

**Project Proposal: NW25-03-00338**

**PROJECT PROPOSAL**

Part A – Basic Data

**Application for special-purpose costs (hereinafter Project Proposal)**

|  |  |
| --- | --- |
| **Registration No.** | NW25-03-00338 |
| **Starting date** | 5/1/2025 | **Duration (years)** | 4 |
| **Project title in Czech** | Alternativní sestřih KIR genů u alogenních hematopoetických transplantací |
| **Project title in English** | Alternative splicing of KIR genes in allogeneic hematopoietic transplants |
| **Primary panel** | 03 - Malignancy |
| **Keywords in Czech** | NK buňky, KIR receptory, HSCT |
| **Keywords in English** | KIR receptors, NK cells, HSCT |

**Applicant and Proposer**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name and surname** | XXX | **Date of birth** | XXX |
| **ORCID iD** | [0000-0002-8415-7069](https://orcid.org/0000-0002-8415-7069) |
| **E-mail** | XXX | **Phone** | XXX |
| **Institution** | University Hospital Pilsen |
| **Address** | Edvarda Beneše 1128/13, 30100 Plzeň-Bory | **ID No.** | 00669806 |
| **Gender Equality Principles:** University Hospital Pilsen received a certificate of completion of the inspection of equal pay for women and men through the LOGIB tool. In accordance with the instructions of the Ministry of Health of the Czech Republic, an analysis of pay equality was carried out in the hospital for all employees. The result of the inspection for the year 2023 is very favorable for University Hospital Pilsen, the outputs confirmed 94.8% equality of salaries for men and women, which fully meets the criteria required within the public sphere. |

**1. Co-applicant and Co-proposer**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name and surname** | XXX | **Date of birth** | XXX |
| **ORCID iD** | [0000-0002-4249-9511](https://orcid.org/0000-0002-4249-9511) |
| **E-mail** | XXX | **Phone** | XXX |
| **Institution** | University of West Bohemia/Faculty of Applied Sciences University of West Bohemia |
| **Address** | Univerzitní 2732/8, 30614 Plzeň | **ID No.** | 49777513 |
| **Gender Equality Principles:** We support the principles of gender equality: https://www.zcu.cz/rest/cmis/document/workspace://SpacesStore/5c0b7e01-44e8-4647-87e2- d9c53495740d;1.0/content |

Part A - Abstract

**OECD Classification**

|  |  |
| --- | --- |
| **Scale** | **Title** |
| Main | 30205 - Hematology |
| Minor | 30102 - Immunology |
| Further | 10201 - Computer sciences, information science, bioinformathics (hardware development to be 2.2, social aspect to be 5.8) |

**Sub-goals of the thematic areas of the Program**

|  |  |
| --- | --- |
| **Order** | **The name of the subgoal** |
| 1 | 3.1.1 - High-throughput molecular biology methods and bioinformatics tools for personalized medicine |

**Clinical Evaluation/Clinical Test Statement**

|  |  |
| --- | --- |
| Does the project proposal correspond to the clinical evaluation of drugs according to the provisions of Act No. 378/2007 Coll., on drugs? | **No** |
| The project proposal corresponds to the clinical test of medical devices according to Act. No. 375/2022 Coll., on medical devices and in vitro diagnostic medical devices? | **No** |

**Abstract in Czech**

Alogenní transplantace hematopoetických buněk je kurativní léčba pro mnohé hematologické malignity. I přes to, že se rozšířili kritéria na výběr optimálního dárce a přes velký progres v post-transplantační terapii, je tato terapie zatížena významnou morbiditou a mortalitou. Proto se stále hledají další parametry, které mohou nejen dále vylepšit selekci dárců, ale zároveň lépe předpovídat reakci imunitního systému a preemtivně reagovat. NK buňky představují složku nespecifické imunity s kritickou rolí zejména v prvních třech měsících po transplantaci. Jejich reaktivita je regulována aktivačními a inhibičními signály přes široké spektrum povrchových receptorů. Nejvýznamnější skupinou receptorů jsou KIR (Killer immunoglobulin-like receptor), které mohou být jak aktivační, tak inhibiční. Jedná se o vysoce polymorfní geny, jejichž polymorfizmy mohou ovlivňovat funkci NK buněk. Jejich variabilita však nekončí jen na úrovni DNA, ale je evidována také u RNA molekul. V rámci RNA hraje svou roli tzv. alternativní sestřih (AS). AS je proces, kdy dochází k modifikaci RNA molekul, což má za následek vznik několika isoforem této molekuly s následným ovlivněním proteinové struktury. Již byli detekovány rozlišné isoformy KIR molekul, nikdy však v rámci kontextu hematopoetických transplantací a u většího souboru jedinců. Pro určení vlivu těchto molekul je nejprve nutné zjistit, jaké je jejich zastoupení v rámci většího souboru dárců a případně určit, jaká je jejich kinetika. Z naši předchozí studie vyplývá, že KIR exprese je dynamický proces a tudíž je otázkou, zda je tato dynamika pozorována i u jednotlivých isoforem. Tato zjištění nám pomohou lépe určit potencionální vliv isoforem KIR genů na NK asociovanou imunitní odpověď po alogenní transplantaci hematopoetických buněk a případně zjistit potencionální využití z hlediska predikce chování NK buněk.

**General project objective in Czech**

KIR receptory jsou známé svou velmi vysokou úrovní genových polymorfizmů. Různá struktura genu může ovlivnit chování KIR receptoru, což může v důsledku ovlivnit také reaktivitu NK buněk. Kromě toho existují i další modifikace, které zvyšují změny struktury a funkce KIR. Alternativní sestřih je nástrojem ke zvýšení genetické variability. Má obrovský potenciál u nádorových buněk, stejně jako v imunitních reakcích. AS byl

také detekován v KIR molekulách, nicméně stále víme málo o zastoupení různých izoforem nebo o dynamice jejich exprese. Tento projekt si klade za cíl studovat profil izoformy genů KIR u kohorty pacientů po alogenní transplantaci hematopoetických kmenových buněk a sledovat dynamiku jejich exprese.

