



# **NHMRC grants with international collaborators, 2012 to 2021**

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## Abbreviations

GACD = Global Alliance for Chronic Diseases

A\*STAR = Agency for Science, Technology and Research (Singapore)

e-ASIA JRP = The East Asia Science and Innovation Area Joint Research Program

NIH = National Institutes of Health (USA)

NIHR = National Institute for Health and Care Research (UK)

NSFC = National Natural Science Foundation of China

NAFOSTED = National Foundation for Science & Technology Development (Vietnam)

UKRI = UK Research and Innovation

CIRM = California Institute for Regenerative Medicine

JPND = EU Joint Programme – Neurodegenerative Disease Research

## Definitions

<i>Grants with international collaboration</i>	Refers to all NHMRC funded grants with at least one international participating institution or partner.
<i>International Collaborative Schemes</i>	Grant schemes that are administered jointly and/or co-funded by an international organisation through a bilateral or multilateral arrangement.
<i>Mainstream schemes with international collaboration</i>	Grants that are part of the current and previous major streams <i>excluding</i> the International Collaborative Schemes.
<i>Categories</i>	<p>For the purposes of this analysis, grant schemes have been grouped into the following ‘categories’ for some analyses. These categories differ from the standard ‘Streams’ used in the NHMRC Grant Program because of the need to separate out the International Collaborative Schemes and account for both old and new schemes:</p> <ol style="list-style-type: none"> <li>1) International Collaborative Schemes</li> <li>2) <u>Strategic &amp; Leveraging Stream/Program Grants</u>: Development, Partnership, Centres of Research Excellence, Boosting Dementia Research Initiative, Targeted Calls for Research, Clinical Trials and Cohort Studies Grants, and Program Grants</li> <li>3) <u>Fellowships &amp; Scholarships</u>: Early Career Fellowship, Research Fellowships, Career Development Fellowships, Practitioner Fellowships, Translating Research into Practice Fellowships, NHMRC-ARC Dementia Research Development Fellowships, Postgraduate Scholarships</li> <li>4) <u>Project/Ideas</u>: Project Grants, Ideas Grants (2019 onwards)</li> <li>5) Investigator Grants</li> <li>6) Synergy Grants</li> </ol>

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## Summary

From 2012-2021:

	All grants with at least one international collaborator	International Collaborative Schemes
SCOPE	<ul style="list-style-type: none"> <li>1,408 grants have been awarded (13% of all NHMRC grants awarded)</li> <li>49% have been Project Grants</li> <li>Approximately \$1.3 billion has been invested (14% of total commitment on all NHMRC grants)</li> <li>49% were in basic science, followed by clinical medicine and science (31%) and public health (15%)</li> </ul>	<ul style="list-style-type: none"> <li>128 grants have been awarded</li> <li>38% have been funded through the European Union (EU) collaborative research grant scheme</li> <li>Approximately \$90 million has been invested</li> <li>A higher proportion (31%) was classified as 'public health' compared to the other mainstream grant schemes (13%)</li> </ul>
REACH	<ul style="list-style-type: none"> <li>Just over 80% were administered through universities</li> <li>Most of the grants awarded to support individual researchers<sup>1</sup> were through the previous Early Career Fellowship scheme (76%)</li> <li>72 countries have been named as either a partner or participating country</li> <li>Most of the grants had one other country involved as a collaborator</li> <li>The top 5 collaborating countries were United States of America, United Kingdom, Canada, Germany and New Zealand</li> </ul>	<ul style="list-style-type: none"> <li>More grants were awarded to research institutes (23%) and other agencies (Government, Charity, Health) (4%) compared with the mainstream schemes</li> <li>62 countries have been named as either a partner or participating country</li> <li>Collaborations were fostered with 20 countries not engaged through mainstream schemes</li> <li>45% had two or more countries as collaborators (number of countries ranged from 1 to 17)</li> <li>The top 5 collaborating countries were Germany, Netherlands, United Kingdom, United States of America and Italy</li> <li>There was higher engagement with low- to middle-income countries than for mainstream schemes</li> </ul>

<sup>1</sup> Includes all grant schemes in the Fellowships & Scholarships category and Investigator Grants

# 1. Purpose

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The purpose of this report is to provide a descriptive analysis of the scope and reach of NHMRC's international collaborations across all grant schemes over the past 10 years.

Our research questions are:

- 1) What are we funding and how much is it costing us?
- 2) Who are we engaging with and where is the research taking place?

