

REPUBLIC OF SLOVENIA MINISTRY OF HIGHER EDUCATION, SCIENCE AND INNOVATION



MSCA Marie Skłodowska-Curie Actions

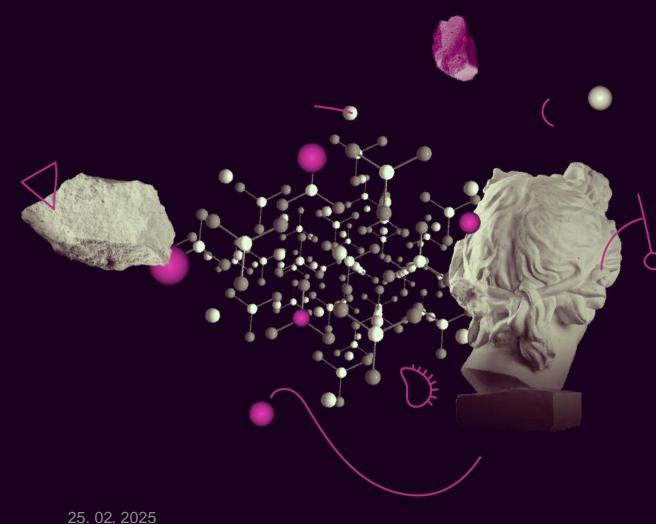
Developing talents, advancing research

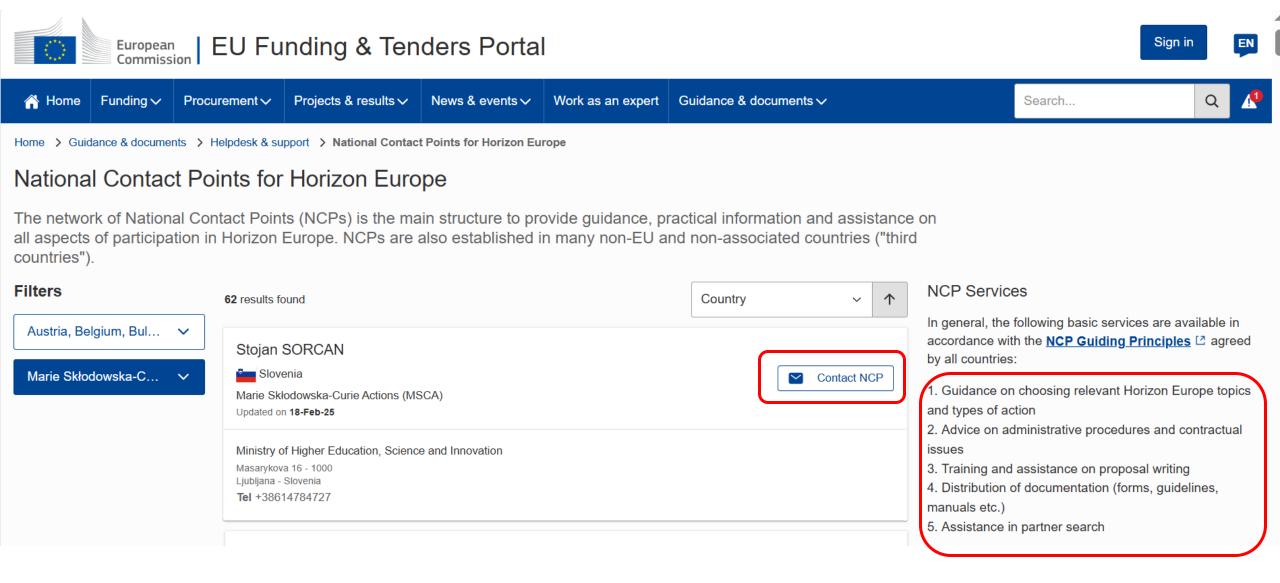




OECI-Academy WEBINAR 1 February 20, 2025 from 2 pm to 5 pm CET

dr. Stojan Sorčan, NCP MSCA







MSCA

Marie Skłodowska-Curie Actions

Developing talents, advancing research

25.02.2025

AGENDA MSCA Postdoctoral Fellowships (PF)

- 1. MSCA as a part of **HORIZON EUROPE**
- 2. Main principles of the MSCA
- 3. MSCA PF key elements
 - Eligibility and budget
- 4. Proposal structure
- 5. Award criteria
 - Excellence, Impact, Implementation
- 6. Supporting materials
- 7. Looking for partners (host, secondment, placement)



