

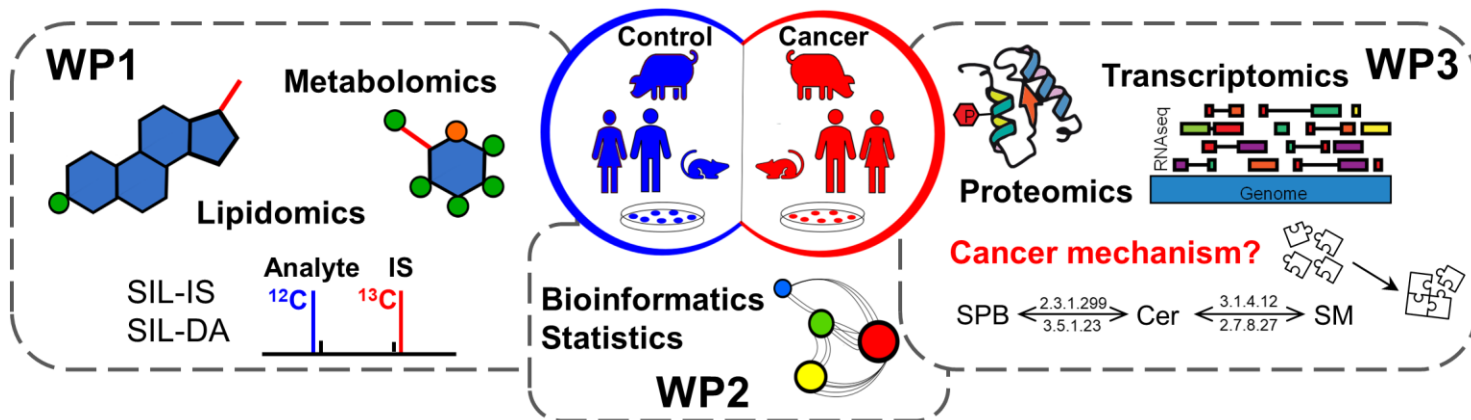
# How to Write a Competitive ERC Proposal?

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# Considerations Before You Start ERC Proposal

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**You should ask yourself 3 questions:**

- #1 Is my scientific profile sufficient for ERC?
- #2 Am I capable to prepare a competitive proposal?
- #3 Can I allocate adequate time capacity for the preparation?

**All answers should be YES or PROBABLY YES but I want to try**

**Key aspects of ERC evaluation:**

- #1 Quality of PI
- #2 Quality of ERC research proposal

# #1 Is My Scientific Profile Sufficient for ERC?

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- **Comparison with PI of funded projects from the last call**
- If your profile is significantly lower, then you may consider to work on the improvement first and prepare project later
- Important to have **at least 1 strong paper in multidisciplinary journal** (e.g., Nature level journals) during the recent time (typical for natural sciences, but could be different for other fields)

