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Future Pathways Policy Team,  
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Tēnā koutou Future Pathways Policy Team,

The Early- and Mid-Career Researcher Group within the Department of Biochemistry at the University of Otago is made up of 29 members who are post-doctoral fellows, research fellows, and senior research fellows. We are all research-only staff, and the vast majority of us are employed on fixed-term contracts.

We would like to provide feedback on three elements of the Te Ara Paerangi - Future Pathways Green Paper: Section 1 Ngā Kōwhiringa Hoahoa Whakaarotau Matua - Priorities Design, Section 3 Te Tuku Pūtea - Funding, and Section 5 Te Hunga Mahi Rangahau - Research Workforce. These three intrinsically linked elements of the green paper have the largest direct impact on our group and others at the same career stage.

There are serious issues with the current funding model that limit the development of a viable career path for Early- and Mid-Career research-only positions, and this results in a damaged research workforce. These problems include, but are not limited to:

- Obliteration of competitive grants due to salaries and overheads, leaving no budget for project consumables, etc.
- An inability to advertise attractive research positions due to limited funding (i.e. grant budget fits only a fraction of FTE, or a limited short-term contract).
- A winner-get-all attitude where people with money continue to attract funding.
- Unsustainable research directions and lack of workforce continuity due to continual renewing of short-term contracts.
- Lack of long-term support limits commitment to Māori-related research as meaningful relationships cannot be built when the researcher is only funded for one or two years.

- Inefficient use of researcher time through perpetual grant application writing with low success rates and the administrative tasks involved in constant short-term contract renewals.

Together, these shortcomings damage research in Aotearoa New Zealand by disrupting continuity of knowledge, limiting the scope of projects due to lack of funding, and—of particular relevance to our group—loss of early-career researchers to industry or non-science pursuits as their career opportunities are few and far between. The high level of precarity of Early- and Mid-Career researchers means that the majority of us are likely to have moved on from research, or moved away from Aotearoa, by the time any changes to research funding in Aotearoa New Zealand have been made. Despite this we are keen to engage in this consultation process in the hopes that we can improve the research, science, and innovation landscape for those who follow us.

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*Key Questions 8, 15, and 16: Could a base grant funding model improve stability and resilience for research organisations? How should we go about designing and implementing such a funding model? What impact would a base grant have on the research workforce? How do we design new funding mechanisms that strongly focus on workforce outcomes?*

One of the key challenges facing research and academia today is the precarity inherent in our jobs. It is extremely common for research-only staff to be employed on a series of fixed-term contracts. These contracts are often short, as they are linked to availability of research funds and many of us have been employed on consecutive fixed-term contracts for our entire career, a situation that is extremely uncommon outside of research and academia. In our view fixing this workplace precarity is essential to improving the research, science, and innovation landscape in Aotearoa New Zealand.

Any new funding initiatives should be focused on recruiting and retaining a highly skilled research workforce. A base grant funding scheme could be a viable way to give universities and other research institutes the funding surety they require to create permanent positions for research-only staff. However, any such base grant would require complete transparency in terms of how funding is allocated both between and within institutions, and how it is used. An equitable and transparent mechanism would be needed to determine who receives this money (e.g. who decides how many staff members a department like ours is able to hire from base grant money?). We are concerned that without this transparency and equity a base grant system could perpetuate the current issues in our funding system.

A benefit of a base grant funding system could be a reduction in external demands on researcher time that are currently encouraged by our highly-competitive, low

success rate funding schemes. For some research projects there are minimal project-related costs above and beyond salaries. In these cases funding the researchers salaries in a non-competitive system could substantially increase researcher productivity by removing the time-consuming need to write grant application after grant application, allowing them to solely focus on conducting research.

Therefore, in response to Key Questions 8, 15, and 16 we propose:

- The creation of funded permanent/long-term research-only positions to build a highly skilled research workforce in Aotearoa
- Minimisation of time spent on applying for highly competitive grants at the expense of research time
- Recognition within the system that some researchers will never or rarely have to apply for competitive grants, thereby reducing wasted researcher and administrator time

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*Key Questions 1, 2, 7 and 14: What principles could be used to determine the scope and focus of national research Priorities? What principles should guide a national research Priority-setting process? How should we decide what constitutes a core function and how do we fund them? How should we include workforce considerations in the design of national research Priorities?*

In the Te Ara Paerangi document the description of core functions states “*We need to develop a set of criteria that let us identify core functions and apply limited resources effectively to things we think are important.*” We think something that should be considered important, and therefore be named as a core function, is research itself. The description of core functions discusses the services and resources required to conduct research, along with mentioning some very specific topics of research (e.g. infectious disease research), but it does not mention research in and of itself as being important. We think including research as a core function will make it explicit that the government should fund research and ensure conducting research is a viable undertaking within Aotearoa New Zealand.

In regard to setting research priorities across the entire sector we have some concerns. An issue with the current system is listed as being an “*inability to easily shift priorities over time.*” And whilst we agree that priorities will shift as new challenges present themselves, if funding is too heavily targeted at priorities we risk the possibility of under-investing in important, “non-priority” research that could be the answer to unforeseen challenges (e.g. without mRNA vaccine technology the COVID-19 vaccine roll-outs would have been much slower). It could also mean our research workforce becomes too heavily specialised in certain areas, limiting our ability to adapt to changes and shift priorities due to lack of expertise in “non-priority” areas. Therefore, we support the inclusion of a large portion of “non-priority” funding, to avoid the risk of under-investing in important, but seemingly “non-priority” research.

In the Department of Biochemistry we use basic, curiosity-driven research to understand the building blocks of life. Research into the fundamental questions of how our world works is important, but often does not have direct applied uses without continuous funding for further research into their applications (e.g. the development of mRNA vaccine technology highlighted above is based on prior basic research on pharmacokinetics, and mRNA stability and translatability). New technologies, ways of treating/diagnosing diseases, or conservation methods all rely upon somebody having researched the basic underlying principles of the problem, but at the time that the original basic research was being conducted it may have been inconceivable the eventual use to which it would be put.

The setting of national research priorities will distort our workforce as those priorities will be what creates the job opportunities for future scientists. Without a substantial “non-priority” funding avenue, with equal benefits to any priority funding scheme, we risk making the funding situation for anyone working outside of the prescribed government priorities as impossible as it is now, potentially losing multiple fields’ worth of expertise. Additionally, too much focus on applied research over basic research will lose talented basic science researchers who lack the expertise in applied research or who are less interested in applied research topics. An additional serious risk if research priorities are too heavily weighted toward applied research is putting too many nationally-funded science resources into projects that would be better conducted by industry-funded scientists.

Therefore, in response to Key Questions 1, 2, 7, and 14 we suggest:

- Research in and of itself be considered a core function.
- A balanced approach to the setting of research priorities is taken that includes scope for both basic and applied research within these priorities.
- That a substantial portion of funding and equivalent benefits be assigned to “non-priority” research topics.
- A fair and transparent system for initiating and setting research priorities. This could incorporate a voting process that includes all New Zealand researchers, iwi, and any other interested groups or members of the public.

We are committed to our research and want to pursue careers in research in New Zealand. We call upon policy makers to provide the necessary framework for us and others in our positions to do so.

Nāku iti noa, nā

Biochemistry EMCR Group