THE EU RESEARCH & INNOVATION PROGRAMME 2021 - 2027

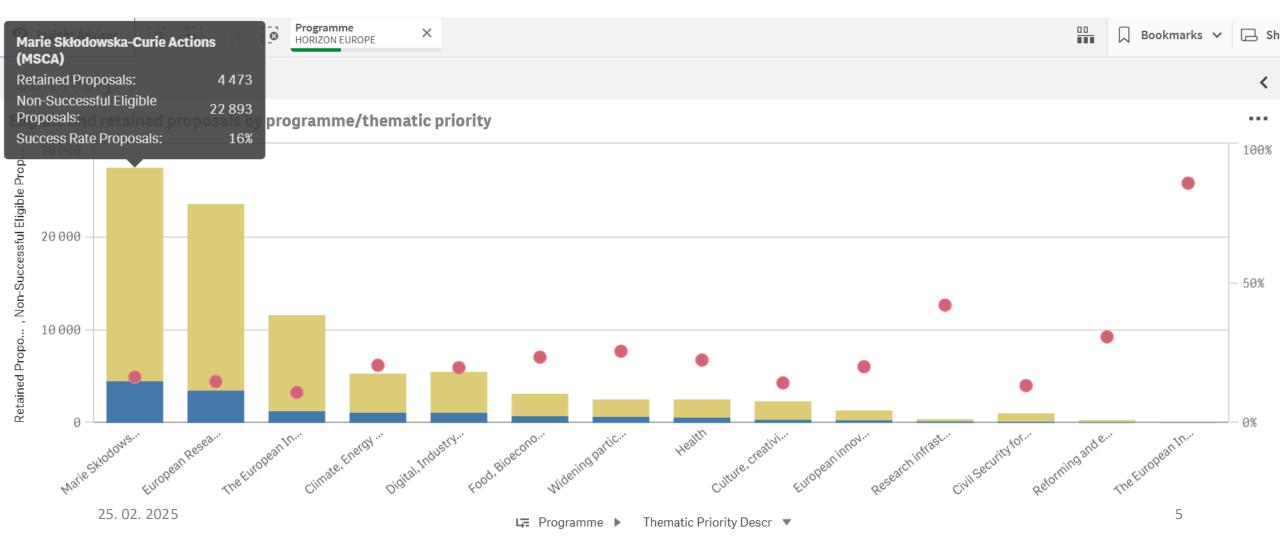




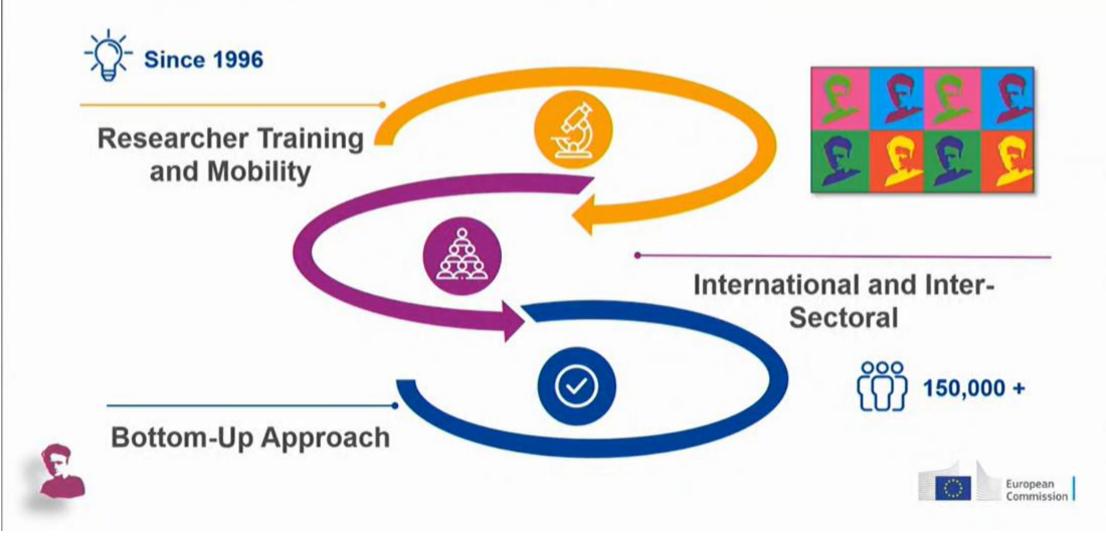




Eligible and retained proposals by Horizon Europe thematic priority

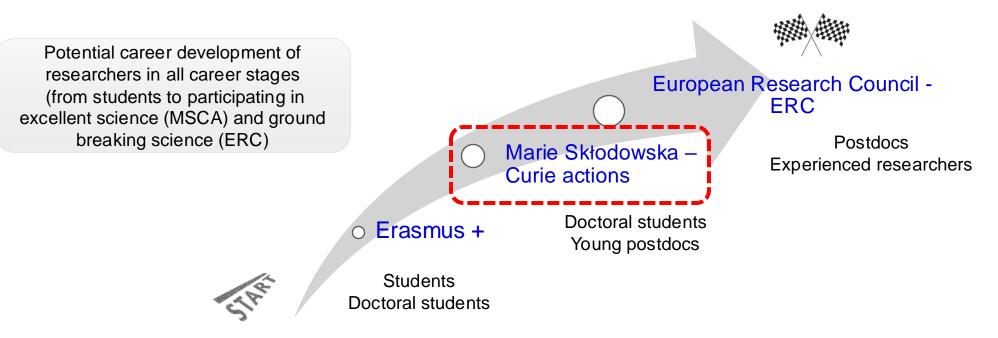


The Marie Skłodowska-Curie Actions



Marie Skłodowska-Curie actions





EU's reference programme for doctoral and postdoctoral training, contributing to:

- A highly skilled research-based human capital able to detect and tackle upcoming challenges, communicate scientific evidence to policy-makers and the public, and work across disciplines
- Develop excellent doctoral programmes enhancing the global attractiveness and visibility of institutions involved in them
- Provide researchers with skills needed in the labour market, to innovate and to convert knowledge and ideas into products and services for economic and social benefit
- ✓ Promote the EU's global attractiveness for talents

MSCA: a world reference for research and^{25, 02, 2025} ing



Attractive and inclusive opportunities for researchers/research staff of any nationality at every stage of their careers





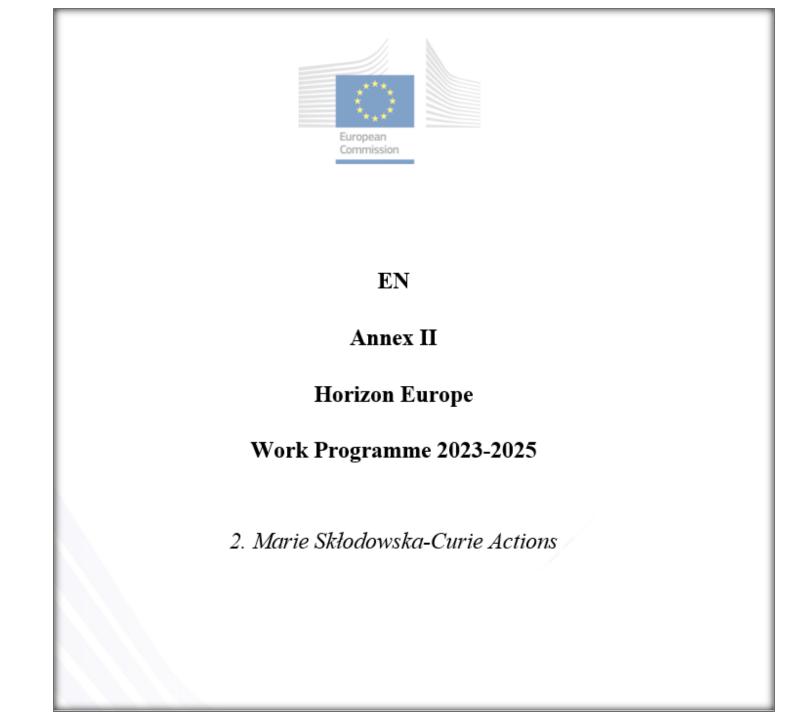
THE MSCA PROMOTE EXCELLENCE AND SET STANDARDS FOR HIGH-QUALITY RESEARCHER EDUCATION AND TRAINING IN LINE WITH THE EUROPEAN CHARTER FOR RESEARCHERS...