# 2. Methods and Scope

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This analysis includes NHMRC funded grants from 2012 to 2021 (year of application) **with at least one international participating institution or partner listed on the application**; this includes schemes from all four streams of the current NHMRC grant program (Investigator, Synergy, Ideas, Strategic and Leveraging Grants) and the previous grant program (e.g., Project Grants). In some analyses, the grants funded only through 'International Collaborative Schemes' (which falls under the 'Strategic and Leveraging Grant' stream) are examined. A qualitative and quantitative desk review was undertaken using data available from records in NHMRC's grant management systems.

# 3. Findings

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## 3.1 Scope - What are we investing in?

### 3.1.1 Grant schemes with international collaboration - number of grants

From 2012 to 2021, there were 1,408 grants with at least one international collaborator across NHMRC schemes. This represents 13% of all NHMRC grants awarded (10,878 grants) during the same time period.

Almost 50% of the grants with at least one international collaborator were funded through NHMRC Project Grants (2012-2018) (Table 1).

**Table 1. Number and percentage of grants with an international collaborator by grant scheme, 2012-2021**

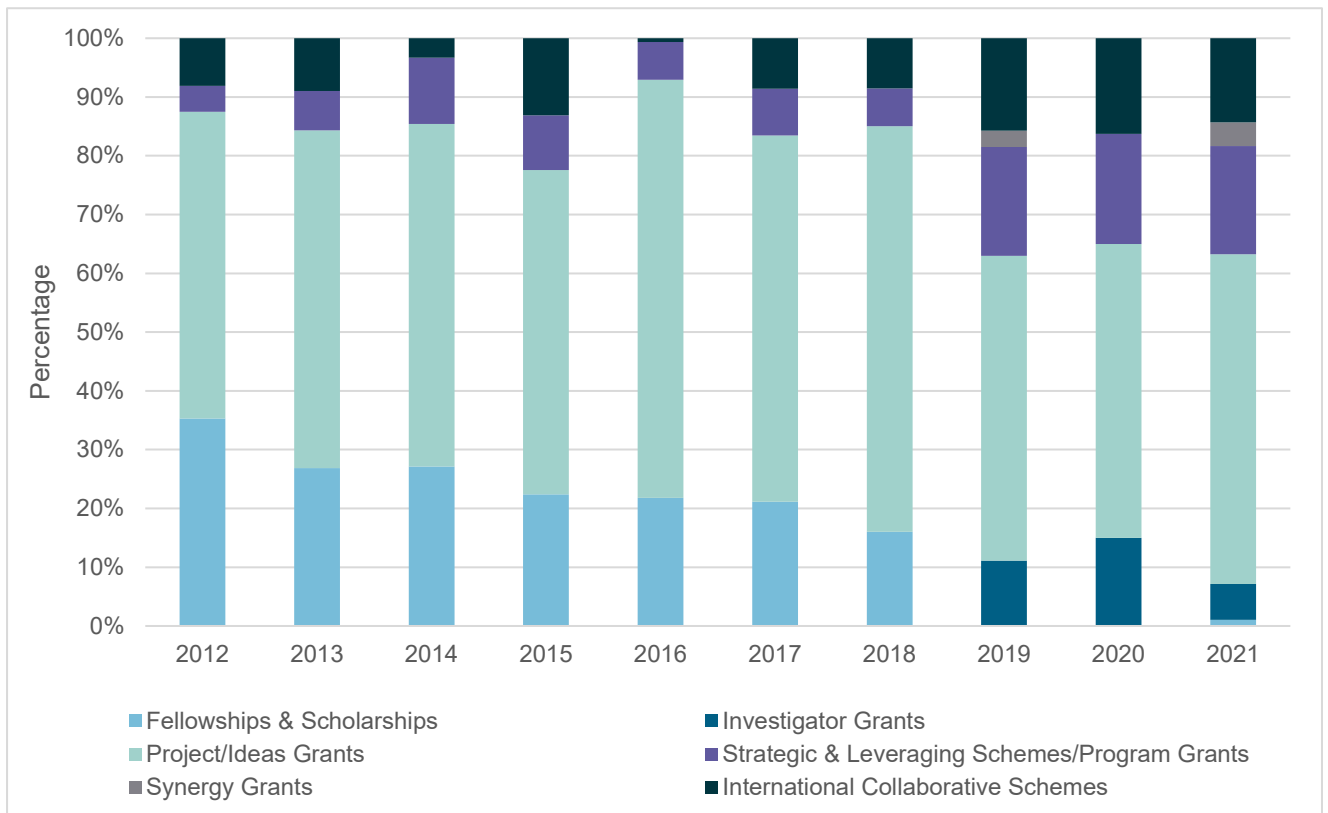
Grant Scheme	Number	%
Project Grants	686	48.7%
Early Career Fellowships	225	16.0%
Ideas Grants	151	10.7%
International Collaborations	128	9.1%
Development Grants	34	2.4%
Partnerships	32	2.3%
Investigator Grants	30	2.1%
Centres of Research Excellence	29	2.1%
Clinical Trials and Cohort Studies Grants	28	2.0%
Postgraduate Scholarships	16	1.1%
Boosting Dementia Research Initiative	8	0.6%
Research Fellowships	8	0.6%
NHMRC - ARC Dementia Research Development Fellowships	7	0.5%
Synergy Grants	7	0.5%
Targeted Calls for Research	6	0.4%
Career Development Fellowships	5	0.4%
Practitioner Fellowships	4	0.3%
Translating Research into Practice Fellowships	3	0.2%
Program Grants	1	0.1%
<b>Total</b>	<b>1408</b>	<b>100%</b>

