *RNA and Cell Biology - from Fundamental Research to Therapies* (101059801); 10 130 508.75 EUR for the IIMCB (total grant budget: 14 993 885 EUR); 2023-2029; **M. Miączyńska** in the consortium with the University of Edinburgh and the Flanders Institute of Biotechnology
- **ERC – Advanced Grant** ViveRNA *Principles of endogenous and therapeutic mRNA turnover in vivo* (101097317); 2 499 875 EUR; 2023-2028; **A. Dziembowski**
- **EIC - Transition Grant** INCYPRO *A key technology to enable the broad application of proteins in diagnostics and therapeutics* (101057978); 201 250 EUR for the IIMCB (total grant budget: 2 498 750 EUR); 2022-2025; **J.M. Bujnicki**

HORIZON 2020

- **ERA Chairs** MOSaIC *Molecular Signaling in Health and Disease - Interdisciplinary Centre of Excellence* (810425); 2 498 887.50 EUR; 2018-2023; **J. Kuźnicki**
- **INFRAIA** iNEXT-Discovery *Infrastructure for transnational access and discovery in structural biology* (871037); 47 500 EUR for the IIMCB (total grant budget: 9 987 756.50 EUR); 2020-2024; **M. Nowotny**
- **ITN-MSCA** ROPES *ROles of ePitranscriptomic in diseasES* (956810); 227 478.6 EUR for the IIMCB (total grant budget: 3 095 829 EUR); 2020-2025; **J.M. Bujnicki**

EUROPEAN MOLECULAR BIOLOGY ORGANIZATION

3 projects
1 623 600 PLN

- **EMBO Bridging Fund** *Regulation of muscle-derived exophers* (3917); 4 800 EUR; 2022-2023; **W. Pokrzywa**
- **EMBO Postdoctoral Fellowship** *Exploring RNA folds and remote evolutionary relationships with an improved structural similarity search method* (ALTF 525-2022); 96 000 EUR; 2022-2024; **E. Baulin**
- **EMBO Installation Grant** *Identification of signals coordinating the proteolytic quality control networks* (3916) plus **EMBO Small Grant;** 250 000 EUR + 10 000 EUR; 2018-2023; **W. Pokrzywa**

ŁUKASIEWICZ RESEARCH NETWORK – PORT POLISH CENTER FOR TECHNOLOGY DEVELOPMENT

1 project
28 398 800 PLN

- **Virtual Research Institute** *Horizon for Excellence in messenger RNA applications in immunoOncology* (HERO); (UoF/01-WIB-1/2020-011) in partnership with the University of Warsaw, the Medical University of Warsaw, the Institute of Physical Chemistry of the Polish Academy of Sciences; 28 398 800 PLN for the IIMCB (total grant budget: 69 160 450 PLN); 2022-2027; **A. Dziembowski** (Leader), **M. Miączyńska**, **M. Nowotny**

NATIONAL SCIENCE CENTRE

37 projects
80 075 796 PLN

DIOSCURI
- *The Dioscuri Centre for RNA-Protein Interactions in Human Health and Disease* (2019/02/H/NZ1/000020); 6 642 000 PLN; 2021-2025; **G. Michlewski**

MAESTRO
- *The role of mTOR-Brg1 interaction in normal and aberrant neuronal activity* (2020/38/A/NZ3/00447); 4 092 140 PLN; 2021-2026; **J. Jaworski**
- *Structural and mechanistic studies of bacterial DNA repair* (2017/26/A/NZ1/01098); 4 228 500 PLN; 2018-2024; **M. Nowotny**
- *Integrative modeling and structure determination of macromolecular complexes comprising RNA and proteins* (2017/26/A NZ1/01083); 3 500 000 PLN; 2018-2024; **J.M. Bujnicki**
- *Oncogenic mechanisms of DIS3 mutations* (2016/22/A/NZ4/00380); 3 490 750 PLN; 2017-2024; **A. Dziembowski**