2

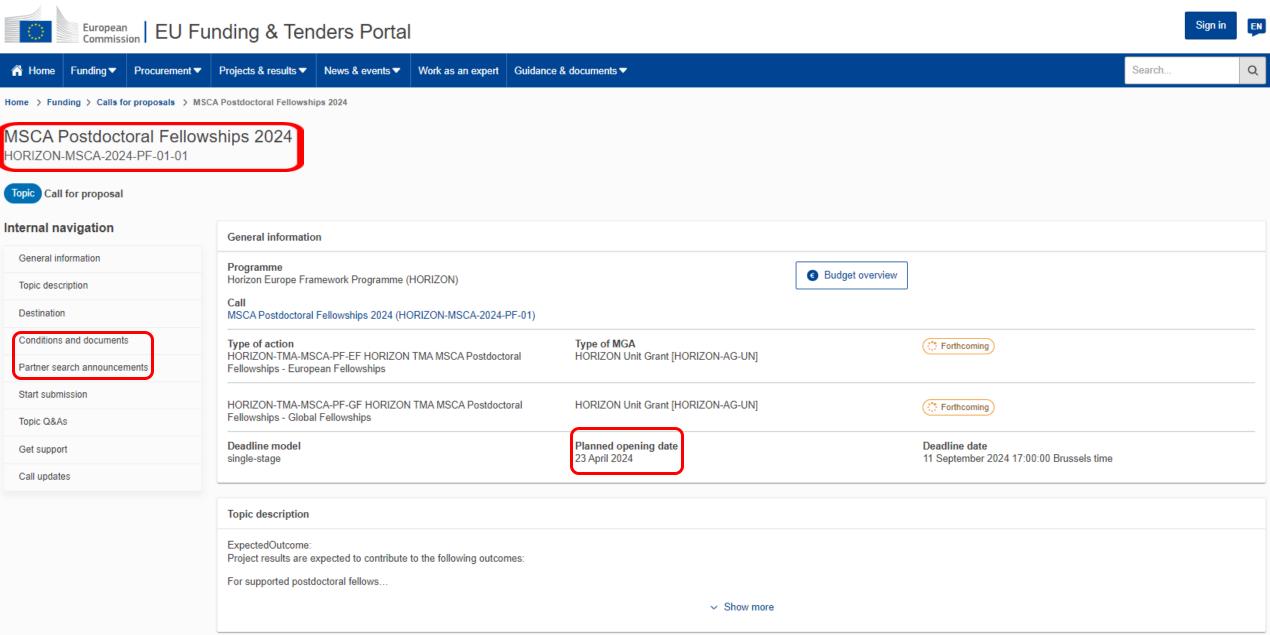
MSCA Call Opening and Deadline 2025,

Indicative budget overall/per person-month

Postdoctoral Fellowships	Doctoral Networks	Staff Exchange	COFUND	MSCA and CITIZENS
8 May – 10 Sept 2025	28 May – 25 Nov 2025	27 Mar – 8 Oct 2025	23 Jan – 24 Jun 2025	17 Jun – 22 Oct 2025
404,29 mio EUR	597,8 mio EUR	97,71 mio EUR	105,56 mio EUR	16,25 mio EUR
per person-month 9.010 EUR	per person-month 8.180 EUR	per person-month 5.010 EUR	per person-month DP = 3.300 EUR + ben. PP = 4.700 EUR + ben.	









Marie Skłodowska-Curie Actions

Developing talents, advancing research

6 steps to prepare your application

1. Get familiar with how funding works

2. Make sure you can apply

3. Find a host organisation and supervisor

4. Start drafting your application

5. <u>Check your application with the experts</u>

6. <u>Send your application</u>

Useful documents

Official documents:

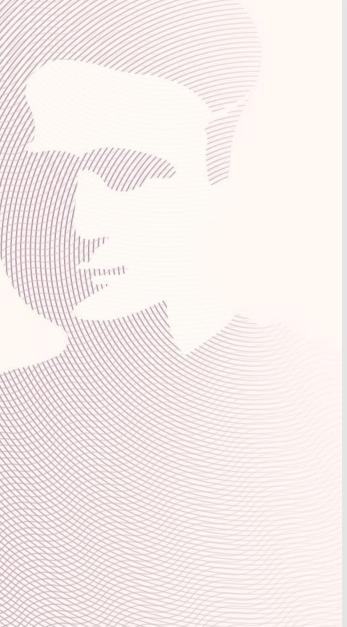
- Guide for Applicants
- MSCA Work programme 2023-2024
- Funding & Tender Opportunities Portal Online manual
- MSCA Guidelines on supervision
- MSCA Green Charter

Unofficial documents:

- MSCA-NET Handbook
- + materials from trainings by your NCP or the project office of your host organisation











Horizon Europe Programme

Guide for Applicants

Marie Skłodowska-Curie Actions – Postdoctoral Fellowships (PF)

Version 3.0 - 2024 19/04/2024

Disclaimer

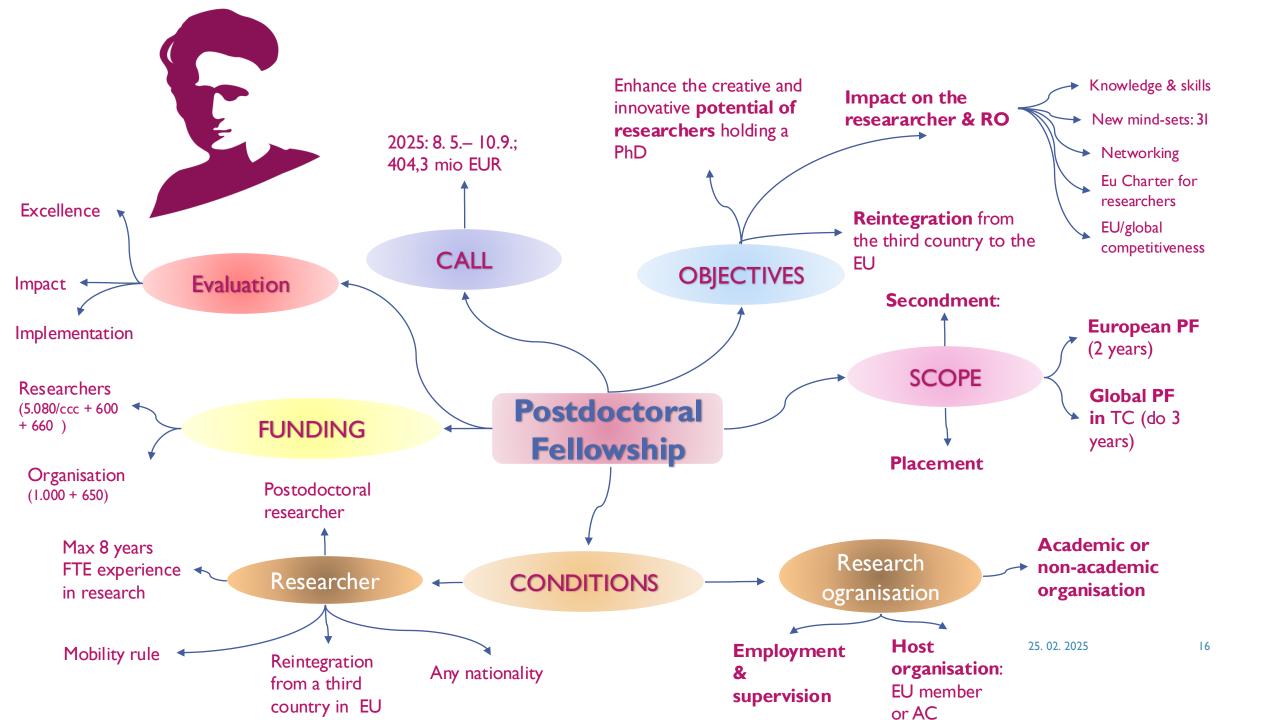
This guide aims to support potential applicants to the PF 2024 call. It is provided for information purposes only and is not intended to replace consultation of any applicable legal sources. Neither the European Commission nor the European Research Executive Agency (or any person acting on their behalf) can be held responsible for the use made of this guidance document. Note that the guidance provided in the Annotated Model Grant Agreement shall prevail in case of discrepancies.