**Abstract in English**

Allogeneic hematopoietic cell transplantation is a curative treatment for many haematological malignancies. Despite the expansion of the criteria for the optimal donor selection and a great progress in post-transplant therapy, this therapy is burdened with significant morbidity and mortality. Therefore, other parameters are still being sought that can further improve donor selection, but also potentially predict the response of the immune system and react preemptively. NK cells represent a part of non-specific immunity with a critical role in the first three months after transplantation. Their reactivity is regulated by activating and inhibiting signals through a wide spectrum of surface receptors. The most important group of receptors are KIR (Killer immunoglobulin-like receptor), which can be both activating and inhibitory. These are highly polymorphic genes whose polymorphisms can affect NK cell function. However, their variability is not only at the DNA level, but also there are variances in RNA molecule. Within RNA, the so-called alternative splicing (AS) plays a role. AS is a process in which RNA molecules are modified resulting in the formation of several isoforms of this molecule with a consequent effect on the protein structure. Different isoforms of KIR molecules have already been detected, but never in the context of hematopoietic transplants or in a larger group of individuals. To determine the effect of these molecules, it is first necessary to determine their representation in a larger group, and to determine their kinetics. Our previous study suggests that KIR expression is a dynamic process and therefore the question is whether this dynamics is also observed for individual isoforms. These findings will help us to better determine the potential effect of KIR gene isoforms on the NK-associated immune response after allogeneic hematopoietic cell transplantation and, where appropriate, to determine the potential use in predicting NK cell behaviour.

**General project objective in English**

KIR receptors are known for their very high level of gene polymorphism. Different structure of gene can influence the behaviour of KIR receptor affecting the reactivity of NK cells. Moreover, there exist also further modifications which increase variances of KIR structure and function. Alternative splicing is a tool for increasing genetic variability. It has huge potential in tumor cells as well as in the immune reactions. AS have been also detected in KIR molecules but it is still a little known about the representation of different isoforms or about the dynamics of their expression. This project aims to study the profile of KIR genes isoform in cohort of patients undergone allogeneic hematopoietic stem cell transplantation and to monitor the dynamics of NK cells key receptors expression.

Part B - Total funds

**Total eligible costs of the Project from all funding sources (in thousands CZK)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **2025** | **2026** | **2027** | **2028** | **Total** |
| Total Provider subsidy of the Project | 2,298 | 3,475 | 3,747 | 2,971 | **12,491** |
| Support from other public sources (domestic and foreign) - non- investment | 0 | 0 | 0 | 0 | **0** |
| Support from other public sources (domestic and foreign) - investment | 0 | 0 | 0 | 0 | **0** |
| Support from non-public sources (own funds, private subsidies)- non-investment | 0 | 0 | 0 | 0 | **0** |
| Support from non-public sources (own funds, private subsidies)- investment | 0 | 0 | 0 | 0 | **0** |
| Eligible costs from all funding sources | 2,298 | 3,475 | 3,747 | 2,971 | **12,491** |
| The Support intensity | 100,00 % |

**Proportion of research and development types in the project**

|  |  |  |
| --- | --- | --- |
|  | **Eligible costs (in thous. CZK)** | **Share of the project** |
| Basic research | 831 | 6.65 % |
| Applied research | 6,048 | 48.42 % |
| Experimental development | 5,612 | 44.93 % |
| **Total** | **12,491** | **100.00 %** |

**Allocation of recognised costs of the Project (in thousands CZK)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **2025** | **2026** | **2027** | **2028** | **Total** |
| Other operating costs | 1,240 | 1,796 | 2,011 | 1,172 | **6,219** |
| Investment costs | 0 | 0 | 0 | 0 | **0** |
| Personnel costs | 1,058 | 1,679 | 1,736 | 1,799 | **6,272** |
| Eligible costs from all funding sources | 2,298 | 3,475 | 3,747 | 2,971 | **12,491** |
| **of which special-purpose costs** | **2,298** | **3,475** | **3,747** | **2,971** | **12,491** |

Proposer - Part B - Total funds

**Applicant:** XXX

**Proposer:** University Hospital Pilsen

**Total eligible costs of the Project from all funding sources (in thousands CZK)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **2025** | **2026** | **2027** | **2028** | **Total** |
| Total Provider subsidy of the Project | 1,654 | 2,402 | 2,470 | 1,781 | **8,307** |
| Support from other public sources (domestic and foreign) - non- investment | 0 | 0 | 0 | 0 | **0** |
| Support from other public sources (domestic and foreign) - investment | 0 | 0 | 0 | 0 | **0** |
| Support from non-public sources (own funds, private subsidies)- non-investment | 0 | 0 | 0 | 0 | **0** |
| Support from non-public sources (own funds, private subsidies)- investment | 0 | 0 | 0 | 0 | **0** |
| Eligible costs from all funding sources | 1,654 | 2,402 | 2,470 | 1,781 | **8,307** |
| The Support intensity | 100,00 % |

**Total eligible costs of the Project from all funding sources (in thousands CZK)**

|  |  |
| --- | --- |
| Organisation type | Research Organisation |
| I declare that | No cross-border cooperation |
| Research results | Will be publicly disseminated |

