Grant proposal writing: Lessons learned…

Prof. Jennifer Mahony

School of Microbiology & APC Microbiome Ireland

My funding journey

2003: IRC PhD funding

2013: SFI – TIDA ~€100k

2015/6: Bill & Melinda Gates Foundation ~€90k

2016: SFI – SIRG €400k

2018-present: Industry-funded projects

2020: IRC enterprise PG

2021: DAFM €1M

2021: SFI Frontiers of the Future €400k

2023: INSPIRE PD

2024: EU-DN €550k

2025: Industry-partnered project

PhD → **Post-doc** → **Research Fellow** → **Lecturer**

These were the successfully funded projects……

This is what we want to do but first…….

Things you need to know before you begin

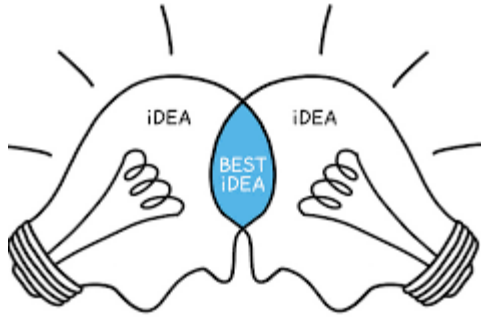
1. What do you want to do?
2. Who can help you develop (NOT formulate!) your plan if you are early stage?
3. Who will fund this research?
4. What am I eligible to apply for?
5. Establish collaborative network if it can support the application/the project outcomes

Collaborations:

- Collaborators may receive no financial reward from your proposal but **you are asking them to support you-** give them time to prepare support letters/CVs

- DORA compliant CVs may not be standard in all countries so this may take time to prepare

- Identify your collaborative network- possibility of interdisciplinary/complementary approaches?



Funding landscape:

- What funding programmes are you eligible to apply to? (National, EU, Philanthropic)

- Who in the Research Office can support you?

- Reach out to the Research Office

Science Foundation Ireland sfi For what's next

IRISH RESEARCH COUNCIL An Chomhairle um Thaighde in Éirinn

BILL & MELINDA GATES foundation

erc European Research Council

HRB Health Research Board

wellcome trust

Advice for early career researchers

- Choose your mentor carefully
- Communicate well with your mentor & learn from them
- Don’t be afraid of critique- it will make your proposals stronger
- You must be an all-rounder: a scientific leader, a project manager, administrator and a financial whizz!
- YOU are the leader- don’t be afraid to shine

General tips

1. Be clear on *what* you are proposing, *why* it is important and *how* it is different/better than current approaches

2. Demonstrate how you are going to **break scientific boundaries** and how it will **impact** the field and society

3. Consider your budget carefully and provide a clear justification

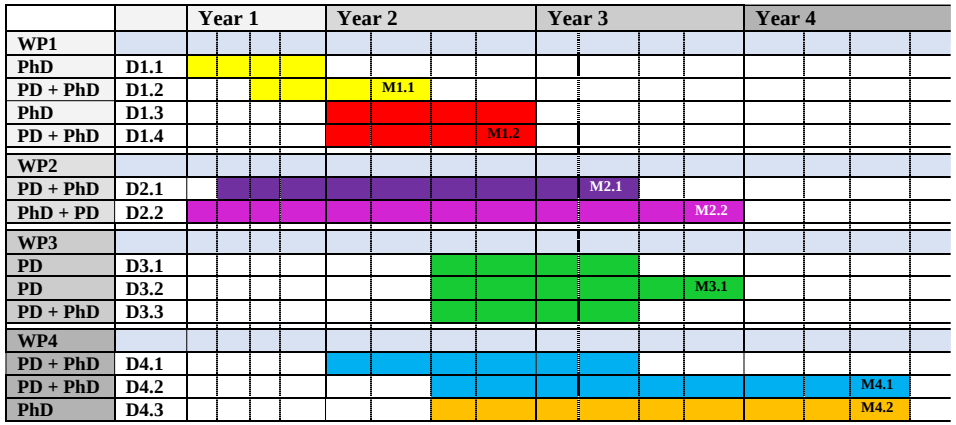
4. Highlight clearly **preliminary data** to support your hypothesis and to provide confidence that <u>you will succeed</u>