Year by year, the total number of grants funded with an international collaborator has ranged from 80 (2020) to 187 (2018) (Figure 1); there was a steady increase from 2012 to 2018 and a substantial drop in 2019, 2020 and 2021. This may partly be due to the introduction of the new grant program which consolidated all fellowships and some Project and Program Grant funding into the Investigator Grant scheme. Year by year, the proportion of grants with an international collaborator was highest for Project Grants followed by the grant schemes in the Fellowships & Scholarships category (Figure 2). From 2019, with the introduction of the new grant program, the proportion of grants with an international collaborator was highest for Ideas Grants followed by the schemes in the ‘Strategic & Leveraging Stream’ category.

**Figure 1.** Number of grants with an international collaborator by category, 2012-2021



**Figure 2.** Percentage of grants with an international collaborator by category, 2012-2021





### 3.1.2 International Collaborative Schemes - number of grants

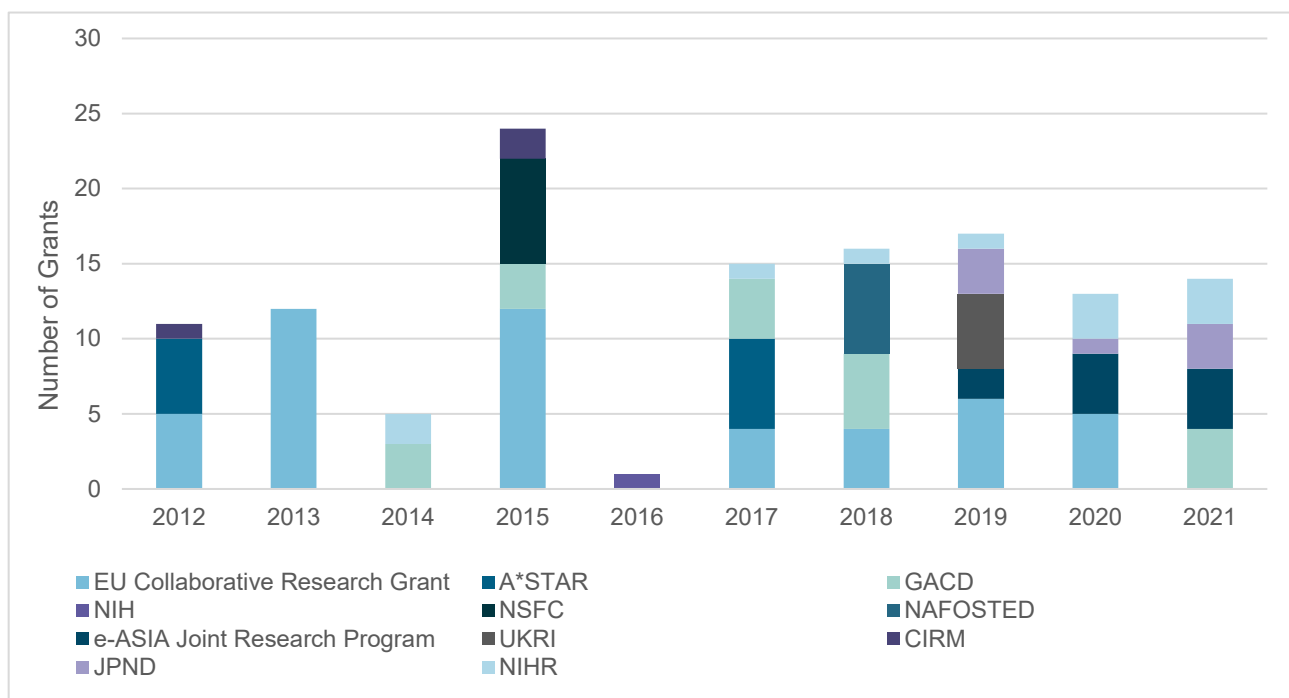
From 2012 to 2021, 128 grants were funded through the International Collaborative Schemes, which was approximately 9% of all the grants with at least one international collaborator. Among all International Collaborative Scheme grants awarded in this period, 38% were NHMRC-European Union (EU) collaborative research grants, 15% were through the Global Alliance for Chronic Diseases (GACD) and 9% were through the Agency for Science, Technology and Research (A\*STAR) collaborative schemes (Table 2).