**Maximum support intensity**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Eligible costs (in thous. CZK)** | **Share of the project** | **Max. support (in thous. CZK)** | **Max. share of eligible costs** |
| Basic research | 831 | 10.00 % | 831 | 100.00 % |
| Applied research | 2,492 | 30.00 % | 2,492 | 100.00 % |
| Experimental development | 4,984 | 60.00 % | 4,984 | 100.00 % |
| **Total** | **8,307** | **100.00 %** | **8,307** | **100.00 %** |

**Allocation of recognised costs of the Project (in thousands CZK)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **2025** | **2026** | **2027** | **2028** | **Total** |
| Other operating costs | 1,131 | 1,588 | 1,625 | 900 | **5,244** |
| Investment costs | 0 | 0 | 0 | 0 | **0** |
| Personnel costs | 523 | 814 | 845 | 881 | **3,063** |
| Eligible costs from all funding sources | 1,654 | 2,402 | 2,470 | 1,781 | **8,307** |
| **of which special-purpose costs** | **1,654** | **2,402** | **2,470** | **1,781** | **8,307** |

Proposer - Part B - Breakdown of Financial Items This part of the proposal is to be filled in with the total estimated eligible costs of the project

(special-purpose costs + co-financing)!

**Other operating costs (in thousands CZK)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **2025** | **2026** | **2027** | **2028** | **Total** |
| Material costs | 905 | 1,200 | 1,200 | 600 | **3,905** |
| Travel costs | 0 | 40 | 40 | 60 | **140** |
| Costs of other services | 0 | 30 | 60 | 60 | **150** |
| Overhead costs | 226 | 318 | 325 | 180 | **1,049** |
| **Total** | **1,131** | **1,588** | **1,625** | **900** | **5,244** |

**Total personnel costs (in thousands CZK)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **2025** | **2026** | **2027** | **2028** | **Total** |
| Wages - Team | 361 | 561 | 583 | 608 | **2,113** |
| Wages - Others | 27 | 43 | 44 | 46 | **160** |
| Agreements | 0 | 0 | 0 | 0 | **0** |
| Scholarships | 0 | 0 | 0 | 0 | **0** |
| Others | 135 | 210 | 218 | 227 | **790** |
| **Total** | **523** | **814** | **845** | **881** | **3,063** |

**Personnel costs - Applicant and co-workers (in thousands CZK)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Name, surname - job title / description of activities** | **S** | **Year** | **FT share** | **Wage** | **Remuner.** |
| **XXX**Responsibility for project coordination, patient selection, supervision of publication outputs. | N | 2025 | 0.20 | 79 | 0 |
| 2026 | 0.20 | 122 | 0 |
| 2027 | 0.20 | 127 | 0 |
| 2028 | 0.20 | 132 | 0 |
| **Name, surname - job title / description of activities** | **S** | **Year** | **FT share** | **Wage** | **Remuner.** |
| **XXX**Preparation of amplicons and libraries (using long-read sequencing), quality control and sequencing. | N | 2025 | 0.30 | 79 | 0 |
| 2026 | 0.30 | 122 | 0 |
| 2027 | 0.30 | 127 | 0 |
| 2028 | 0.30 | 132 | 0 |
| **Name, surname - job title / description of activities** | **S** | **Year** | **FT share** | **Wage** | **Remuner.** |
| **XXX**isolation of NK cells, qPCR setup for testing the expression of selected isoforms | N | 2025 | 0.20 | 54 | 0 |
| 2026 | 0.20 | 85 | 0 |
| 2027 | 0.20 | 88 | 0 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | 2028 | 0.20 | 92 | 0 |
| **Name, surname - job title / description of activities** | **S** | **Year** | **FT share** | **Wage** | **Remuner.** |
| **XXX**primary analysis of sequencing data and collaboration on pipeline creation | N | 2025 | 0.20 | 56 | 0 |
| 2026 | 0.20 | 88 | 0 |
| 2027 | 0.20 | 91 | 0 |
| 2028 | 0.20 | 95 | 0 |
| **Name, surname - job title / description of activities** | **S** | **Year** | **FT share** | **Wage** | **Remuner.** |
| **XXX**determination of dynamics of isoform by qPCR; library preparation | Y | 2025 | 0.20 | 49 | 0 |
| 2026 | 0.20 | 76 | 0 |
| 2027 | 0.20 | 79 | 0 |
| 2028 | 0.20 | 83 | 0 |
| **Name, surname - job title / description of activities** | **S** | **Year** | **FT share** | **Wage** | **Remuner.** |
| **XXX**monitoring of KIR receptrs by flow cytometry, processing of clinical data | N | 2025 | 0.15 | 44 | 0 |
| 2026 | 0.15 | 68 | 0 |
| 2027 | 0.15 | 71 | 0 |
| 2028 | 0.15 | 74 | 0 |

**Personnel costs - administrative/technical/support staff (in thousands CZK)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Name, surname - job title / description of activities** | **S** | **Year** | **FT share** | **Wage** | **Remuner.** |
| Biobanking of samples, preparation of samples for flow cytometry | N | 2025 | 0.15 | 27 | 0 |
| 2026 | 0.15 | 43 | 0 |
| 2027 | 0.15 | 44 | 0 |
| 2028 | 0.15 | 46 | 0 |

**Personnel costs - Social and health insurance/Other (in thousands CZK)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Type of cost** | **2025** | **2026** | **2027** | **2028** | **Total** |
| Social and health insurance, social fund | 135 | 210 | 218 | 227 | **790** |