U, permission



© European Union 2021 Unless otherwise noted the re may need to be sought direct



Rules in a nutshell



÷





researcher

• Project by an individual researcher

• <u>max. 8 of research experience</u> from date of award of the (first) doctoral degree

• Mobility rule: The researcher cannot have resided or carried out his/her main activity (work, studies, etc.) in the country of the beneficiary for more than 12months in the last three years prior to the call deadline

host organisation

Iocated in EU member state
 or Horizon Europe associated
 country

• <u>Public or private research</u> organisation, university, research centre, international European interest organisation, international organisation, industry, SMEs (any sector)

Rules in a nutshell

MSCA-NET

European fellowship

- Project realized at a host institution located in EU MS or AC
- Researcher of any nationality
- Duration: 12-24 months



- Large part of the project realized at a non-European institution
- Researcher needs to be a <u>national or long-term resident</u> of a EU MS or AC
- Duration: 24-36 months
 - ✓ 12-24 months out of Europe
 - + 12 months mandatory reintegration phase in a EU MS or AC



Compile your fellowship: facultative elements



	Secondment	Non-Academic Placement
Maximum Duration	European Postdoctoral Fellowships: Up to 1/3 of the normal project duration. <u>Global Postdoctoral Fellowships:</u> Optional secondments are permitted for up to 1/3 of the outgoing phase.	Up to 6 months duration.
Timing	 <u>European Postdoctoral Fellowships:</u> At any time during the standard project duration. <u>Global Postdoctoral Fellowships:</u> Optional secondments cannot take place during the mandatory 12 month return period to the host organisation in a MS or AC. They may take place at the start of the outgoing phase (up to three months, to be included within the 1/3 maximum duration). Note that all optional secondments can be divided into several shorter periods. 	Additional period after the standard duration of the fellowship.
Mobility	Any country worldwide	MS or AC
Sector	Any sector	Non-academic sector only

Budget



In form of predefined unit costs:

MSCA Postdoctoral Fellowships	Contributions for the recruited researcher per person-month			contri	onal unit butions on-month		
	Living allowance	Mobility allowance	Family allowance (if applicable)	Long- term leave allowance (if applicable)	Special needs allowance (if applicable)	Research, training and networking contribution	Management and indirect contribution
	EUR 5990	EUR 710	EUR 660	EUR 6700 x % covered by the beneficiary	requested unit ¹³⁴ x (1/number of months)	EUR 1000	EUR 650

* A country correction coefficient applies to the living allowance in order to ensure equal treatment and purchasing power parity for all researchers.

ERA Fellowships 2022 call

One single evaluation performed under MSCA-PF call: Only one submission & one simple agreement (tick box), applicants significantly increase their opportunities to be funded.

Proposals are **eligible** for ERA fellowships funding if:

- submitted by a host institution from a 'Widening' country
- admissible and eligible for MSCA-PF European Fellowships (EF)*
- have agreed to be considered for ERA Fellowships call
- passed all the thresholds under the MSCA-PF-EF call
- failed to reach main list under MSCA-PF-EF call

* MSCA-PF Global Fellowships (GF) proposals are not eligible.





* SEAL OF * EXCELLENCE



MSCA Marie Skłodowska-Curie Actions Developing talents, advancing research





What is the Seal of Excellence?

The Seal of Excellence is a <u>quality label awarded</u> to project proposals submitted to Horizon 2020, the EU's research and innovation funding programme, to help these proposals find alternative funding.

Projects which were judged to deserve funding but did not get it due to budget limits receive the Seal of Excellence.

It recognises the value of the proposal and helps other funding bodies take advantage of the Horizon 2020 evaluation process.

It is awarded to proposals which applied under

- <u>SME Instrument</u>
- Marie Skłodowska-Curie actions (MSCA) individual fellowships
- <u>Teaming</u>





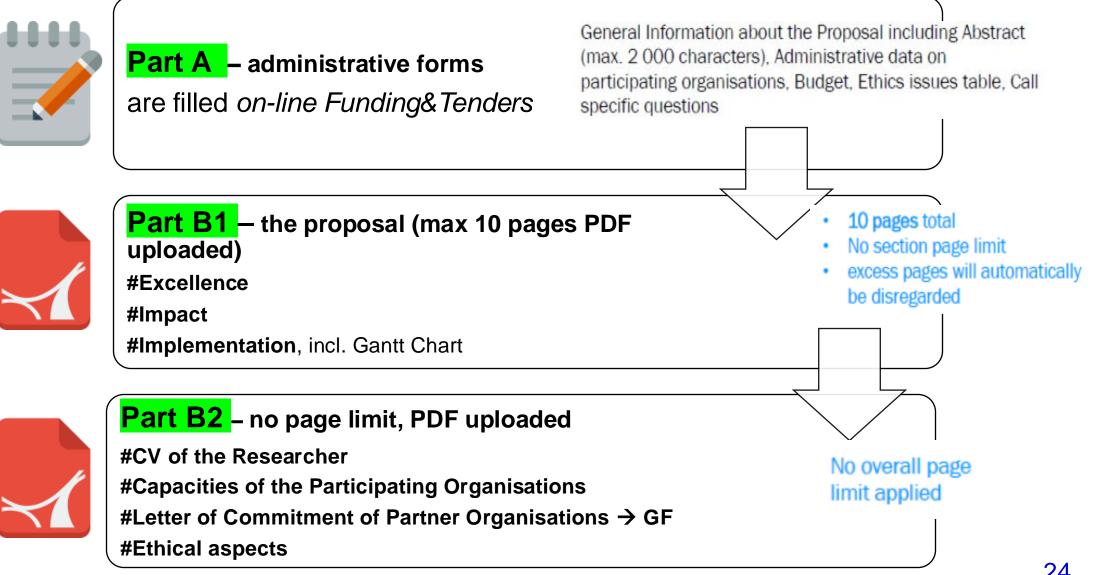
Funding opportunities under Marie Skłodowska-Curie Actions

List of national and regional support programmes for Seal of Excellence holders under Marie-Skłodowska-Curie Actions

Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Estonia, France, Germany, Italy, Lithuania, Poland, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland

