

# Curriculum Vitae

## Kamil Filipek

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E-mail: kamilfilipek.zbm@gmail.com

ORCID: 0000-0002-3139-5901

### Research interests

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An enthusiastic, fast-learning professional open to new challenges, especially in the examination of the flow of genetic information from DNA to proteins in mammalian cancer cells.

### Work experience

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02.2024-present	<b>Alma Mater Studiorum- University of Bologna</b> Post-doc at Department of Medical and Chirurgical Sciences (DIMEC) <i>“Role of ribosomal protein L8 gene amplification in ovarian cancer”</i>	Bologna, Italy
10.2022-01.2024	<b>University of Maria Curie-Skłodowska</b> Research Assistant at Molecular Biology Department, Institute of Biological Sciences <ul style="list-style-type: none"><li>• Conducting classes of Molecular Biology for 3<sup>rd</sup> year students</li><li>• Conducting classes of Introduction to the laboratory for 1<sup>st</sup> year students</li><li>• Supervising of Master’s Student</li><li>• Supervising of PhD’s Student</li></ul>	Lublin, Poland
2023-present	<b>Full Translacore Member</b>	Bologna, Italy

### Education

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10.2017-11.2023	<b>University of Maria Curie-Skłodowska</b> Ph.D. student in Biological Science (Molecular Biology) <i>“Functional plasticity of GTPase-associated center as a response of the translational machinery to environmental changes”</i>	Lublin, Poland
10.2015 – 06.2017	<b>University of Maria Curie-Skłodowska</b> M.Sc. in Biology with the microbiology specialization <i>“Analysis of intracellular localization of new alternative isoform of human uL10 protein in mammalian cell lines”</i>	Lublin, Poland
10.2012 – 07.2015	<b>University of Maria Curie-Skłodowska</b> B.Sc. in Biology with the microbiology specialization <i>“Mechanisms of actions of antibiotics on bacteria”</i>	Lublin, Poland

### Research experience

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06-08.2022	<b>EMBO Scientific Exchange Grant (SEG 9555)</b> <i>Manager and researcher. Grant title: „Phosphorylation of P-stalk protein regulates ribosomal stress responses”. Grant developed at the University of Copenhagen.</i> <ul style="list-style-type: none"><li>• Preparation of stable cell lines expressing dephosphomimetic of P-stalk proteins</li><li>• Analysis of stress response in cells expressing P-stalk dephosphomimetic</li><li>• Analysis of ribosome collisions</li><li>• Analysis of molecular response in stressed mice livers</li><li>• Characterization of molecular response upon P-proteins silencing with siRNA</li><li>• Preparation of RPLP1/RPLP2 KO HeLa cells with CRISPR-Cas9 technique</li></ul>	
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- 05.2022 **Exchange Grant for a Young Scientist of the Institute of Biological Sciences of the Maria Curie-Skłodowska University**  
*Manager and researcher. Grant title: „Status of P-proteins phosphorylation as a new sensory element of stress conditions in a eukaryotic cell”. Grant developed at the University of Copenhagen.*
- Analysis of molecular response in stressed mice livers
  - Analysis of ribosomal P-stalk proteins phosphorylation in mice livers
- 2021-2022 **Research grant for Young Scientists (Faculty of Biology and Biotechnology, University of Maria Curie-Skłodowska)**  
*Manager and researcher. Grant title “Biological aspects of the functioning of the cystathionine gamma-lyase (CTH/CSE) enzyme in response to the endoplasmic reticulum (ER) stress in mouse insulin-producing  $\beta$  cell of the pancreas”*
- Optimization of the Biotin-Thiol Assay (BTA) procedure
  - Detection of S-sulphydrylation of ribosomal P-proteins (uL10, RPLP1, RPLP2)
  - Detection of taurine transporter level upon ER stress
- 03.2019-12.2021 **Research grant OPUS15 (National Science Center)**  
*Research contractor. Grant title „Phosphorylation of ribosomal P-proteins as a source of specialized ribosomes – a new level of gene expression regulation in eukaryotes”*
- Detection of phosphorylation of ribosomal protein by Pro-Q staining
  - Developing of Phos-tag procedure
  - Detection of ribosomal P-stalk proteins phosphostatus by Phos-tag electrophoresis
  - Examination of P-stalk phosphostatus changes in different cell conditions
  - Polysome profiling from mammalian cells
  - Examination of ISR, RSR response activation upon different treatments
  - Characterization of CX-4945 effectiveness to non-cancer and cancer cells
- 2019-2020 **Research grant for Young Scientists (Faculty of Biology and Biotechnology, University of Maria Curie-Skłodowska)**  
*Manager and researcher. Grant title “The analysis of the subcellular localization of the new isoform of the human uL11 ribosomal protein”*
- Preparation of genetic constructs of uL11 isoform
  - Mammalian cells transfection with uL11 protein isoform constructs
  - Examination of subcellular localization of uL11 isoforms
  - Examination of uL11 isoforms dynamic by FRAP technique
- 2017-2020 **Research grant Preludium 12 (National Science Center)**  
*Research contractor. Grant title „The role of the new isoform of the uL10 ribosomal protein in the regulation of the activity of the translational machinery”*
- Preparation of genetic constructs of uL10 isoforms
  - Mammalian cells transfection with uL10 isoform constructs
  - Confocal microscopy of subcellular localization of uL10 isoforms
  - Examination of uL10 isoforms dynamic by FRAP technique
  - Biochemical analysis of uL10 isoforms
  - Developing polysome profiling from mammalian cells