SONATA BIS
- *Dynamics of RNA degrading complexes in bacteria* (2022/46/E/NZ1/00462); 3 218 840 PLN; 2023-2028; **E. Małecka**
- *Adaptation of Proteins to Evade Premature Degradation by the Ubiquitin-Proteasome System* (2021/42/E/NZ1/00190); 3 686 840 PLN; 2022-2027; **W. Pokrzywa**
- *Identifying unique adaptive responses of red pulp macrophages to iron deficiency* (2020/38/E/NZ4/00511); 3 613 374 PLN; 2021-2026; **K. Mleczko-Sanecka**

GRIEG (EEA and Norway Grants)
- *Cellular adaptation to cold* (2019/34/H/NZ3/00691); 3 834 426 PLN; 2021-2024; **W. Pokrzywa**; Partner: University of Oslo, Norway
- *The impact of cytoplasmic polyadenylation on local translation in neurons* (2019/34/H/NZ3/00733); 1 935 625 PLN; 2020-2024; **A. Dziembowski**; Partner: University of Bergen, Norway; University of Warsaw, Poland

DAINA: POLISH-LITHUANIAN FUNDING INITIATIVE
- *CRISPR tools for the study of embryonic development in zebrafish* (2017/27/L/NZ2/03234); 1 634 500 PLN; 2018-2023; **M. Bochtler**; Partner: Vilnius University, Lithuania

OPUS
- *Structural studies of herpesvirus proteins involved in DNA replication* (2022/45/B/NZ1/02456); 2 047 255 PLN; 2023-2027; **M. Figiel**
- *Elucidating the contribution of non-coding genomic elements to heart development and disease at single-cell resolution* (2022/47/B/NZ2/02926); 3 040 240 PLN; 2023-2027; **C.L. Winata**
- *Structural and mechanistic studies of (+)RNA virus replication* (2021/41/B/NZ1/03620); 2 684 000 PLN; 2022-2026; **M. Nowotny**
- *Building a genomic atlas of human inner ear malformations: focus on novel genes and functional non-coding regions* (2021/41/B/NZ5/04390); 845 460 PLN for the IIMCB (total grant budget: 2 986 560 PLN); 2022-2026; **V. Korzh**; coordinated by the Institute of Physiology and Pathology of Hearing
- *AXL receptor signaling in cancer cell growth and drug resistance* (2020/39/B/NZ3/03429); 2 482 764 PLN; 2021-2025; **M. Miączyńska**
- *Rac1 contribution to brain connectivity impairments and neuropsychiatric disorders in Tuberous Sclerosis Complex* (2020/37/B/NZ3/02345); 2 251 260 PLN; 2021-2025; **J. Zmorzyńska**
- *Identification of novel vulnerabilities of VPS4B-deficient cancers cells* (2020/37/B/NZ3/02991); 1 878 854 PLN; 2021-2025; **E. Szymańska**
- *Experimental analysis of molecular determinants involved in epilepsy* (2020/39/B/NZ3/02729); 1 780 590 PLN; 2021-2025; **V. Korzh**
- *Unraveling the influence of posttranscriptional modifications on RNA 3D structure formation and its dynamics, with the integrated use of theoretical and experimental approaches* (2020/37/B/NZ2/02456); 1 650 000 PLN; 2021-2024; **J.M. Bujnicki**
- *The new methodology for better understanding of ligand-RNA interactions* (2020/39/B/NZ2/03127); 671 000 PLN; 2021-2024; **F. Stefaniak**
- *Reconstructing cardiovascular cell lineage evolution, one cell at a time* (2019/35/B/NZ2/02548); 2 631 552 PLN; 2020-2024; **C.L. Winata**
- *Linking abnormal Ca2+ signaling and the unfolded protein response with Huntington's disease pathology in both YAC128 mouse model and iPSCderived neurons from HD patients* (2019/33/B/NZ3/02889); 1 857 550 PLN; 2020-2024; **M. Czeredys**
- *Analysis of the role of cytoplasmic polyadenylation in the regulation of the innate immune response* (2019/33/B/NZ2/01773); 2 324 800 PLN; 2020-2024; **A. Dziembowski**
- *Mechanism of RNA ligation in maturation of transfer RNAs* (2019/33/B/NZ1/02839); 1 985 200 PLN; 2020-2023; **M. Nowotny**
- *Approaching integrative genomics to identify molecular drivers of congenital heart disease* (2018/29/B/NZ2/01010); 1 880 050 PLN; 2019-2023; **C.L. Winata**
- *Deciphering novel mechanisms that control iron sensing and iron accumulation in the liver* (2018/31/B/NZ4/03676); 1 778 635 PLN; 2019-2023; **K. Mleczko-Sanecka**

