Australian Government
Australian Research Council

ARC

How to Pitch an EOI

Webinar

29 November 2023

1

Discovery Projects: Two-stage (EOI) process

New EOI stage

- Short, user-friendly application form
- Assessment criteria of a) Investigator/s 30% and b) Project 70%
- Expedited assessment process by College of Experts
- Invitation to submit full application for shortlisted applicants

Streamlined full application stage

- Assessment criteria largely consistent with previous rounds
- Assessed through Selection Advisory Committee and Detailed Assessors
- Auto-filled information on Investigators from EOI into full application in RMS

2

The Expression of Interest Form

A. Administrative Summary

Title
Person & Organisation
Summary
FOR codes

B. Participant Details

Qualifications & Employment
Research Load
Time Commitment
Streamlined ROPE

C. Project Summary

Project Description
(2 A4 pages)

3

The Assessment Criteria for Project Quality and Innovation: EOI stage

- Project Quality and Innovation (70%)

- Contribution to an important gap in knowledge or a significant problem
- Novelty/originality and innovation of the proposed research
- Appropriateness of the proposed research design
- Potential to create new knowledge and research capacity, and economic, commercial, environmental, social and/or cultural benefits for Australia.

4

Speakers

- Professor Penny Brothers
- Professor Catharine Coleborne
- Professor Michael Mintrom

5

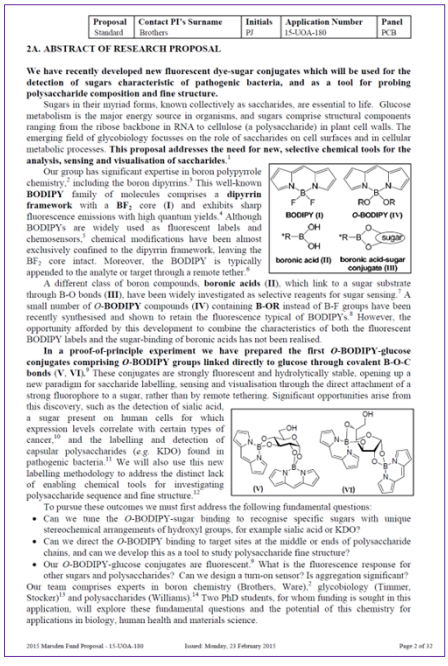
Professor Penny Brothers
Research School of Chemistry, ANU

Marsden Fund (Royal Society of NZ)
Convenor, Physics, Chemistry and Biochemistry Panel
Marsden Fund Council

My Marsden track record
Unsuccessful EoIs
EoI successes
Unsuccessful full applications
Full application successes
Evaluated ca. 1000 EoIs

Australian National University

MARSDEN FUND
TE PŪTEA RANGAHAU A MARSDEN



Proposal	Contact PI's Surname	Initials	Application Number	Panel
Standard	Brothers	PJ	15-UOA-180	PCB

2A. ABSTRACT OF RESEARCH PROPOSAL

We have recently developed new fluorescent dye-sugar conjugates which will be used for the detection of sugars characteristic of pathogenic bacteria, and as a tool for probing polysaccharide composition and fine structure.

Sugars in their myriad forms, known collectively as saccharides, are essential to life. Glucose metabolism is the major energy source in organisms, and sugars comprise structural components ranging from the ribose backbone in RNA to cellulose (a polysaccharide) in plant cell walls. The emerging field of glycobiology focusses on the role of saccharides on cell surfaces and in cellular metabolic processes. **This proposal addresses the need for new, selective chemical tools for the analysis, sensing and visualisation of saccharides.**[1]

Our group has significant expertise in boron polypyrrole chemistry,[2] including the boron dipyrrins.[3] This well-known **BODIPY** family of molecules comprises a **dipyrrin framework** with a BF_2 core (**I**) and exhibits sharp fluorescence emissions with high quantum yields.[4] Although BODIPYs are widely used as fluorescent labels and chemosensors,[5] chemical modifications have been almost exclusively confined to the dipyrrin framework, leaving the BF_2 core intact. Moreover, the BODIPY is typically appended to the analyte or target through a remote tether.[6]

BODIPY (I) | O-BODIPY (IV) | boronic acid (II) | boronic acid-sugar conjugate (III)

A different class of boron compounds, **boronic acids** (**II**), which link to a sugar substrate through B-O bonds (**III**), have been widely investigated as selective reagents for sugar sensing.[7] A small number of *O*-**BODIPY** compounds (**IV**) containing **B-OR** instead of B-F groups have been recently synthesised and shown to retain the fluorescence typical of BODIPYs.[8] However, the opportunity afforded by this development to combine the characteristics of both the fluorescent BODIPY labels and the sugar-binding of boronic acids has not been realised.

In a proof-of-principle experiment we have prepared the first *O*-BODIPY-glucose conjugates comprising *O*-BODIPY groups linked directly to glucose through covalent B-O-C bonds (V, VI).[9] These conjugates are strongly fluorescent and hydrolytically stable, opening up a new paradigm for saccharide labelling, sensing and visualisation through the direct attachment of a strong fluorophore to a sugar, rather than by remote tethering. Significant opportunities arise from this discovery, such as the detection of sialic acid, a sugar present on human cells for which expression levels correlate with certain types of cancer,[10] and the labelling and detection of capsular polysaccharides (e.g. KDO) found in pathogenic bacteria.[11] We will also use this new labelling methodology to address the distinct lack of enabling chemical tools for investigating polysaccharide sequence and fine structure.[12]

(V) (VI)

To pursue these outcomes we must first address the following fundamental questions:

- Can we tune the *O*-BODIPY-sugar binding to recognise specific sugars with unique stereochemical arrangements of hydroxyl groups, for example sialic acid or KDO?
- Can we direct the *O*-BODIPY binding to target sites at the middle or ends of polysaccharide chains, and can we develop this as a tool to study polysaccharide fine structure?
- Our *O*-BODIPY-glucose conjugates are fluorescent.[9] What is the fluorescence response for other sugars and polysaccharides? Can we design a turn-on sensor? Is aggregation significant?