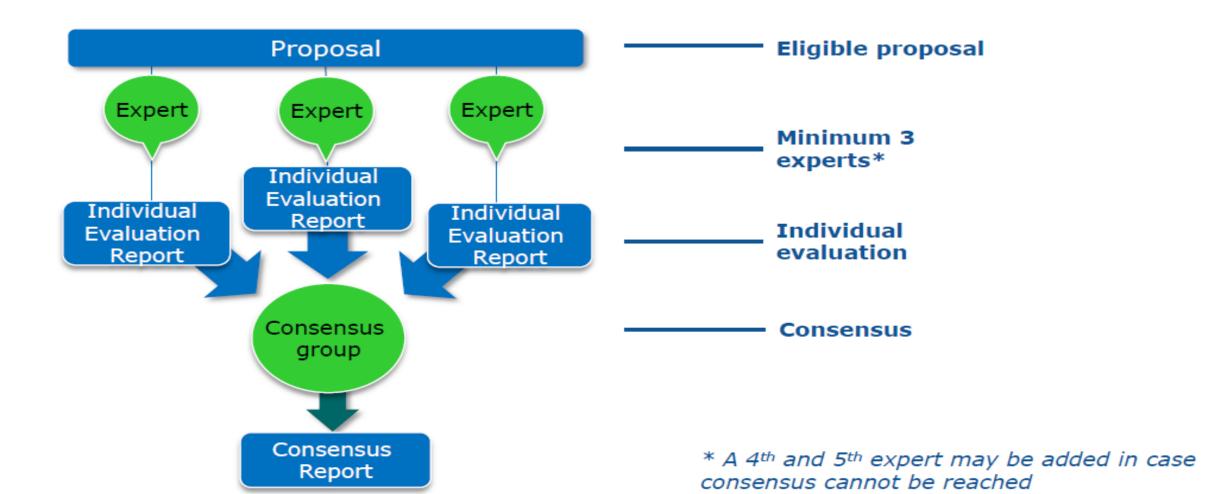
Proposal structure

MSCA-NET





Overview of Evaluation Process



	MSCA-NET
	MSCA
POST	DOCTORAL FELLOWSHIPS HANDBOOK
	CALL 2024
NATIONAL CONTACT PO Task 3.4 Issued by: Issued data:	Handbooks Agency for Mobility and EU Programmes (HR) 03 July 2024
NATIONAL CONTACT PO Task 3.4 Issued by:	Handbooks
NATIONAL CONTACT PO Task 3.4 Issued by: Issued data:	Handbooks Agency for Mobility and EU Programmes (HR) 03 July 2024
NATIONAL CONTACT PO Task 3.4 Issued by: Issued data:	Handbooks Agency for Mobility and EU Programmes (HR) 03 July 2024
NATIONAL CONTACT PO Task 3.4 Issued by: Issued data:	Handbooks Agency for Mobility and EU Programmes (HR) 03 July 2024
NATIONAL CONTACT PO Task 3.4 Issued by: Issued data:	Handbooks Agency for Mobility and EU Programmes (HR) 03 July 2024

MSCA_PF2024_handbook-1.pdf

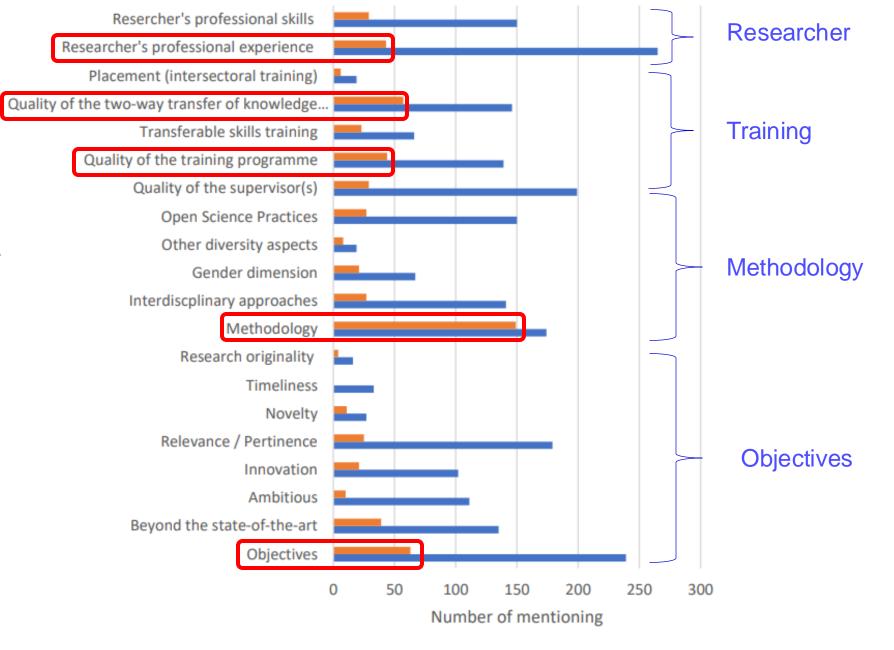
NETWORK OF THE MARIE SKŁODOWSKA-CURIE ACTIONS NATIONAL CONTACT POINTS

EXCELLENCE

POSTDOCTORAL FELLOWSHIPS



Excellence Quality and pertinence of the project's research and innovation <u>objectives</u> (and the extent to which they are	Impact Credibility of the measures to enhance the career perspectives and	Quality and efficiency of the implementation Quality and effectiveness of the work plan, assessment
ambitious, and go beyond the <u>state of the art</u>)	employability of the researcher and contribution to his/her skills development	of risks and appropriateness of the effort assigned to work packages
Soundness of the proposed <u>methodology</u> (including <u>interdisciplinary</u> approaches, consideration of the <u>gender</u> dimension and other diversity aspects if relevant for the research project, and the quality of <u>open science</u> practices)	Suitability and quality of the measures to maximise expected outcomes and impacts, as set out in the dissemination and exploitation plan, including communication activities	Quality and capacity of the host institutions and participating organisations, including hosting arrangements
Quality of the <u>supervision, training</u> and of the <u>two-way</u> transfer of knowledge between the researcher and the host	The magnitude and importance of the project's contribution to the expected scientific, societal and economic impacts	
Quality and appropriateness of the researcher's professional experience, competences and skills		
50%	30%	20%





Weaknesses Strenghts

'In the framework of the MSCA-NET network we have analysed the ESRs and herewith the outcomes are presented.'

29

MSCA-NET

1.1 Quality and pertinence of the project's research and innovation objectives

(and the extent to which they are ambitious, and go beyond the state of the art)

- Briefly describe the objectives of your proposed work and give an overview of the action
- Specific research objectives (ROs) of the project
 - Number the objectives O1, O2, O3 etc.
 - Are they **measurable** and **verifiable**?
 - Are they realistically achievable?

Tip: Use the introduction to capture attention of the reader, convince that the rest is pertinent and worth reading



Evaluator: Whether research and innovation objectives are realistically achievable, measurable and verifable?

OBJECTIVES

 $(S) \longrightarrow (M) \longrightarrow (A) \longrightarrow (R) \longrightarrow (T)$

Specific	Measurable	Attainable	Relevant	Time-Bound
Make sure your goals are focused and identify a tangible outcome. Without the specifics, your goal runs the risk of being too vague to achieve. Being more specific helps you identify what you want to achieve. You should also identify what resources you are going to leverage to achieve success.	You should have some clear definition of success. This will help you to evaluate achievement and also progress. This component often answers how much or how many and highlights how you'll know you achieved your goal.	Your goal should be challenging, but still reasonable to achieve. Reflecting on this component can reveal any potential barriers that you may need to overcome to realize success. Outline the steps you're planning to take to achieve your goal.	This is about getting real with yourself and ensuring what you're trying to achieve is worthwhile to you. Determining if this is aligned to your values and if it is a priority focus for you. This helps you answer the why.	Every goal needs a target date, something that motivates you to really apply the focus and discipline necessary to achieve it. This answers when. It's important to set a realistic time frame to achieve your goal to ensure you don't get discouraged.