POLISH RETURNS (research component funded by NCN)
- *Structural studies of herpesvirus proteins involved in DNA replication* (2023/02/1/NZ5/00003); 200 000 PLN; 2023-2024; **A. Kołodziejczyk**

SONATA
- *The role of gut-liver axis in Amanita species mushroom poisoning* (2022/47/D/NZ5/03438); 2 515 560 PLN for the IIMCB (total grant budget: 2 544 840 PLN; 2023-2026; **A. Kołodziejczyk**; in consortium with the Medical University of Warsaw
- *A framework for de novo modeling of RNA structures using restraints derived from experimental data* (2021/43/D/NZ1/03360); 691 252 PLN; 2022-2025; **S. Mukherjee**
- *3D Structure determination of key regulatory regions at the 5' and 3' termini of pathogenic Flaviviruses RNA* (2020/39/D/NZ6/02528); 895 358 PLN; 2021-2024; **T. Rocha de Moura**
- *Discovery and characterization of RNA structure motifs conserved in positive-sense single-stranded RNA viruses and in other functional RNAs* (2020/39/D/NZ2/02837); 825 330 PLN; 2021-2025; **T. Wirecki**
- *Elucidating the role of TENT5C-mediated polyadenylation in erythropoiesis* (2019/35/D/NZ3/04253); 1 482 000 PLN; 2020-2024; **M. Kusio-Kobiałka**

SONATINA
- *Targeting nucleic acid-protein complexes with small molecules using a deep- learning framework* (2023/48/C/NZ1/00122); 645 136 PLN; 2023-2026; **R. Nikalayeu**
- *How dysfunction in the nuclear, RNA degrading enzyme DIS3 leads to mitotic defects creating a possible therapeutic strategy for Multiple Myeloma* (2019/32/C/NZ2/00558); 832 059 PLN; 2019-2023; **T. Kuliński**

PRELUDIUM
- *Living on the edge: evolutionary adaptation of substrate-recruiting subunits of the cullin-RING ubiquitin ligase complexes to avoid premature degradation* (2021/41/N/NZ1/03473); 190 770 PLN; 2022-2025; **N. Szulc**
- *Deciphering the molecular mechanism of activity switch of the ubiquitin ligase CHIP* (2021/41/N/NZ1/03086); 132 126 PLN; 2022-2025; **P. Thapa**

FOUNDATION FOR POLISH SCIENCE

3 projects
9 007 472 PLN

- SG OP 4.4. **TEAM** *Molecular mechanism of dendritic arbor stability and its relation to mood disorders* (POIR.04.04.00-00-5CBE/17-00); 3 515 735 PLN; 2018-2023; **J. Jaworski**
- SG OP 4.4. **TEAM** *The interplay between epigenomics and DNA repair* (POIR.04.04.00-00-5D81/17-00); 3 491 914 PLN; 2018-2023; **M. Bochtler**
- SG OP 4.4. **FIRST TEAM** *The regulation of methionine metabolism by the ubiquitin-proteasome system: CHIPed supervision of the methylation potential* (POIR.04.04.00-00-5EAB/18-00); 1 999 823 PLN; 2018-2023; **W. Pokrzywa**