Proposer - Part B - Justification of financial items

**Specification and justification of costs for 2025 Material costs**

A total of 905K CZK is planned for the first year of the solution, which is the cost of reagents and material for the solution of the project. Reagents and material for cell preparation (20 patients and 3 time points) - 95K: - NK cell isolation kit+columns, RNA isolation (RNeasy Mini Kit); Flow cytometry (20 patients and 3 time points) - 205K - antibodies (17 primary antibodies + 7 isotype controls, sheath reagent, standards); Detection of isoforms (20 patients) - 565K - unique third-generation sequencing technology, the PacBio system for reading entire molecules (long sections), specifically reagents and material for the preparation of barcoding amplicons, libraries and the sequencing itself - primers for amplification and pooling (barcoding, HPLC quality, phosphorylated), SMRTbell prep kit 3.0, SMRT Cell Oil, SMRT Cell 8M Tray, Sequel II 2.0 Sequencing Kit, Sequel Pipette Tips, Sample Plate, Sequel Mixing Plate, Binding Kit 3.2 and Cleaning Beads, Barcode Overlap Adapter Kit, SMRTbell Barcode Adapter Prep Kit, set for preparing templates HiFi express

2.0. Monitoring of isoform expression (20 patients and 3 time points) - 40K - qPCR reagents (labeled primers, reaction mixtures, PCR plastic) The increase in costs in subsequent years is related to the analysis of a larger number of samples than in the first year.

**Travel costs**

Travel expenses will be drawn in direct connection with the solution of the project, including working stays and trips made in connection with active participation in conferences (congresses). Active presentation of project results at domestic and foreign professional forums are planned only after the 1st year of the project.

**Costs of other services**

Not required for the first year. The increase in other years is related to the payment of conference fees, consulting activities, publication costs, prints etc.

**Overhead costs**

Overhead costs - 20% of other operating costs - consumption of energy, water, sewage, etc. - in the first year 226 thousand. CZK.

**Personnel costs**

Personal costs are determined on the basis of the usual salary classification of the given employees at the FN Pilsen, including variable components, compensation for recuperative leave and compensation for temporary incapacity for work of the proposer and members of the solution team, which will correspond to their working capacity spent on solving the grant project in the individual years of the solution . Employees will have the specified monthly working hours agreed with FN Plzeň. XXX (principal investigator, director of the department, MD, PhD, part-time 0.2) - responsible for project coordination, inclusion of patients in the study, coordination of recruitment and clinical interpretation of data. XXX (PhD student, MSc, part-time 0.3)

- performs preparation of long-read libraries, quality control and sequencing XXX (senior researcher, MSc, PhD part-time 0.2) - responsible for setting up sequencing methods, cooperates in data analysis. XXX (junior researcher, MSc PhD, part-time 0.2) isolates NK cells and sets up qPCR analyses. XXX (PhD student, MSc, part-time 0.2) - performs sequencing analysis. XXX (junior researcher, MD, part-time 0.15) - responsible for immunophenotyping. The team also includes a laboratory assistant who helps with the biobanking of samples - XXX. Statutory contributions 34.8% - social and health insurance contributions 33.8% + 1% FKSP.

**Investment costs**

not required

Proposer - Part C - Bibliography

**Applicant:** XXX

**Proposer:** University Hospital Pilsen

**Full bibliographic data regarding the most important results of scientific and research activity as defined in the currently valid Methodology for Evaluating the Results of Research and Development**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Result** | **Code** | **Database** | **Citations** | **IF** |
| 1 | XXX, et al. Ibrutinib as Initial Therapy for Patients with Chronic Lymphocytic Leukemia. N Engl J Med. 2015;373(25):2425-2437. doi:10.1056/NEJMoa1509388 | Jimp | WoS | 1182 | 158.500 |
| 2 | XXX. The impact of cytomegalovirus disease and asymptomatic infection on acute renal allograft rejection. J Clin Virol. 2006;36(2):146-151. doi:10.1016/j.jcv.2006.01.015 | Jimp | WoS | 67 | 8.800 |
| 3 | XXX expression levels define permissible mismatches in hematopoietic cell transplantation. Blood.2014;124(26):3996-4003. doi:10.1182/blood-2014-09-599969 | Jimp | WoS | 115 | 20.300 |
| 4 | XXX, intermediate and well-documented HLA alleles in world populations: CIWD version 3.0.0. HLA. 2020;95(6):516-531. doi:10.1111/tan.13811 | Jimp | WoS | 85 | 8.000 |
| 5 | XXX conditioning with fludarabine and busulfan versus fludarabine and melphalan for patients with acute myeloid leukemia: a report from the Acute Leukemia Working Party of the European Group for Blood and Marrow Transplantation. Cancer. 2015;121(7):1048-1055. doi:10.1002/cncr.29163 | Jimp | WoS | 80 | 4.800 |

**Contribution to the field**

XXX is a co-founder of the Czech National Marrow Donors Registry (CNMDR) and has been the head of the HLA laboratory since its establishment, and later the head physician. He pushed for the development of transplantology in the Czech Republic and is one of the biggest experts in this field. Since 2012, he has been the head of the Hematology-Oncology Department of University Hospital Pilsen (the center with the hughest number of the total hematopoietic stem cell transplantations). Thanks to his work, this department was the first in Czech Republic to be accredited by JACIE, CNMDR was accredited by WMDA and EFI. Thanks to his previous research work in the area of KIR genotyping, this has become part of the CNMDR offer as well as genotyping of MICA and MICB molecules. He is regularly invited to all important symposia as a speaker. He is a member of the committee of the Czech Hematology Society.

**Total number of results defined in the currently valid Methodology for Evaluating for Results of Research and Development for last 5 years**

|  |  |
| --- | --- |
| Jimp - Article in professional journal, impacted | 44 |

|  |  |
| --- | --- |
| Jsc - Article in professional journal, included in Scopus database | 7 |
| N - Certified methodology and procedure | 1 |

**Total number of citations and WoK h-index**

|  |  |
| --- | --- |
| Number of citations (excluding self-citations) for all papers according to WoS | 2912 |
| h-index according to Web of Knowledge | 23.00 |

**History of international cooperation**

XXX is an active member of EBMT (European Society for Blood and Marrow Transplantation) and was a co-president of annual meeting in 2022. His participation in working parties - WP (Chronic malignancies WP, Acute leukemia WP) led to several joint publications where also Czech data are included. He also is an active auditor for the JACIE.