## Skills

- Languages: Polish (mother tongue), English (fluent), Italian (fluent), Spanish (beginner)
- IT: extensive knowledge of Office software, GraphPad Prism, Adobe Illustrator, PyMOL, ImageJ
- Organization of science events – biologists night, science festival
- Organized, highly motivated, reliable, detailed, efficient, teamworking, problem-solving, fast learning

### Cellular biology:

- Cell culture of MEF, HEK293, NIH 3T3, HCT116, MES-OV, HeLa, MCF, U2OS, HepG2, SCC
- Cell transfection and stable line preparation;
- CRISPR-Cas9, siRNA techniques;

- Microbiology: bacteria culture, isolation, and transformation;
- Microscopy: light, fluorescence, confocal microscopy with FRAP and photoconversion techniques

#### **Molecular biology:**

- Molecular cloning: primer design, restriction enzyme digestion, ligation, PCR, dPCR, DNA/RNA extraction, and digestion
- cDNA preparation
- Site-directed mutagenesis
- Hybrid protein design

#### **Biochemistry:**

- SDS-PAGE, Phos-tag, and agarose electrophoresis, western blotting, immunofluorescence, protein precipitation, immunoprecipitation, cell extracts preparation, BTA method, polysome profiling

#### **Analytical methods:**

- Chemiluminescence, densitometry calculation, data visualization with Python

## **Publications and conferences**

- Zajac, A.; Maciejczyk, A.; Sumorek-Wiadro, J.; **Filipek, K.**; Deryło, K.; Langner, E.; Pawelec, J.; Wasiak, M.; Ścibiorski, M.; Rzeski, W.; Tchórzewski, M.; Reichert, M.; Jakubowicz-Gil, J. The Role of Bcl-2 and Beclin-1 Complex in “Switching” between Apoptosis and Autophagy in Human Glioma Cells upon LY294002 and Sorafenib Treatment. *Cells* 2023, 12, 2670.
- **Filipek K.**, Deryło K., Michalec-Wawiórka B., Zaciura M., Gonzalez-Ibarra A., Krokowski D., Latoch P., Starosta A., Czapiński J., Rivero-Müller A., Wawiórka L., Tchórzewski M. (2022) Identification of a novel alternatively spliced isoform of the ribosomal uL10 protein. *Biochimica et Biophysica Acta- Gene Regulatory Mechanisms* 1866(1): 194890
- Status of phosphorylation of ribosomal P-proteins in mammalian cells (poster). EMBL Conference: Protein Synthesis and Translational Control, September 7-10 2021, Heidelberg, Germany.
- Phosphostate of the ribosomal P-proteins (poster). The 45<sup>th</sup> FEBS Congress, Molecules of Life: Towards New Horizons, July 3-8 2021, Ljubljana, Slovenia.
- **Filipek K.**, Michalec-Wawiórka B., Tchórzewski M. (2021) Phosphostate of the ribosomal P-proteins. *FEBS Open Bio* 11 (suppl. 1): 152 (peer-reviewed abstract)
- Michalec-Wawiórka B., Czapiński J., **Filipek K.**, Rulak P., Czerwonka A., Tchórzewski M., Rivero-Müller A. (2021) An improved vector system for homogenous and stable gene regulation. *International Journal of Molecular Sciences* 22(10): 5206
- **Filipek K.**, Michalec-Wawiórka B., Boguszewska A., Kmiecik S., Tchórzewski M. (2020) Phosphorylation of the N-terminal domain of ribosomal P-stalk protein uL10 governs its association with the ribosome. *FEBS Letters* 594(18): 3002-3019
- Functional analysis of uL10 protein phosphomimetic variants (poster). The 44<sup>th</sup> FEBS Congress: From Molecules to Living Systems, July 6-11 2019, Cracow, Poland.
- **Filipek K.**, Deryło K., Michalec-Wawiórka B. (2018) The ribosome filter hypothesis and specialized ribosomes. *World Scientific News* 93: 32-42
- The subcellular localization and dynamics of phospho- and dephosphomimetic variants of ribosomal uL10 protein (oral communication). Seminar Lifelong Learning Program Erasmus+, April 19-20 2018, Lublin, Poland
- The ribosome filter hypothesis and specialized ribosomes (oral communication). The International Conference of Natural and Medical Sciences, Young Scientists, Ph.D. Students and Students, December 1-3 2017, Lublin, Poland.

## **Distinctions**

- The best graduate of the Faculty of Biology and Biotechnology (2017) (silver medal of UMCS)
- Prize of Anna Siedlecka for the best graduate of biology (2017)
- The scholarship of Marshal of Lubelskie State (2017)
- The scholarship of the Minister of Science and Higher Education (2016)

## Certificates

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- The molecular basis of drug discovery (2020) Davidson College – Davidsonx (online)
- The Science and Business of Biotechnology (2020) Massachusetts Institute of Technology – MITx (online)