POLISH NATIONAL AGENCY FOR ACADEMIC EXCHANGE

4 projects
3 599 200 PLN

- **Polish Returns Programme** *Gut-liver axis in liver cirrhosis* (BPN/PPO/2022/1/00023/U/00001); 1 123 200 PLN; 2023-2026; **A. Kołodziejczyk**
- **STER Programme** *Internationalisation of the Warsaw Doctoral School in Natural and BioMedical Sciences* (BPI/STE/2021/1/00034/U/00001); coordinated by the Nencki Institute of Experimental Biology; 142 000 PLN for the IIMCB (total grant budget: 1 968 030 PLN); 2022-2024; **U. Białek-Wyrzykowska**
- **Polish Returns Programme** *Regulation of microRNAs for the treatment and understanding the etiology of Parkinson's disease* (PPN/PPO/2020/1/00006/U/00001); 2 070 000 PLN; 2021-2025; **G. Michlewski**
- **Seal of Excellence Programme** (PPN/SEL/2020/1/00003/U/00001); 264 000 PLN; 2021-2023; **A. Ray**

POLISH ACADEMY OF SCIENCES

1 project
874 878 PLN

- **PASIFIC** *Targeted single-cell gene expression analysis of mRNA vaccine response* (847639); 874 878 PLN; 2022-2025; **E. Poniecka**

AMERICAN FEDERATION FOR AGING RESEARCH

1 project
178 096 PLN

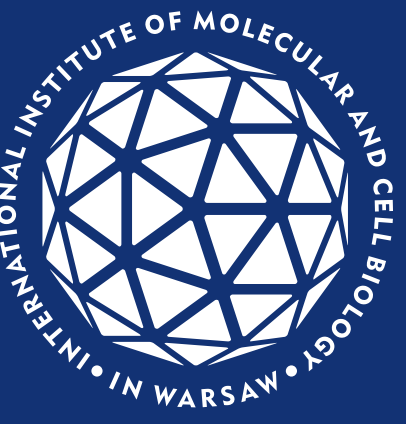
- **New Investigator Award**; *Red vs. white: Does failure in red blood cell recycling drive T cell aging?* (2032952); 178 089 PLN for the IIMCB (total grant budget: 375 000 USD); 2023-2025; **K. Mleczko-Sanecka**

Seminars in 2023

No.	Date	Speaker	Title	Affiliation
1	1/12/2023	**Viktor Korolchuk**	Autophagy as an oxidative stress response pathway.	Newcastle University, Newcastle, Great Britain
2	1/19/2023	**Ben Luisi**	Dynamic riboregulatory assemblies in the control of bacterial gene expression.	University of Cambridge, Cambridge, Great Britain
3	1/26/2023	**Jernej Ule**	The interplay of RNA structure and protein disorder in protein-RNA condensates.	Francis Crick Institute, London, Great Britain
4	2/2/2023	**Emre Yaksi**	The role of astroglia-neuron interactions in generation and spread of seizures.	Kavli Institute for Systems Neuroscience, Trondheim, Norway
5	2/9/2023	**Olga Anuczków-Camarda**	Characterizing splicing-factor regulatory networks in cancers.	Jacksob Laboratory, Bar Harbor, Maine, United States of America
6	2/16/2023	**Peter Weigele**	The diversity and biosynthesis of noncanonical DNA.	New England Biolabs, Ipswich, Massachusetts, United States of America
7	2/23/2023	**Kamil Gewartowski**	PCR|ONE - from idea to product.	Bio-Rad Laboratories, Warsaw, Poland
8	3/2/2023	**Judith Zaugg**	How do cells integrate extrinsic signals and intrinsic state? A systems epigenetics approach.	EMBL, Heidelberg, Germany
9	3/9/2023	**Magda Masłoń**	Coordination of the steps of RNA life cycle in development.	Adam Mickiewicz University, Poznań, Poland
10	3/16/2023	**Krzysztof Szade**	A Matter of Blood - hematopoietic stem cells in health, aging and malignancy.	Jagiellonian University, Cracow, Poland
11	3/23/2023	**Marek Konarzewski**	My adventure with science.	President of Polish Academy of Sciences & University of Białystok, Białystok, Poland
12	3/23/2023	**Danny Incarnato**	High-throughput identification of RNA structures in living cells.	University of Groningen, Groningen, the Netherlands