Proposer - Part D - Information on Other Projects

**Applicant:** XXX

**Proposer:** University Hospital Pilsen

**Running projects**

I don't really have any running projects

**Proposed projects**

|  |
| --- |
| **NW25-03-00335** - Heterogeneity in acute myeloid leukemia at the single cell level: Uncovering diversity and commonalities between patients |
| **Provider** | MZ0 |
| **Programme** | Program na podporu zdravotnického aplikovaného výzkumu na léta 2024 – 2030 |
| **Field OECD** | 30204 - Oncology |
| **Panel** | 05 - Immune system disorders and infectious diseases |
| **Start date** | 5/1/2025 | **End date** | 12/31/2028 | **Spec.-purp. Support** | 2,454 thous. CZK |
| **Beneficiary** | University Hospital Pilsen |
| **Role in prj.** | Co-applicant | **Full-time** | 0.15 | **Agreement** |  |
| **Relationship to the submitted proposal:** not related to proposed project |

**Completed projects**

|  |
| --- |
| **NV18-03-00277** - Míra polymorfizmů v NK receptorech a jejich ligandech v rámci české populace (eng: Polymorphisms in the NK cells receptors and their ligands within the Czech population) |
| **Provider** | MZ0 - Ministerstvo zdravotnictví |
| **Programme** | NV - Program na podporu zdravotnického aplikovaného výzkumu a vývoje na léta 2015 – 2022 |
| **Field OECD** | 30204 - Oncology |
| **Panel** | 03 - Malignancy |
| **Start date** | 5/1/2018 | **End date** | 12/31/2021 | **Spec.-purp. Support** | 11,615 thous. CZK |
| **Beneficiary** | Fakultní nemocnice Plzeň (eng: University Hospital Pilsen) |
| **Role in prj.** | Applicant | **Full-time** | 0.20 | **Agreement** |  |
| **Evaluation** | Excellent (V/E/A) |
| **Relationship to the submitted proposal:** follow-up project deepening the obtained results |

1. Co-proposer - Part B - Total funds

**Co-applicant:** XXX

**Co-proposer:** University of West Bohemia/Faculty of Applied Sciences University of West Bohemia

**Total eligible costs of the Project from all funding sources (in thousands CZK)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **2025** | **2026** | **2027** | **2028** | **Total** |
| Total Provider subsidy of the Project | 644 | 1,073 | 1,277 | 1,190 | **4,184** |
| Support from other public sources (domestic and foreign) - non- investment | 0 | 0 | 0 | 0 | **0** |
| Support from other public sources (domestic and foreign) - investment | 0 | 0 | 0 | 0 | **0** |
| Support from non-public sources (own funds, private subsidies)- non-investment | 0 | 0 | 0 | 0 | **0** |
| Support from non-public sources (own funds, private subsidies)- investment | 0 | 0 | 0 | 0 | **0** |
| Eligible costs from all funding sources | 644 | 1,073 | 1,277 | 1,190 | **4,184** |
| The Support intensity | 100,00 % |

**Total eligible costs of the Project from all funding sources (in thousands CZK)**

|  |  |
| --- | --- |
| Organisation type | Research Organisation |
| I declare that | No cross-border cooperation |
| Research results | Will be publicly disseminated |

**Maximum support intensity**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Eligible costs (in thous. CZK)** | **Share of the project** | **Max. support (in thous. CZK)** | **Max. share of eligible costs** |
| Basic research | 0 | 0.00 % | 0 | 100.00 % |
| Applied research | 3,556 | 84.99 % | 3,556 | 100.00 % |
| Experimental development | 628 | 15.01 % | 628 | 100.00 % |
| **Total** | **4,184** | **100.00 %** | **4,184** | **100.00 %** |

**Allocation of recognised costs of the Project (in thousands CZK)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **2025** | **2026** | **2027** | **2028** | **Total** |
| Other operating costs | 109 | 208 | 386 | 272 | **975** |
| Investment costs | 0 | 0 | 0 | 0 | **0** |
| Personnel costs | 535 | 865 | 891 | 918 | **3,209** |
| Eligible costs from all funding sources | 644 | 1,073 | 1,277 | 1,190 | **4,184** |
| **of which special-purpose costs** | **644** | **1,073** | **1,277** | **1,190** | **4,184** |

1. Co-proposer - Part B - Breakdown of Financial Items This part of the proposal is to be filled in with the total estimated eligible costs of the project

(special-purpose costs + co-financing)!

**Other operating costs (in thousands CZK)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **2025** | **2026** | **2027** | **2028** | **Total** |
| Material costs | 0 | 0 | 0 | 0 | **0** |
| Travel costs | 0 | 20 | 75 | 50 | **145** |
| Costs of other services | 2 | 9 | 98 | 24 | **133** |
| Overhead costs | 107 | 179 | 213 | 198 | **697** |
| **Total** | **109** | **208** | **386** | **272** | **975** |

**Total personnel costs (in thousands CZK)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **2025** | **2026** | **2027** | **2028** | **Total** |
| Wages - Team | 398 | 643 | 662 | 682 | **2,385** |
| Wages - Others | 0 | 0 | 0 | 0 | **0** |
| Agreements | 0 | 0 | 0 | 0 | **0** |
| Scholarships | 0 | 0 | 0 | 0 | **0** |
| Others | 137 | 222 | 229 | 236 | **824** |
| **Total** | **535** | **865** | **891** | **918** | **3,209** |