Use SMART objectives that address the gaps in the state-of-the-art and correspond to the needs of training a new generation of researchers in Europe

Scientific objectives should **correspond** to Work Packages (structured under 3.1)



OBJECTIVES



- The overarching aim is highly relevant and original.
- The objectives are clear, detailed, focused, justified and integrated
- The objectives are in **relation to the state of the art**.
- The theoretical basis is supported by a sufficient number of **bibliographical references**.
- Project objectives are verifiabel, measurable and achievable (in the proposed time frame) with performance indicators.
- The objectives are **ambitious**, innovative and original.
- Clearly defined objectives, both in terms of specific outcomes, learning goals and training objectives.
- RO's should correspond to the research work package (O1 is the objective for WP1)

MSCA-NET

1.2 Soundness of the proposed methodology

(incl. interdisciplinary approaches, consideration of the gender dimension and other diversity aspects if relevant for the research project, and the quality of open science)

- Describe how the research will be carried out
 - your overall methodology, incl. the concepts, models and assumptions that underpin your work
 - how this will enable you to deliver your project's objectives
- Break this section up into short paragraphs/bullet points
 - describe the steps/methods you will take to achieve the research objectives proposed (put in brackets the research objective and work package it relates to)
 - highlight the experiments, techniques and equipment that will be used (especially in a novel way)
 - if there will be **new** analysis, concept, methods implemented mention and highlight it (bold)



METHODOLOGY



- The RM is clearly **explained** and justified to achieve the objectives.
- The RM and the proposed approach are very well summarized and detailed, with concrete plans (tasks) on how to tackle the proposed problems and identified methodological challenges.
- The RM is very well formulated, is **up-to-date** and **innovative**.
- Include relevant literature, teaching experiences and open science pratctices.
- The RM explain why the approach has been chosen.
- It should possess a high level of cerainty and clarify interconntected topics to ensure coherence.
- For each method/steps described put in brackets the **work pacakge/objective** (as well as duration).

1.3 Quality of the supervision, training and of the twoway transfer of knowledge (researcher / host)

Be very brief with all relevant information – you can provide more information in capacity table (B2.5 section)

Global fellowships: describe also the transfer with the host of the outgoing phase

For nonacademic placement: describe how transfer of knowledge will happen

- Describe the qualifications and experience of the supervisor(s) (MSCA-NET
 - experience on the research topic and their track record of work, main international collaborations,
 - experience in supervising/training especially at advanced level (PhD, postdoctoral researchers)
 - participation in projects, publications, patents and any other relevant results
 - mention if impressive: years of experience in the field, h-index,
 - if you are having a co-supervisor shortly explain his/her added values
- Outline how a two-way transfer of knowledge will occur between the researcher and the host institution(s)
 - explain <u>what</u> new knowledge you will gain during the fellowship at the hosting organisation(s) and <u>how</u> it will be acquired
 - outline your previously acquired knowledge and skills that you will transfer to the host organisation(s)

	Scientific skills	Transferable skills
- nt: e fer ge	 ✓ Which new techniques and methods? ✓ How - through research or through specific courses ✓ Training on "research integrity ", "big data/open science ", digital techniques, tools 	 Teaching, tutoring/mentoring of students (leadership/communication skills) Project/Financial/Organisational Management (project planning, organisation of a conference) Development of follow-up projects (fundraising, proposal writing) Abilities in working in an international environment (communication, building networks) Business thinking (through your own project) Handling IPR, training in patent law, course in gender awareness
én		25







- Provide clear and comprehensive information on how the researcher will be trained with elaborated training activities (specific and tangible).
- Explain trainings for **transferable skills** needed for andvancing researchers career.
- Include **diverse types of traning**, formal as well as training-throughresearch activities, regular meeting with supervisors, interdisciplinary knowledge exchange as well as self-taught courses.
- Explain meaningful of the training for advancing researcher career.

TWO-WAY TRANSFER OF KNOWLEDGE (researcher – host)

- Concrete and specific methods for transfer should be specified with benefits for both the **researcher** and the **host**.
- Explain the level of the knowledge trasferred and if it is required at the host institution
- Explain how the knowledge is transferred to the host institution.
- The two-way transfer of knowledge is convincing as the host organization and the researcher possess complementary skills.

Quality and appropriateness of the researcher's • professional

1.4

experience,

competences and

skills

 Describe your existing professional experience in relation to the proposed research project

- why you are the best person to do this fellowship
- tell your story & try to get the evaluator to relate/understand you
- choose the key highlights from your CV to show the evaluator your abilities
 - E.g. research achievements, fellowships and awards received, key • conferences, publications, experience in project management, experience in supervision, non-academic sector

 How your existing professional experience, talents and the proposed research will contribute to your development as independent/mature researcher?

Your CV (in Part B2) - will be reviewed to confirm information given in section 1.4

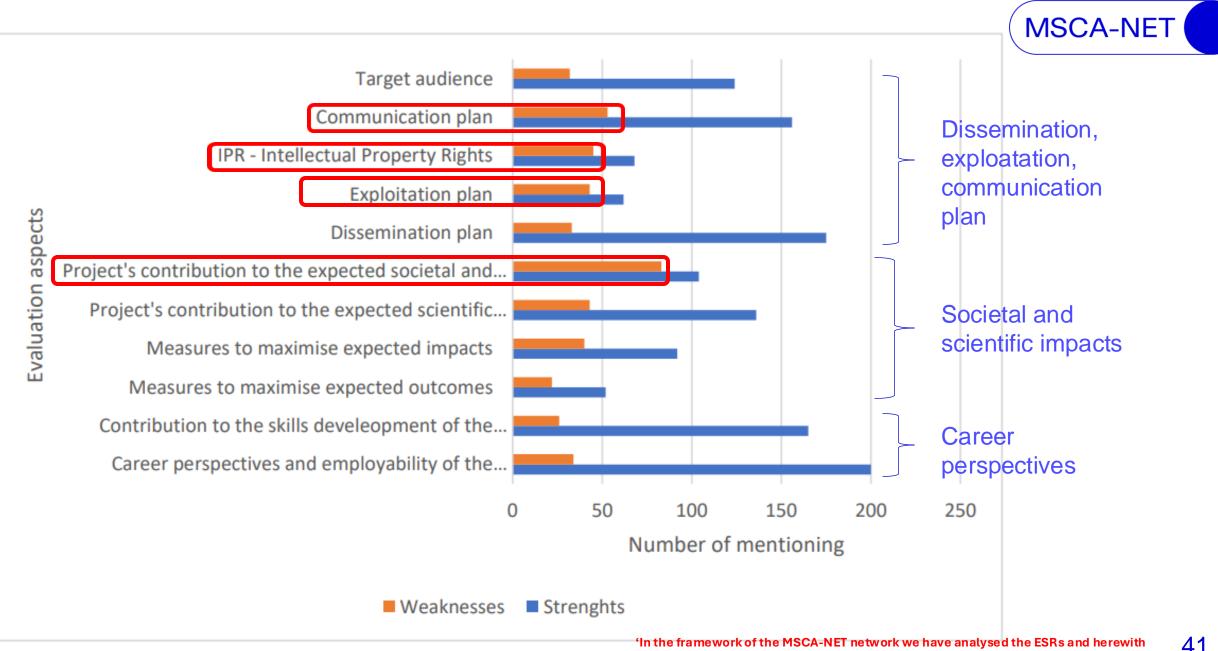
NETWORK OF THE MARIE SKŁODOWSKA-CURIE ACTIONS NATIONAL CONTACT POINTS

IMPACT

POSTDOCTORAL FELLOWSHIPS



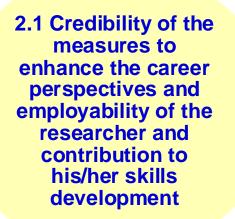
Excellence	Impact	Quality and efficiency of the implementation
Quality and pertinence of the project's research and innovation objectives (and the extent to which they are ambitious, and go beyond the state of the art) Soundness of the proposed methodology (including interdisciplinary approaches,	Credibility of the measures to enhance the <u>career</u> perspectives and <u>employability</u> of the researcher and contribution to his/her skills development Suitability and quality of the measures to maximise expected outcomes and impacts , as	Quality and effectiveness of the work plan, assessment of risks and appropriateness of the effort assigned to work packages Quality and capacity of the host institutions and participating organisations,
consideration of the gender dimension and other diversity aspects if relevant for the research project, and the quality of open science practices)	set out in the <u>dissemination</u> and <u>exploitation</u> plan, including <u>communication</u> activities	including hosting arrangements
Quality of the supervision, training and of the two-way transfer of knowledge between the researcher and the host	The magnitude and importance of the project's contribution to the expected scientific, societal and economic impacts	
Quality and appropriateness of the researcher's professional experience, competences and skills 50%	30%	20%



the outcomes are presented.'