**Table 2. Number and percentage of grants awarded through International Collaborative Schemes**

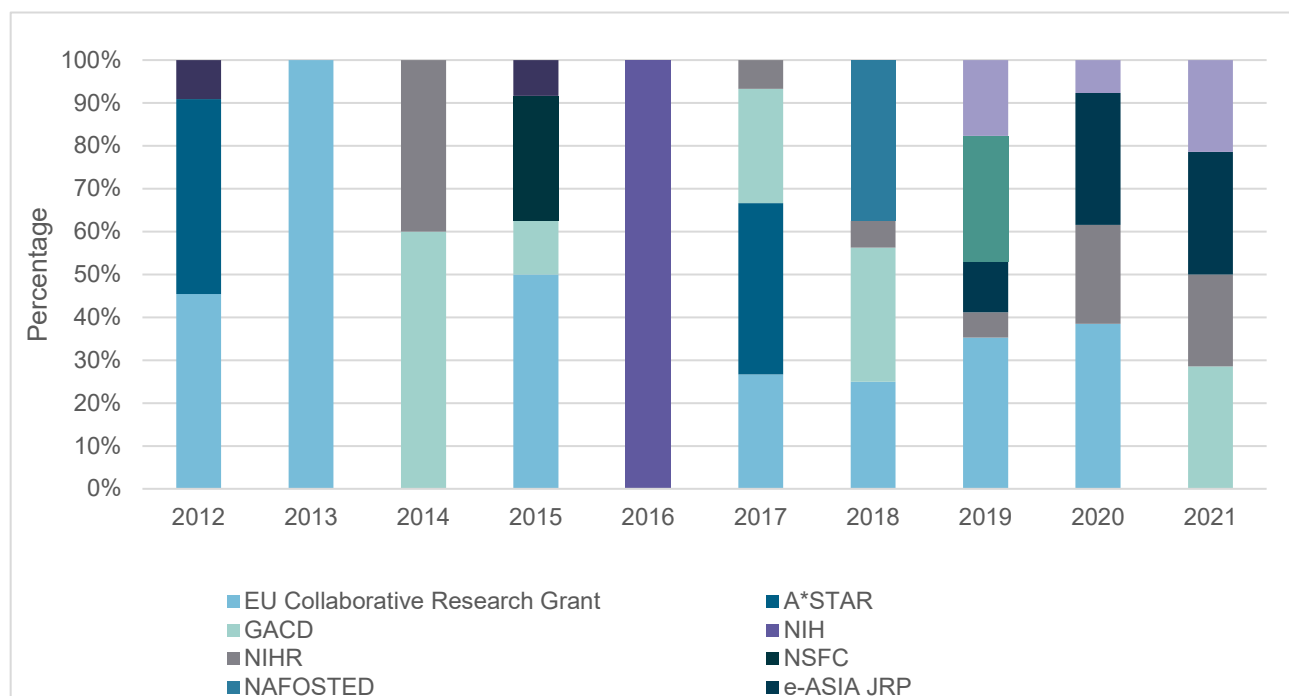
International Collaborative Scheme	Number	%
NHMRC-EU Collaborative Research Grant	48	37.5%
GACD	19	14.8%
A*STAR	11	8.6%
NIHR	11	8.6%
e-ASIA Joint Research Program	10	7.8%
NSFC	7	5.5%
JPND	7	5.5%
NAFOSTED	6	4.7%
UKRI	5	3.9%
CIRM	3	2.3%
NIH	1	0.8%
<b>Total</b>	<b>128</b>	<b>100%</b>