**Personnel costs - Co-applicant and co-workers (in thousands CZK)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Name, surname - job title / description of activities** | **S** | **Year** | **FT share** | **Wage** | **Remuner.** |
| **XXX**- responsibility for achieving objectives and coordination of the UWB team, ensuring consistency in communication with the applicant, responsibility for developing methodologies and models for the analytical pipeline and data analysis | N | 2025 | 0.25 | 116 | 0 |
| 2026 | 0.25 | 179 | 0 |
| 2027 | 0.25 | 185 | 0 |
| 2028 | 0.25 | 190 | 0 |
| **Name, surname - job title / description of activities** | **S** | **Year** | **FT share** | **Wage** | **Remuner.** |
| **XXX**- responsibility for technical solutions within data management and pipeline for specific KIR isoforms, participation in the design of methodologies and integration mechanisms, data analysis and interpretation of results | N | 2025 | 0.30 | 120 | 0 |
| 2026 | 0.30 | 186 | 0 |
| 2027 | 0.30 | 191 | 0 |
| 2028 | 0.30 | 197 | 0 |
| **Name, surname - job title / description of activities** | **S** | **Year** | **FT share** | **Wage** | **Remuner.** |
| **XXX**- participation in data management, pipeline design and implementation, integration mechanisms and data analysis | N | 2025 | 0.25 | 90 | 0 |
| 2026 | 0.25 | 139 | 0 |
| 2027 | 0.25 | 143 | 0 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | 2028 | 0.25 | 148 | 0 |
| **Name, surname - job title / description of activities** | **S** | **Year** | **FT share** | **Wage** | **Remuner.** |
| **XXX**- participation in data pre-processing, data analysis, development of methodologies and models, pipeline implementation and dissemination of results | Y | 2025 | 0.20 | 72 | 0 |
| 2026 | 0.25 | 139 | 0 |
| 2027 | 0.25 | 143 | 0 |
| 2028 | 0.25 | 147 | 0 |

**Personnel costs - Social and health insurance/Other (in thousands CZK)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Type of cost** | **2025** | **2026** | **2027** | **2028** | **Total** |
| Social and health insurance, social fund | 137 | 222 | 229 | 236 | **824** |

 1. Co-proposer - Part B - Justification of financial items

**Specification and justification of costs for 2025 Material costs**

Not required.

**Travel costs**

In the first year of the project, no business trips related to the project are planned. In subsequent years, business trips will be undertaken to domestic or international conferences held by WMDA or other collaborating organizations. These trips will always involve the active participation of research staff employed on the project. Expenses for transportation, accommodation, meals, travel insurance, and potentially other travel- related costs will be covered.

**Costs of other services**

In 2025, the budget item will cover the statutory employer's liability insurance at a rate of 0.42% of gross wages, amounting to approximately 2,000 CZK. This statutory insurance will be applied in all subsequent years of the project. From 2026 to 2028, the financial item will include fees for conference participation and the publication fee for a professional article in 2027.

**Overhead costs**

The estimated amount of additional (overhead) costs for the year 2025 is 107,000 CZK. The planned additional costs represent overheads incurred directly in connection with the implementation of the project. These include costs of the rectorate's service units (financial department, human resources department, legal department, operations and services, project center, etc.) and costs for energy and water. The University of West Bohemia uses a certified 'full cost' methodology for calculating overheads for projects. Additional costs will be applied up to 20% of the total direct non-investment costs.

**Personnel costs**

In the personnel costs, the salaries of research staff, statutory contributions to health and social insurance at a rate of 33.8%, and costs for the creation of a social fund as specified by the Collective Agreement are calculated. The salary levels are set in accordance with the current Salary Regulations of the University of West Bohemia (UWB). They reflect the qualification level of the planned research activities. The level of involvement of employees in the project is taken into account for each year. Employees will have the specified monthly employment contracts at UWB. The project will employ: • XXX (0.25 FTE) as co-proposer, responsible for achieving objectives and coordinating the UWB team, ensuring consistency in communication with the principal investigator, responsible for developing methodologies and models for the analytical pipeline and data analysis, interpretation, and dissemination of results. • XXX (0.3 FTE) responsible for technical solutions within data management and the analysis pipeline of expression and specific KIR isoforms, will contribute to the design of methodologies and integration mechanisms, analyses, and interpretation of results. • Ing. Filip Jani (0.25 FTE) will participate in data management, design and implementation of the pipeline, integration mechanisms, and data analyses. • XXX (0.2 FTE) will participate in data preprocessing, data analyses, development of methodologies and models, and pipeline implementation.

**Investment costs**

Not required.

1. Co-proposer - Part C - Bibliography

**Co-applicant:** XXX

**Co-proposer:** University of West Bohemia/Faculty of Applied Sciences University of West Bohemia

**Full bibliographic data regarding the most important results of scientific and research activity as defined in the currently valid Methodology for Evaluating the Results of Research and Development**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Result** | **Code** | **Database** | **Citations** | **IF** |
| 1 | XXX, et al. Design and implementation of the technical solution of the information system optimization. Research report and support libraries. UWB, 2022. | V | RIV | 0 | 0.000 |
| 2 | XXX, et al. Common, intermediate and well-documented HLA alleles in world populations: CIWD version 3.0.0. HLA. 2020;95(6):516-531. DOI 10.1111/tan.13811 | Jimp | WoS | 85 | 8.000 |
| 3 | XXX Modular information system for streamlining the donor registry. UWB, deployment into production in clinical practice in 2019. | Z | RIV | 0 | 0.000 |
| 4 | XXX, et al. Clinical decision support information system for optimization within the verification process. Prototype system solution for clinical deployment. UWB, 2017. | G | RIV | 0 | 0.000 |
| 5 | XXX scalable method for efficient stem cell donor HLA genotype match determination.Certified methodology, subsequently integrated into information system. UWB, 2014. | N | RIV | 0 | 0.000 |