41

Enhancing your future career prospects



Expected skill development of the researcher. Expected impact of the proposed research and training activities on the researcher's career perspectives inside and/or outside academia. • How will this project improve your career?

• What are your career goals?

- E.g. tenure-track position, initiating a new laboratory, becoming a pioneer researcher, a new position in the industry, ERC or other grant application...
- Give specific examples of your career opportunities in the academic & non-academic sectors after the fellowship.
- Focus on how the new competences and skills can make you more successful
 - in achieving those career goals
 - in long-term inside/outside of academia
- Describe & highlight the **impact of the collaborations** made during the fellowship
 - · especially those intersectoral and interdisciplinary
 - ...you will have a higher impact R&I output on your future work, thus more knowledge and ideas converted into products and services



WP Expected impact: "Enhance the quality of R&I contributing to Europe's competitiveness and growth;



- Describe the potential exploitation methods of your project results that will be used and the impact of the method on the targe user/society/industry
- The strategy for targeting end-user associations and other stakeholders is appropriate.
- Intellectual property rights and commercialization aspects will be thoroughly considered for protection by patent before publication.
- The possibility of registering **patents** is considered
- The potentia **business exploitation** is foreseen and clearly described.
- ...interaction with the **Technology transfer office**
- ... describes well the potential **commercialisation** and patent application.
- Some of the results will be disseminated through an **open source** computation.



COMMUNICATION



- Demonstrate how both <u>the research and results</u> will be made known to the public in a such way they can be understood by non-specialist.
- Demonstrated how the planned **public engagement activities** contribute to **creating awarness** of the performed research.
- The communication strategy would adequately be distributed throughout the duration of the fellowship thus ensuring a constant interest about the research.
- The communication strategy to address different target audiences is detailed and convincing with clear goals.
- It includes appropriate and varied measures for public engagement and for creating awareness of the research.
- It will use a wide range of standard communication measures.
 The use of social media networks is appropriate.

2.3 The magnitude and importance of the project's contribution to the **expected** scientific, societal and economic impacts

- Impact on the wider scientific field, broader societal and economic implications
 - how will our knowledge be **advanced** by this project
 - how can it be relevant to the diverse stakeholder communities, policymaking, industry etc.
- Expected scientific impact(s): e.g. contributing to specific scientific advances, across and within disciplines, creating new knowledge, reinforcing scientific equipment and instruments, computing systems (i.e. research infrastructures)
- <u>Expected economic/technological impact(s)</u>: e.g. bringing new products, services, business processes to the market, increasing efficiency, decreasing costs, increasing profits, contributing to standards' setting, etc.
- Expected societal impact(s): e.g. decreasing CO2 emissions, decreasing avoidable mortality, improving policies and decision-making, raising consumer awareness

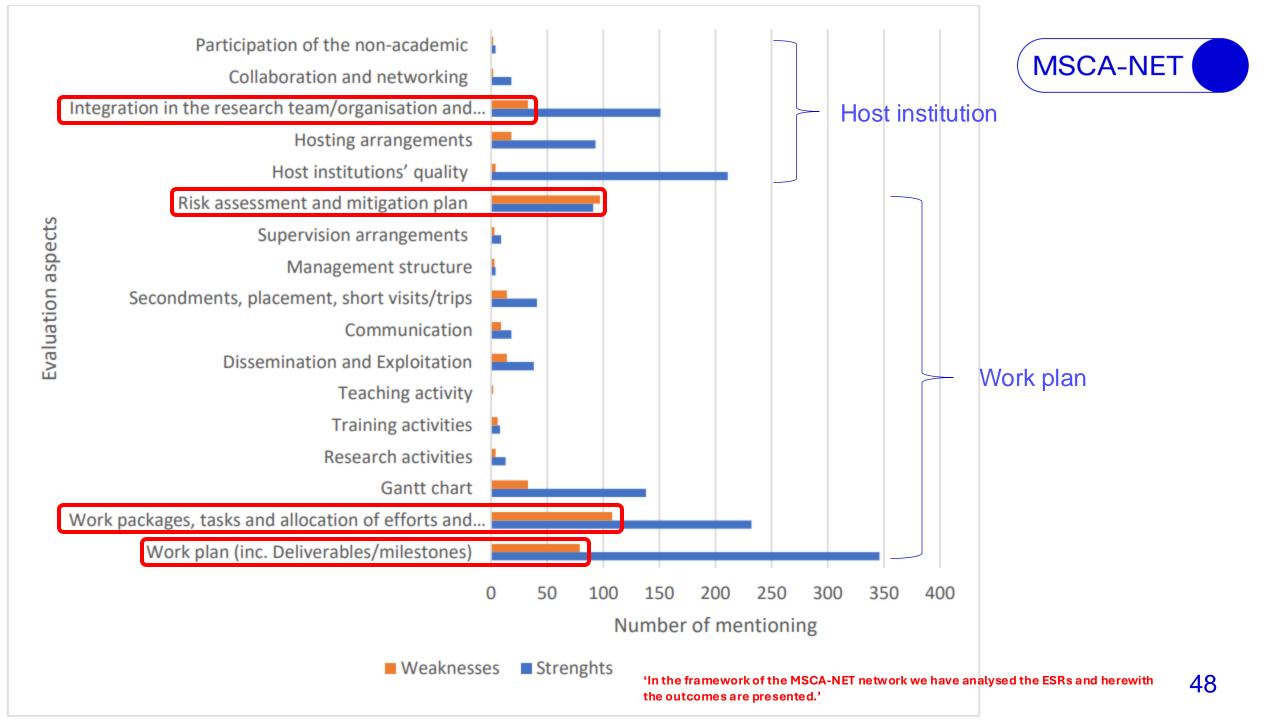
NETWORK OF THE MARIE SKŁODOWSKA-CURIE ACTIONS NATIONAL CONTACT POINTS

IMPLEMENTATION

POSTDOCTORAL FELLOWSHIPS



Excellence	Impact	Quality and efficiency of the implementation
Quality and pertinence of the project's research and innovation objectives (and the extent to which they are ambitious, and go beyond the state of the art)	Credibility of the measures to enhance the career perspectives and employability of the researcher and contribution to his/her skills development	Quality and effectiveness of the <u>work plan</u> , assessment of <u>risks</u> and appropriateness of the <u>effort</u> assigned to work packages
Soundness of the proposed methodology (including interdisciplinary approaches, consideration of the gender dimension and other diversity aspects if relevant for the research project, and the quality of open science practices)	Suitability and quality of the measures to maximise expected outcomes and impacts, as set out in the dissemination and exploitation plan, including communication activities	Quality and capacity of the <u>host</u> <u>institutions</u> and participating organisations, including <u>hosting</u> arrangements
Quality of the supervision, training and of the two-way transfer of knowledge between the researcher and the host	The magnitude and importance of the project's contribution to the expected scientific, societal and economic impacts	
Quality and appropriateness of the researcher's professional experience, competences and skills		
50%	30%	20%