No.	Date	Speaker	Title	Affiliation
13	3/30/2023	**Dario Valenzano**	Short-lived killifish: a powerful model system to study vertebrate aging.	Leibniz Institute on Aging – Fritz Lipmann Institute, Jena, Germany
14	4/13/2023	**Thomas Jenuwien**	Molecular hallmarks of epigenetic control in genome function.	Max-Planck-Institute of Immunobiology and Epigenetics, Freiburg, Germany
15	4/20/2023	**Antonio del Sol**	Multiscale Computational Modelling in Stem Cell Research and Disease Modelling.	Luxembourg Centre for Systems Biomedicine (LCSB), Luxembourg
16	4/27/2023	**Alessio Ciulli**	How PROTACs Work: Molecular Recognition and Design Principles.	University of Dundee, Dundee, Great Britain
17	5/11/2023	**Tatiana Kutateladze**	Molecular mechanisms of epigenetic regulation.	University of Colorado School of Medicine, Aurora, Colorado, United States of America
18	5/18/2023	**Manfred Kopf**	Development and function of lung macrophage subsets.	5/18/2023 Manfred Kopf Development and function of lung macrophage subsets, Federal Institute of Technology Zurich, Zurich, Switzerland
19	5/25/2023	**Sara Mainardi**	Breaking the feedback loop: targeting SHP2 to prevent resistance to multiple anti-cancer targeted therapies.	Netherlands Cancer Institute, Amsterdam, The Netherlands
20	6/1/2023	**Didier Devaurs**	A Tale of Two Strategies to Efficiently Explore the Conformational Space of Molecular Systems.	Medical Research Council, Institute of Genetics and Cancer, The University of Edinburgh, Great Britan
21	6/15/2023	**Joanna Wysocka**	Making faces: transcription factors and enhancers in human development, disease and evolution.	Stanford University, Stanford, United States of America
22	7/6/2023	**Seth Blackshow**	Building and rebuilding the hypothalamus.	Johns Hopkins University School of Medicine, Baltimore, Maryland, United States of America
23	7/7/2023	**Yun-Jin Jiang**	The potential roles of RCBTB1 in familial exudative vitreoretinopathy (FEVR) and inherited retinal dystrophy (IRD).	National Health Research Institutes, Taipei City, Taiwan
24	10/5/2023	**Jan Rehwinkel**	Nucleic Acid Sensing by Innate Immune Receptors A journey from MDA5 to cGAS.	Oxford University, Oxford, Great Britain

No.	Date	Speaker	Title	Affiliation
25	10/12/2023	**David Lilley**	The extent of RNA-mediated catalysis – are there any limits?	University of Dundee, Dundee, Great Britain
26	10/19/2023	**Rana Hussein**	Probing Reaction Intermediates during Water Oxidation in Photosystem II.	Humboldt University, Berlin, Germany
27	10/26/2023	**Tzachi Hagai**	The evolutionary paradox of host-virus interactions.	Tel Aviv University, Tel Aviv, Israel
28	11/9/2023	**Tim Clausen**	Mysterious E3 giants as guardians of the cell.	Research Institute of Molecular Pathology, Vienna, Austria
29	11/16/2023	**Peter Becker**	Non-canonical role for lncRNA roX in X-chromosome regulation in Drosophila.	Ludwig Maximilian University of Munich, Munich, Germany
30	11/23/2023	**Oksana Piven**	Multifaceted β-catenin signaling in the heart.	Nencki Institute of Experimental Biology, Warsaw, Poland
31	11/30/2023	**Rotem Karni**	The roles of RNA processing and modification in cancer progression.	Hebrew University, Jerusalem, Israel
32	12/14/2023	**Roger Geiger**	Systems Analyses of anti-tumour T cell responses.	Universita della Svizzera Italiana, Lugano, Switzerland
33	12/21/2024	**Ferreira Nunes Alves**	Investigating Ligand Binding Kinetics and pH Sensing in Proteins: Insights from Molecular Dynamics Simulations.	Technical University of Berlin, Berlin, Germany



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