5. **Believe** in what you are trying to sell

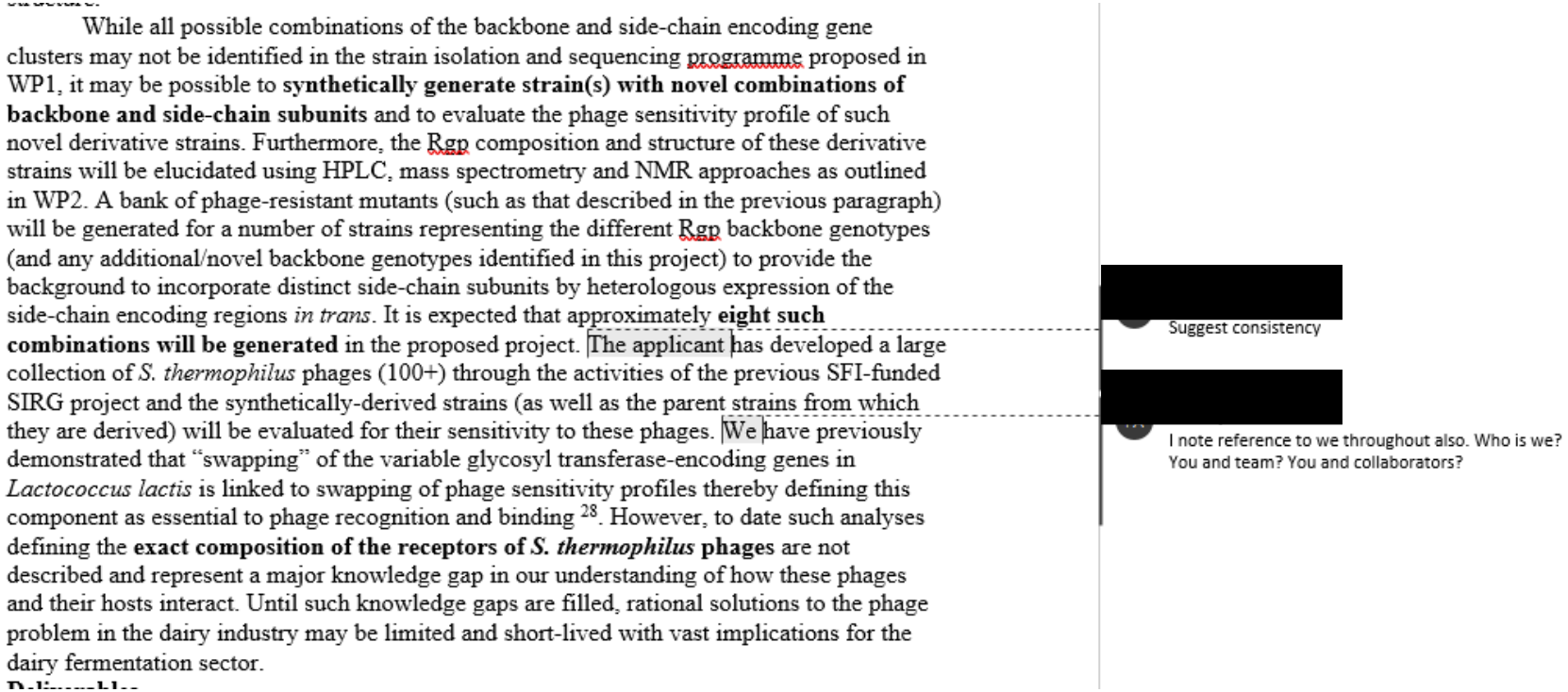
6. If you are not awarded, keep trying!!!

General tips……

- Break up text with appropriate figures
- Clearly identify and highlight your objectives- maybe a text box to highlight this
- Present deliverables clearly
- Provide clear timelines and delineate who is responsible for what activity – Gantt chart



Feedback and input from research office



While all possible combinations of the backbone and side-chain encoding gene clusters may not be identified in the strain isolation and sequencing programme proposed in WP1, it may be possible to **synthetically generate strain(s) with novel combinations of backbone and side-chain subunits** and to evaluate the phage sensitivity profile of such novel derivative strains. Furthermore, the Rgp composition and structure of these derivative strains will be elucidated using HPLC, mass spectrometry and NMR approaches as outlined in WP2. A bank of phage-resistant mutants (such as that described in the previous paragraph) will be generated for a number of strains representing the different Rgp backbone genotypes (and any additional/novel backbone genotypes identified in this project) to provide the background to incorporate distinct side-chain subunits by heterologous expression of the side-chain encoding regions *in trans*. It is expected that approximately **eight such combinations will be generated** in the proposed project. The applicant has developed a large collection of *S. thermophilus* phages (100+) through the activities of the previous SFI-funded SIRG project and the synthetically-derived strains (as well as the parent strains from which they are derived) will be evaluated for their sensitivity to these phages. We have previously demonstrated that "swapping" of the variable glycosyl transferase-encoding genes in *Lactococcus lactis* is linked to swapping of phage sensitivity profiles thereby defining this component as essential to phage recognition and binding [28]. However, to date such analyses defining the **exact composition of the receptors of *S. thermophilus* phages** are not described and represent a major knowledge gap in our understanding of how these phages and their hosts interact. Until such knowledge gaps are filled, rational solutions to the phage problem in the dairy industry may be limited and short-lived with vast implications for the dairy fermentation sector.

Deliverables

1. Highlight in boldface key words to emphasise your message
2. Consistency in writing approach
3. Taking ownership of your work and ideas

Feedback from colleagues and peers, mentors etc.
Discuss your ideas with people you trust, honest feedback

Summary

- Planning is 90% of the application – informing all stakeholders, scientific plan, knowing the requirements
- Have a clear vision of your plan
- Use graphics/flow diagrams to complement the text
- Allow plenty of time
- Discuss, review and get feedback