# #1 Quality of PI: Self-Assessment Before the Start

## Citation Report

### Publications

169

Total

From 1945 to 2023

### Citing Articles

4,374 Analyze

Total

4,242 Analyze

Without self-citations



### Times Cited

6,460

Total

5,715

Without self-citations

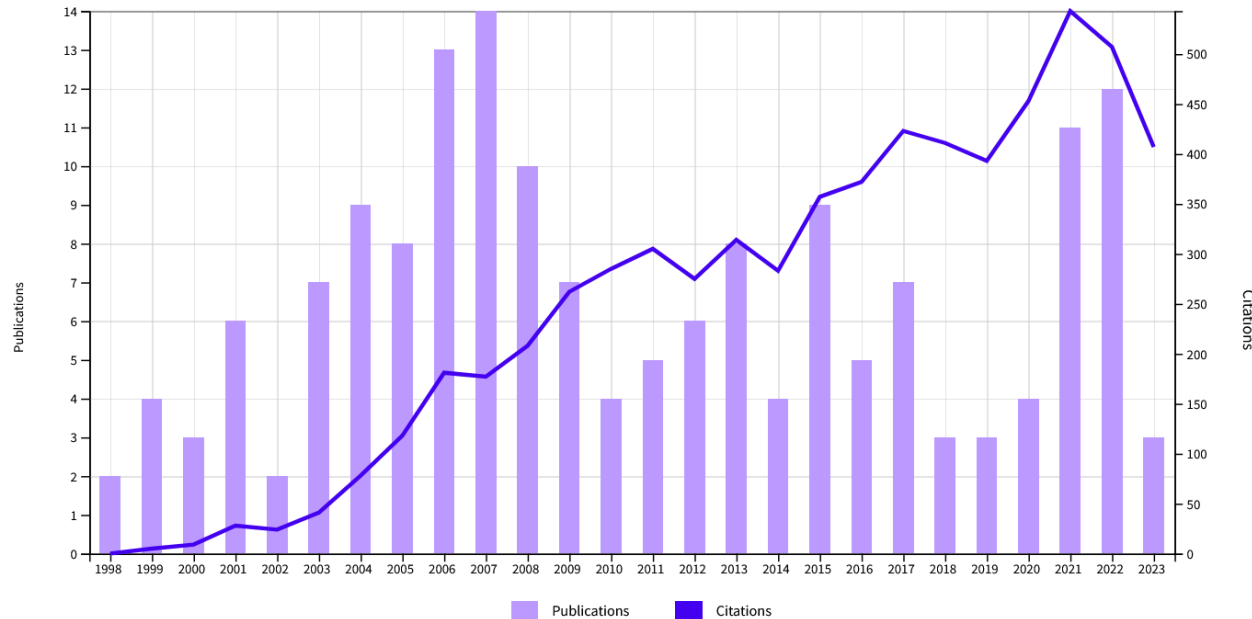


47

H-Index

38.22

Average per item



- Comparison with profiles of PIs of previous ERC Adv call showed me that **I belong to the last decile**
- No previous ERC Adv PI from Czech republic found in biological panel
- **Should I really invest my time in the proposal writing?**
- My decision was to do my best with the preparation of ERC proposal with the help of teammates, cooperators, and consultants

# #1 Quality of PI: Self-Assement Before the Start

## History of my ERC Proposals

### Panel PE4 - Physical and Analytical Chemical Sciences

#### PE4\_5/ Analytical Chemistry)

- **ERC Starting grant 2007** – evaluation „B“

Total mark	6,88 / 10
Has the proposal passed the threshold (8/10)?	No

- **ERC Starting grant 2012** – evaluation „A“ in both steps, but bellow the funding threshold, then application for **ERC CZ Starting 2013** (funded)
- **ERC Adv 2019** – evaluation „B“, 1 year ban for application

<b>Final panel score:</b> B (is of high quality but not sufficient to pass to Step 2 of the evaluation. Please note that you may also be subject to resubmission limitations in the next call)	<b>Ranking range*:</b> 54%-69% For your information, only the top 23% of the proposals evaluated in panel PE4 were retained for Step 2.
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- Switch from PE4 to LS2 panel regardless of my little knowledge of biology

### Panel LS2 - Integrative Biology: From Genes and Genomes to Systems

#### LS2\_10/ Glycomics/Lipidomics

- **ERC Adv 2022** – funded, started from August 2023

# Selection of Appropriate Panel

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- You should select panel, where you expect to bring **the highest level of novelty and innovation** – it could happen that the most suitable panel is not your primary expertise
- **I strongly discourage to select multiple panels** regardless of any recommendations because the evaluation in 2 panels double the risk that your project could fail in 1 panel, which frequently happens
- This is my personal experience as panel chair or member in Czech Science Foundation for many years - I do not know any benefit of selecting multiple panels

## #2 Idea for Groundbreaking and High-risk Project

- Find the right balance between preliminary results and novelty
- Too many previous results could mean that the project risk is not high (potential reviewer comment "this is a logical continuation of previous research of PI")
- No previous results (potential reviewer comment "the project risk is not justified")