**Contribution to the field**

XXX is Clinical data science group leader in NTIS R&D centre with expert knowledge within the application to haemato-oncology. Her major contribution in the field is primarily of a technical application nature, specifically data science tools (softwares, support libraries etc.) and design and implementation of information technology applications for decision support and information systems for clinical practice (1x certified methodology, 3x semi-operation, 3x prototype solutions and other 16 tools). As part of several subsequent applied research projects, long-term contract research with the Czech National Marrow Donor Registry, and also within World Marrow Donor Association cooperation, she contributed to the creation of processes, algorithms, models and tools for genetic data analysis and for finding and verifying potential bone marrow donors in the hematopoietic stem cell transplantation and also the necessary infrastructure for advanced data management.

**Total number of results defined in the currently valid Methodology for Evaluating for Results of Research and Development for last 5 years**

|  |  |
| --- | --- |
| Jimp - Article in professional journal, impacted | 5 |
| Z - Pilot run, verified technology | 1 |
| G - Prototype, functional sample | 1 |

|  |  |
| --- | --- |
| R - Software | 3 |
| Jimp2 - Article in professional journal, impacted | 1 |
| Jsc - Article in professional journal, included in Scopus database | 1 |
| V - Research report containing information classified pursuant to special legislation | 2 |
| W - Workshop organization | 1 |
| O - Other results | 7 |

**Total number of citations and WoK h-index**

|  |  |
| --- | --- |
| Number of citations (excluding self-citations) for all papers according to WoS | 102 |
| h-index according to Web of Knowledge | 3.00 |

**History of international cooperation**

XXX is vice-chair of ELIXIR-CZ (European Life-Science Infrastructure for Biological Information - Czech node) and as a WMDA ( (World Marrow Donor Association) member she is active within the WMDA community - specifically: member of IT working group support for WMDA Accreditation, Technical Advisory Group for Match-Connect Steering Committee and also a member of Bioinformatics and Innovation Committee which also led to joint publications. Currently is a part of (patient-donor algorithms) Matching Validation project. Further international cooperation is mainly in the knowledge transfer of data science in the field of hematology and immunotherapy (organization of professional workshops for biologists and clinicians, and summer schools for Ph.D. students and postdoctoral researchers).

 1. Co-proposer - Part D - Information on Other Projects

**Co-applicant:** XXX

**Co-proposer:** University of West Bohemia/Faculty of Applied Sciences University of West Bohemia

**Running projects**

|  |
| --- |
| **LM2023055** - Česká národní infrastruktura pro biologická data (eng: Czech National Infrastructure for Biological Data) |
| **Provider** | MSM - Ministerstvo školství, mládeže a tělovýchovy |
| **Programme** | LM - Projekty velkých výzkumných infrastruktur |
| **Field OECD** | 10602 - Biology (theoretical, mathematical, thermal, cryobiology, biological rhythm), Evolutionary biology |
| **Start date** | 1/1/2023 | **End date** | 12/31/2026 | **Spec.-purp. Support** | 7,840 thous. CZK |
| **Beneficiary** | Ústav organické chemie a biochemie AV ČR, v. v. i. (eng: Institute of Organic Chemistry and Biochemistry of the CAS) |
| **Role in prj.** | Co-applicant | **Full-time** | 0.10 | **Agreement** |  |
| **Relationship to the submitted proposal:** not related to proposed project, it is an infrastructure project |

**Proposed projects**

|  |
| --- |
| **CZ.02.01.01/00/23\_020/0008515** - AIM - Technologická podpora personalizované léčby nádorových onemocnění s využitím inteligentních metod analýzy dat a modelování (eng: AIM - Technological support for personalized cancer treatment using intelligent methods of data analysis and modeling) |
| **Provider** | MSM |
| **Programme** | Operační program Jan Amos Komenský |
| **Field OECD** | 10201 - Computer sciences, information science, bioinformathics (hardware development to be 2.2, social aspect to be 5.8) |
| **Start date** | 1/1/2025 | **End date** | 12/31/2028 | **Spec.-purp. Support** | 70,064 thous. CZK |
| **Beneficiary** | Západočeská univerzita v Plzni (eng: University of West Bohemia) |
| **Role in prj.** | Team Member | **Full-time** | 0.50 | **Agreement** |  |
| **Relationship to the submitted proposal:** the involvement of team members of the proposed project; the HLA-KIR interaction is emphasized in this project but with regard to the content of the submited project - the solution of KIR isoforms it is not related to proposed project. |

**Completed projects**

|  |
| --- |
| **NV18-03-00277** - Míra polymorfizmů v NK receptorech a jejich ligandech v rámci české populace (eng: Polymorphisms in the NK cells receptors and their ligands within the Czech population) |
| **Provider** | MZ0 - Ministerstvo zdravotnictví |
| **Programme** | NV - Program na podporu zdravotnického aplikovaného výzkumu a vývoje na léta 2015 – 2022 |
| **Field OECD** | 30204 - Oncology |

|  |  |
| --- | --- |
| **Panel** | 03 - Malignancy |
| **Start date** | 5/1/2018 | **End date** | 12/31/2021 | **Spec.-purp. Support** | 3,629 thous. CZK |
| **Beneficiary** | Fakultní nemocnice Plzeň (eng: University Hospital Pilsen) |
| **Role in prj.** | Co-applicant | **Full-time** | 0.25 | **Agreement** |  |
| **Evaluation** | Excellent (V/E/A) |
| **Relationship to the submitted proposal:** follow-up project deepening the obtained results |