From 2012 to 2021, on average, 13 grants were funded per year in the International Collaborative Schemes; however, there have been fluctuations from year to year (Figure 3). The largest number of grants was funded in 2015 (24 grants) and 2019 (17 grants) and the lowest number in 2016 (1 grant) (Figure 3). Year by year, the proportion of grants funded in each scheme type within the International Collaborative Schemes varied (Figure 4).

**Figure 3.** Number of grants awarded through International Collaborative Schemes by partner agency, 2012-2021



**Figure 4.** Number of grants by international partner as a percentage of all grants awarded under International Collaborative Schemes each year



### 3.1.3 Grant schemes with international collaboration - investment

Across all NHMRC schemes from 2012 to 2021, approximately \$1.3 billion was committed to grants with at least one international collaborator (Table 3). This represents 14% of the total commitment for all NHMRC grants (\$9.3 billion) during the same time period.

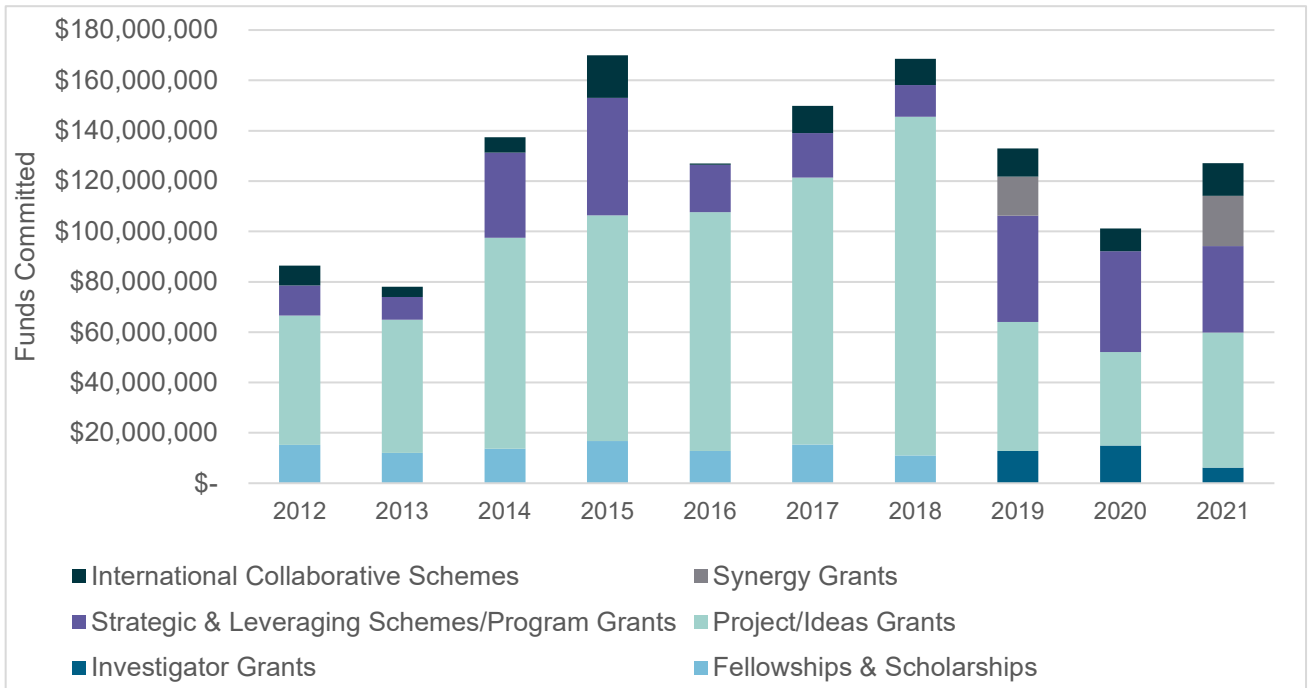
Almost 50% of the total funds committed to grants with at least one international collaborator were through Project Grants. It is important to note that the funds committed were paid to the Australian Administering Institution.