3.1 Quality and effectiveness of the **work plan**, assessment of risks and appropriateness of the effort assigned to work packages

- Describe how the work planning (including deliverables and milestones) and the resources mobilized will ensure that the research and training objectives will be reached
- This section has three parts which will be assessed:
 - 3.1.1 Work packages tables
 - 3.1.2 Appropriateness of tasks
 - 3.1.3 Gantt chart

Tip: Work packages should be consistent with your plans (Excellence section)





Work Programme

- A clear work packages' structure is provided with a detailed description of the tasks and clear assignment of plausible milestones and deliverables. The Gantt chart is well structured, covering all the activities outlined in the proposal.

- The work plan is **adequate** including the Gantt chart and is sufficiently **effective** for the completion of the project. 3.1 Quality and effectiveness of the work plan, **assessment of risks** and appropriateness of the effort assigned to work packages

- The overview should clearly justify why the number of personmonths planned and requested for the researcher (and corresponding to the project duration) is appropriate in relation to the proposed activities
- Show that you are aware of risks and outline your specific mitigation plans and measures to handle or minimize risks

Tip: Ask your host institute for support and cooperate with their project office.



The risk assessment



- The scientific risks regarding the modest results in terms of XY are very well highlighted, and it provides clear research strategies aimed at increasing the likelihood of success.
- Risks are well explained (for instance regarding delays in the fieldwork) and there are **good mitigation and contingency measures**.

- Research and **administrative** risks are well identified, and appropriate mitigation measures are proposed.

3.2 Quality and capacity of the **host institutions** and participating organisations, including hosting arrangements

- The main tasks and commitments of the beneficiary and the partner organisation in the framework of the project
 - For the GF also the role of partner organisations in third countries
- Infrastructure, logistics, facilities provided for the implementation of your project at the host institution ...
 - if the latter has signed the European Charter for Researchers and Code of Conduct for the Recruitment of Researchers, mention this
- Explain how will you be integrated in the hosting organisation, lab, research team
 - be speficific, show clear plans



Hosting arrangement



- The hosting arrangements and related **services** available to **support** the **integration** of the researcher are good.

- The hosting arrangements, providing administrative and scientific support, are **described in great detail** and are **completely suitable** for the full **researcher's integration**.
- Hosting arrangements and integration measures at the return host institution are adequate and very well detailed.

- The **plan for initial integration** of the researcher in the host institution is good and there are good means for **everyday integration** through meetings, seminars and networking. Also, the proposal identifies clearly the **support and guidance** that will be made available for the

NETWORK OF THE MARIE SKŁODOWSKA-CURIE ACTIONS NATIONAL CONTACT POINTS

SOME GENERAL TIPS POSTDOCTORAL FELLOWSHIPS



End date

CORDIS - EU research results

Home Thematic Packs Projects & Results Videos & Podcasts News Datalab Search

Home > Projects & Results > Horizon Europe > Unraveling the Photochemistry of Radiosensitizers and Radioprotectors in Free Biomolecular Complexes

Unraveling the Photochemistry of Radiosensitizers and Radioprotectors in Free Biomolecular Complexes

Results Fact Sheet Reporting

Objective

EUROPE

Dramatically increasing cancer cases around the world call for extra research efforts to improve cancer therapies. Radiation therapy or radiotherapy is one of the most common treatment methods. A way to enhance radiotherapy is inserting 'radiosensitizers (RSs)' and 'radioprotectors (RPs)' into the patient's body. RSs in tumor cells make them more sensitive to radiation damage, allowing one to use reduced radiation doses, thus minimizing side effects. In contrast, RPs inhibit the damage of healthy cells from radiation, RSs and RPs are actively studied mostly in clinical trials. However, the fundamental mechanisms causing damage or death of cancer cells are not fully understood. Therefore, this project aims at elucidating the elementary steps of radiation damage, their enhancement by RSs, and their inhibition by RPs. The technique combines beams of mixed molecular clusters and doped helium nanodroplets uniquely with synchrotron spectroscopy, electron spectroscopy, and ion mass spectrometry. The main goals are to unravel the photochemistry of selected organic RS compounds (nimorazole, NIMO, bromoadenine, WR-1065 dihydrochloride), metal ions (Mg2+, Ca2+, K+), and gold (RS) and silver (RP) nanoparticles in the state of controlled microhydration and contact with DNA components (thymine, cytosine, tetrahydrofuran). Emission of slow electrons, water fragmentation, and anions formation are observables for radiation damage enhanced by RSs. A time-resolved experiment on the tetrahydrofuran-water complex will elucidate the ultrafast dynamics of intermolecular energy transfer causing dissociation, a mechanism recently identified to play an important role in radiation damage. A better understanding of the radiochemistry of RPs and RSs obtained with this project may help develop new schemes for efficient cancer treatment and identify new types of molecules or nanoparticles with improved RS or RP properties.

Photochem-RS-RP Grant agreement ID: 101068805 DOI 10.3030/101068805 Project terminated on 31 July 2023 EC signature date 29 May 2022 Start date 1 July 2022 30 June 2024 Funded under Marie Skłodowska-Curie Actions (MSCA) Total cost No data

Project Information

EU contribution € 230 774,40

Coordinated by AARHUS UNIVERSITET Denmark

Unraveling the Photochemistry of Radiosensitizers and Radioprotectors in Free Biomolecular Complexes Photochem-RS-RP | Project | Fact sheet | HORIZON | **CORDIS | European** Commission

25.02.2025

Fields of science

natural sciences > chemical sciences > inorganic chemistry > noble gases

Practical tips



- Start writing early enough you will rewrite your proposal over and over
 - several months before the deadline
- Ensure cooperation with the supervisor/host institution
 - you will need a lot of information
- Make a checklist with all evaluation criteria
 - respond all of them dilligently
- Use the call-specific Standard application form available in the Submission System
- Let others (non-experts as well) read your proposal
 - they must at least get a clue what your proposal is all about
 - test your proposal with different audiences colleagues, collaborators, your future supervisor and perhaps some of his colleagues, project office at your host institute
- See if you can get a proofreading help from MSCA NCP



Where to seek advice? National Contact Points (NCPs)



- NCPs as national support structures for Horizon Europe applicants give personalised support on the spot and in applicants' own languages, in accordance with the NCP Guiding Principles agreed by all countries:
 - 1. Guidance on **choosing relevant** Horizon Europe topics and **types of action**
 - 2. Advice on administrative procedures and contractual issues
 - 3. Training and assistance on proposal writing
 - 4. Distribution of documentation (forms, guidelines, manuals etc.)
 - 5. Assistance in partner search
- Note: As the NCPs work in national structures, the type and level of services offered may differ from country to country.

We need much more **MSCA!**

THANK YOU!