### My example

- **Preliminary data:** Nat. Com. paper published half of year before the application deadline + other data showing that the lipidomic analysis of human blood allows the differentiation of cancer patients and healthy controls
- Preliminary data are only observational studies, no biological mechanism
- **Novelty:** goal is to explain the biological mechanism of observed lipidomic changes (=mechanistic study) with the extension from 1 to 10 cancer types, from lipidomics to multiomics (+metabolomics, proteomics, and transcriptomics) using various biological models (mice, oncopigs, and human) and sample types (blood, tissues, cell lines, exosomes)
- Switch from analytical chemistry to biology

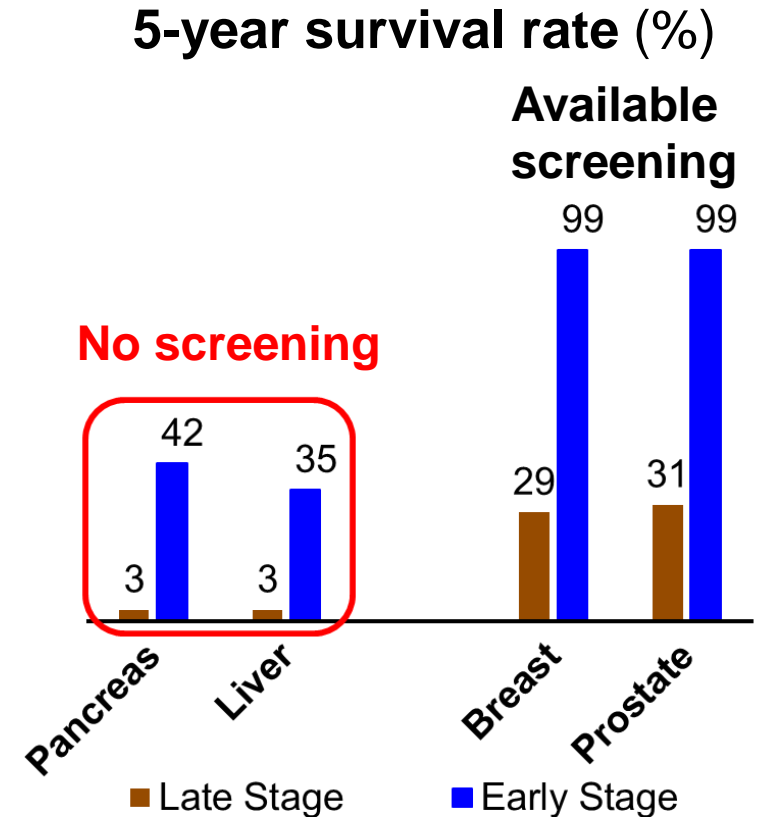
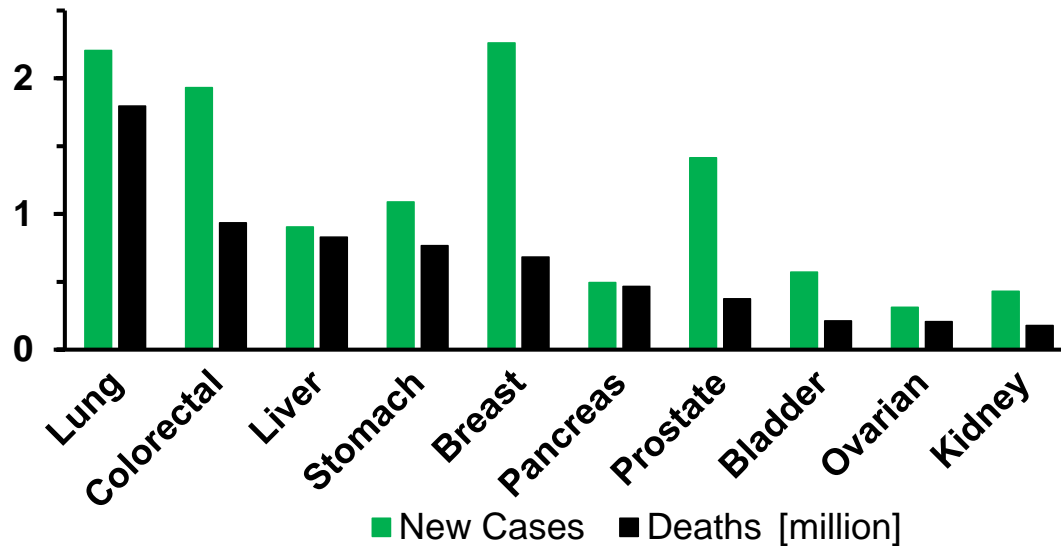
# #3 Adequate Time Capacity for the Preparation