Our team comprises experts in boron chemistry (Brothers, Ware),[2] glycobiology (Timmer, Stocker)[13] and polysaccharides (Williams).[14] Two PhD students, for whom funding is sought in this application, will explore these fundamental questions and the potential of this chemistry for applications in biology, human health and materials science.

6

Writing an EoI

- New form of grants-person-ship
- If your EoI is not selected, this year's round is over for you!
- This decision will be made without input from detailed assessors or your rejoinders
- Why – this has to be compelling
- How – more for the full proposal but needs to be credible
- Who - this has to be compelling
- Capture the reader's attention with the opening
- You are crafting a short story, not a novel, and this takes time
- Write for your audience
- Enlist draft EoI readers and peer reviews

Australian National University

7

ARC Discovery Projects scheme

The DP scheme is intended to contribute to Australia's research and innovation capacity*

Objectives

- Investigator-driven, basic or fundamental research which supports new ideas and research excellence
- Increases the stock of new knowledge and developing new capabilities
- Broadens and deepens research skill capacity base
- Fosters national and international research collaboration
- Ambitious projects at the international cutting edges of their disciplines
- Enhances knowledge and understanding, *not accumulates information*
- Nationally relevant, internationally significant research
- Future-focused research (currency)

Professor Catharine Coleborne
University of Newcastle

***ARC DISCOVERY PROJECTS FACT SHEET**

8

EOI form and content: two A4 pages

- Project title
- Project quality and innovation
  - How will the project address a significant gap in knowledge or problem?
  - What are the key research questions of the project?
  - What methods and/or conceptual/theoretical framework will be used?
  - What is the new knowledge that will result?
  - How might this research result in economic, environmental, social/cultural benefits to Australia?
- References (10-point font)
- Acknowledgements (if required, or leave out)

9

AIMING FOR SUCCESS

- Be focused: what is the question? What is your answer?
- Be realistic: size, scale, scope
- Emphasise the innovative aspects: what differentiates your work from existing knowledge?
- Does it meet the aims of the ARC Scheme?
- Write for a 'research literate' but general assessor audience
- Include a research plan (how will you do this?)
- Your project should align with and build from your track record!

Work from a longer more developed proposal and imagine intentionally staging your program of research over 3+ years.

REASONS YOU MIGHT NOT SUCCEED AT EOI STAGE

- No hypothesis or aim, or element of discovery
- Too vague, too much jargon, incomprehensible
- Little about *how* the research will happen
- Not appropriate for scheme, better funded from other sources
- Page is poorly laid out, instructions not followed

The shorter EOI format requires disciplined writing and presentation and clever crafting of a compelling research project.

10

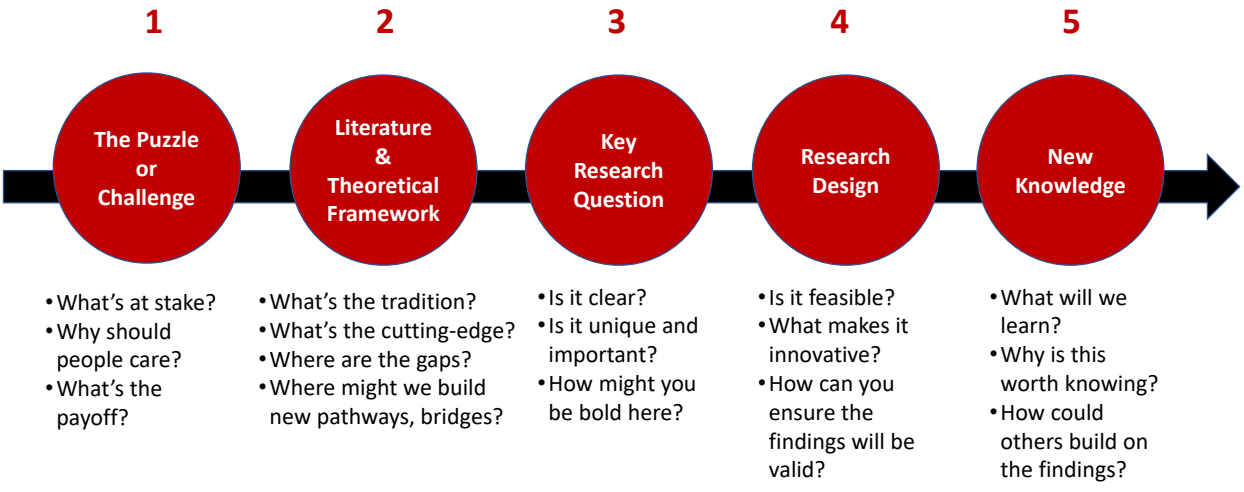
The Pitching Process

Roles:	*Actions:*
• **Historian**	Position your topic in a tradition, then innovate
• **Captain**	Form a cohesive team – show proof
• **Storyteller**	Build towards a compelling narrative, bit by bit
• **Consultant**	Work with visual tools: logic models / story boards
• **Chef**	Write as if others will implement your research design
• **Analyst**	Ask for input, advice – as if you were taking a client journey
• **Economist**	Think about feasibility, reliability
• **Writer**	Keep two sets of books

Michael Mintrom

11

How Pitching Can Improve Our Research



Michael Mintrom

12