**Table 3. Total commitment and percentage of all grants with an international collaborator by grant scheme, 2012-2021**

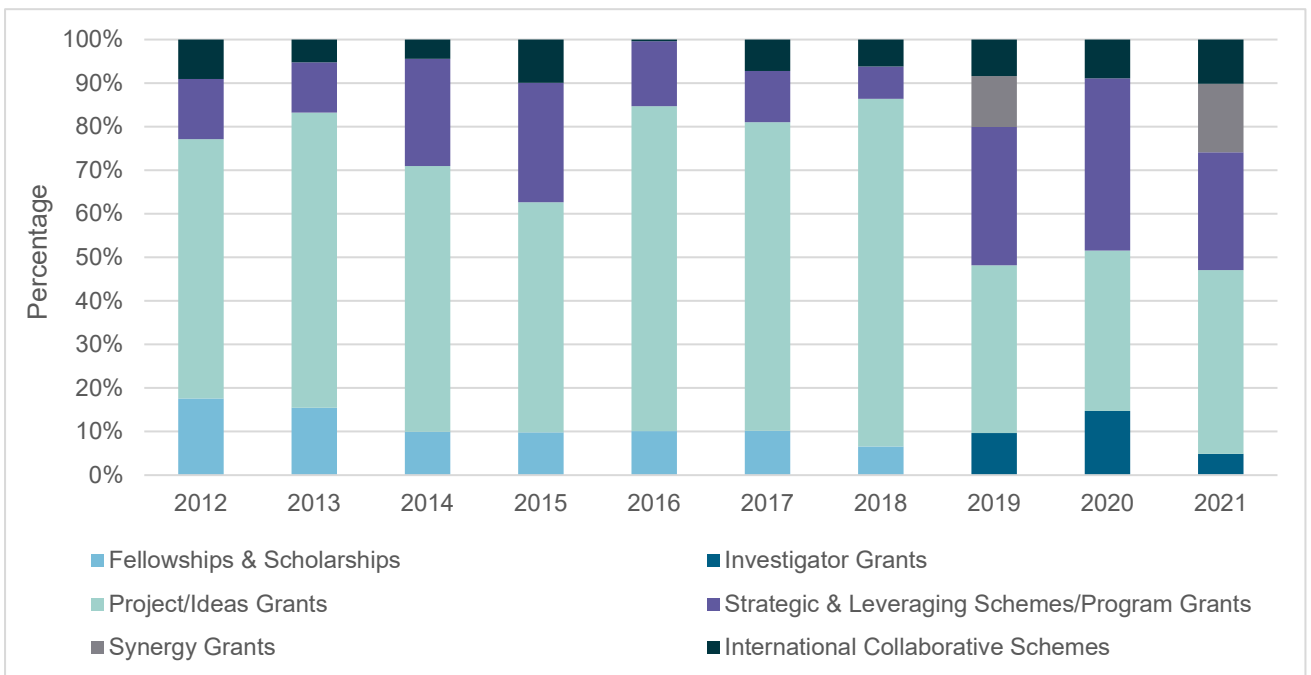
Funding type	Total Budget	% of total
Project Grants	\$613,416,187.56	48.0%
Ideas Grants	\$142,006,720.95	11.1%
International Collaborations	\$89,605,170.75	7.0%
Early Career Fellowships	\$80,339,908.48	6.3%
Clinical Trials and Cohort Studies Grants	\$74,795,037.56	5.9%
Centres of Research Excellence	\$74,675,725.78	5.8%
Synergy Grants	\$35,486,394.47	2.8%
Targeted Calls for Research	\$33,939,788.52	2.7%
Investigator Grants	\$33,909,930.22	2.7%
Partnerships	\$32,257,013.52	2.5%
Development Grants	\$22,952,972.92	1.8%
Boosting Dementia Research Initiative	\$21,170,360.05	1.7%
Programs	\$7,302,438.57	0.6%
Research Fellowships	\$5,963,844.65	0.5%
NHMRC - ARC Dementia Research Development Fellowships	\$4,376,053.53	0.3%
Career Development Fellowships	\$2,267,836.84	0.2%
Practitioner Fellowships	\$1,951,405.33	0.2%
Postgraduate Scholarships	\$1,550,848.60	0.1%
Translating Research into Practice Fellowships	\$495,201.32	0.04%
<b>Total</b>	<b>\$1,278,462,839.62</b>	<b>100.0%</b>

Year by year, the highest proportion of the investment went to Project/Ideas Grants followed by funding schemes in the ‘Fellowships & Scholarships’ category up until 2013. In 2014-2015 and between 2019 and 2021, a higher proportion was invested in the funding schemes in the ‘Strategic & Leveraging Schemes/Program Grants’ category compared to other years (Figures 5 and 6). After the implementation of the new grant program from 2019 onwards, a higher proportion of funding has been committed to Strategic & Leveraging Schemes/Program Grants compared to previous years.