- **Final polishing of proposal & consultations (ca. half of year)**
- Language polishing
- Quality of graphics and format must be excellent
- Groundbreaking ideas must be presented in a simple way, not vice versa
- It should be a pleasure to read and easy to understand
- Avoid too complicated things - schemes, sentences, graphics, too many colors, too many fonts (less is often more)
- Ask experienced colleagues for critical feedback
- Use professional consultations – Technology Center Prague and Yellow Research agency



# Early Cancer Detection – Unmet Medical Need

**Cancer** = 10 million deaths in the world annually



## Challenges

- **Early cancer screening** – improved survival and prognosis
- **Biological mechanism** – may lead to new drugs targeting dysregulated pathways

# My Vision of Lipidomic Cancer Screening Test

- Pre-cancerous lesions
- Multiple cancer types

5-year survival  
rate (%)

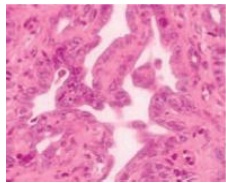
60-80 (?)

42

3

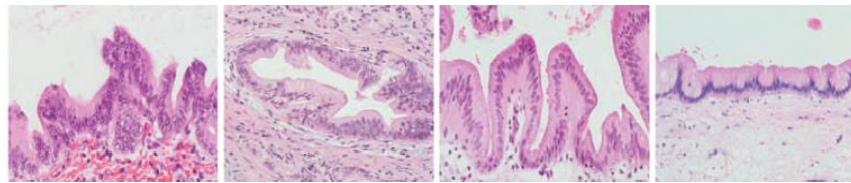
■ T3/T4 ■ T1/T2 ■ PanIN

Cancer



PDAC

Pre-cancerous lesions



PanIN-3

PanIN-2

PanIN-1B

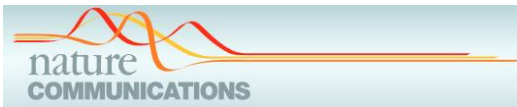
PanIN-1A



Development of pancreatic tumor

Novel methodology

Over 90% accuracy  
(including early **T1/T2**)

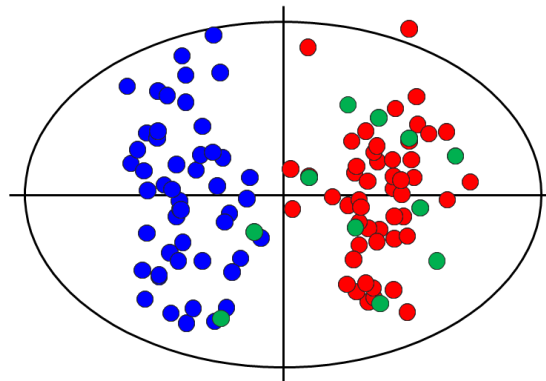


Lipidomic profiling of human serum enables  
detection of pancreatic cancer

🏆 Nature Communications (2022) 13:124

24 citations

Preliminary data



■ Control

■ PDAC

■ Pre-cancerous