|  |
| --- |
| **EF17\_048/0007267** - VaV inteligentních komponent pokročilých technologií pro plzeňskou metropolitní oblast (eng: Research and Development of Intelligent Components of Advanced Technologies for the Pilsen Metropolitan Area (InteCom))) |
| **Provider** | MSM - Ministerstvo školství, mládeže a tělovýchovy |
| **Programme** | EF - Operační program výzkum, vývoj, vzdělávání |
| **Field OECD** | 20204 - Robotics and automatic control |
| **Start date** | 1/1/2018 | **End date** | 2/28/2023 | **Spec.-purp. Support** | 104,622 thous. CZK |
| **Beneficiary** | Západočeská univerzita v Plzni / Fakulta aplikovaných věd (eng: University of West Bohemia / Faculty of Applied Sciences) |
| **Role in prj.** | Team Member | **Full-time** | 0.18 | **Agreement** |  |
| **Evaluation** | Not yet evaluated |
| **Relationship to the submitted proposal:** not related to the proposed project, it is a basic research project for UWB - Faculty of Applied Sciences |

|  |
| --- |
| **LM2018131** - Česká národní infrastruktura pro biologická data (eng: Czech National Infrastructure for Biological Data) |
| **Provider** | MSM - Ministerstvo školství, mládeže a tělovýchovy |
| **Programme** | LM - Projekty velkých výzkumných infrastruktur |
| **Field OECD** | 10602 - Biology (theoretical, mathematical, thermal, cryobiology, biological rhythm), Evolutionary biology |
| **Start date** | 1/1/2020 | **End date** | 12/31/2022 | **Spec.-purp. Support** | 4,904 thous. CZK |
| **Beneficiary** | Ústav organické chemie a biochemie AV ČR, v. v. i. (eng: Institute of Organic Chemistry and Biochemistry of the CAS) |
| **Role in prj.** | Co-applicant | **Full-time** | 0.35 | **Agreement** |  |
| **Evaluation** | Excellent (V/E/A) |
| **Relationship to the submitted proposal:** not related to proposed project, it was an infrastructure project |

Attachments

**Annexes attached to the project proposal**

|  |  |  |  |
| --- | --- | --- | --- |
| **Type** | **File** | **Size** | **ID** |
| Curriculum vitae | CV\_XXX\_2024.pdf | 223kB | 191,549 |
| Curriculum vitae | CV\_JXXX\_2024.pdf | 586kB | 191,636 |
| Project description | C1\_XXX\_2025\_Final.pdf | 688kB | 196,108 |
| Opinion of the ethics committee | stanovisko EK ze dne 6.6.2024 - čj. 156- 24.pdf | 426kB | 193,766 |
| Patient's informed consent | INFO souhlas\_KIR-AS.pdf | 145kB | 193,767 |
| Unsigned draft cooperation contract between the Applicant (Beneficiary) and the proposed other Participants | SMLOUVA O SPOLUPRÁCI.pdf | 368kB | 193,768 |

Statement

**Statement**

By submitting a project proposal, the proposer confirms they have read the tender documentation and undertakes to comply with its provisions, in particular that:

1. the applicant is in an employment relationship with the proposer, or this relationship will be established no later than the date of the start of the project;
2. they undertaketo fulfil all obligations of the beneficiary arising from Act No. 130/2002 Coll., the tender documentation and the concluded contract or the issued decision on the provision of support;
3. they ensure that the investigatorfulfils all his/her obligations after the conclusion of the project support contract, in particular to be responsible for the professional level of the project solution; if the situation arises that conditions on the part of the investigatoror the beneficiary make it impossible for the investigatorto continue the project solution within the proposed timeframe and if the project is not terminated, the beneficiary shall ensure, with the consent of the provider, another investigator, the continuation of the project solution and its completion in accordance with the concluded contract;
4. all information provided in the project proposal is true, complete and unadulterated and is identical to the information entered into the project proposal using the application, and that the project proposal has been prepared in accordance with the tender documentation;
5. all co-proposers, the applicant, the co-applicant and other collaborators mentioned in the project proposal have been informed of the substantive content of the project proposal, the financial requirements contained therein and the tender documentation;
6. prior to submitting the project proposal, secure the consent of the above-mentioned persons to participate in the project as described in the project proposal;
7. they have not accepted, are not accepting, and will not accept support from another source for another project with the same or similar topic;
8. the content of a project proposal involving the same applicant or co-applicant in other grant or program projects is different from this project proposal and the proposed scopes of work will allow the applicant or co-applicant to address all of their projects;
9. they agree that the data provided in the project proposal will be used for the internal use of the provider and published to the extent provided for by Act No. 130/2002 Coll. and the tender documentation;
10. in the event of the conclusion of a contract or the issuance of a decision on the provision of support for the project, the project will be governed by the terms and conditions for the project set out in the tender documentation;
11. if the recipient or another participant in the project acts as a research organization, they will use the dedicated support only for non-economic activities specified in point 19 of the Framework for State Aid for Research, Development and Innovation;
12. if the nature of the project requires it, the relevant authorizations under a specific legal regulation are attached.

The proposer also confirms that the above conditions have been met and that the information in the project proposal has been checked for completeness and accuracy.

The provider provides a checklist to help you complete the application. If the application does not comply with the requirements in the checklist ([Checklist-2024.pdf](https://mzd.gov.cz/wp-content/uploads/2024/05/Checklist-2024.pdf), [Checklist-2024-EN.pdf](https://mzd.gov.cz/wp-content/uploads/2024/05/Checklist-2024-EN.pdf)), the application will either not be accepted for the competition or will be excluded from the competition due to formal errors.

Only the last version of the project proposal that is received in the AZV mailbox by the regular deadline will be accepted for the evaluation of the competition.