**Figure 5. Total commitments for grants with an international collaborator, 2012-2021**



**Figure 6. Total commitments by category as a percentage of the total commitment for grants with an international collaborator**



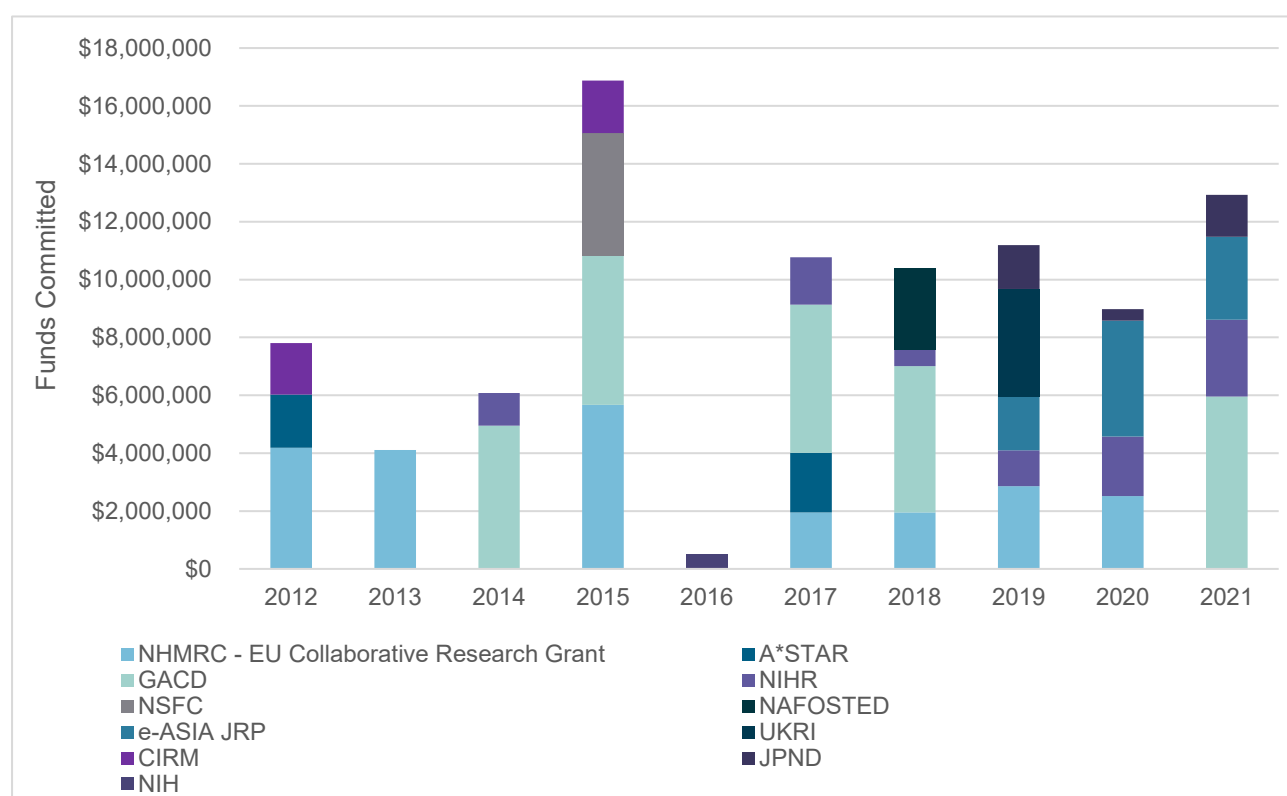
### 3.1.4 International Collaborative Schemes - investment

Approximately 7% (\$90 million) of the total amount committed to grants with at least one international collaborator was awarded to International Collaborative Schemes (Table 4). About a third (29%) of the funds committed to International Collaborative Schemes was to GACD grants and a quarter (26%) to EU collaborative research grants. Figures 7 and 8 show the trends in investment in the different schemes within the International Collaborative Schemes.

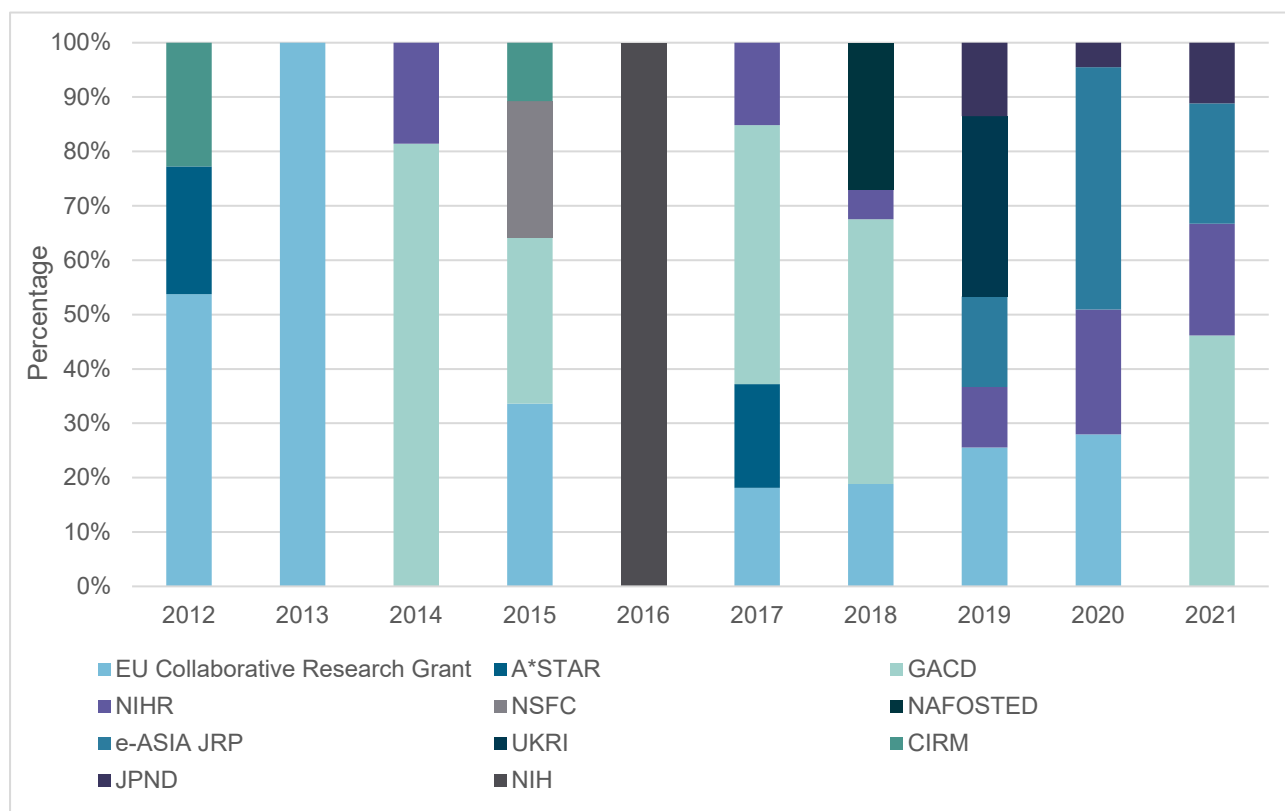
**Table 4.** Total commitment for each International Collaborative Scheme and percentage of total commitment, 2012-2021

Funding subtype (International Collaborative Scheme)	Total Commitment	%
GACD	\$26,240,427.51	29.3%
EU Collaborative Research Grant	\$23,244,907.41	25.9%
NIHR	\$9,298,826.53	10.4%
e-ASIA Joint Research Program	\$8,736,852.17	9.8%
NSFC	\$4,240,784.23	4.7%
A*STAR	\$3,890,958.36	4.3%
UKRI/NHMRC	\$3,707,158.22	4.1%
CIRM	\$3,583,505.41	4.0%
JPND	\$3,358,243.97	3.7%
NAFOSTED	\$2,802,220.63	3.1%
NIH	\$501,286.31	0.6%
<b>Total</b>	<b>\$89,605,170.75</b>	<b>100%</b>

**Figure 7.** Total funds committed to International Collaborative Scheme grants by partner, 2012-2021



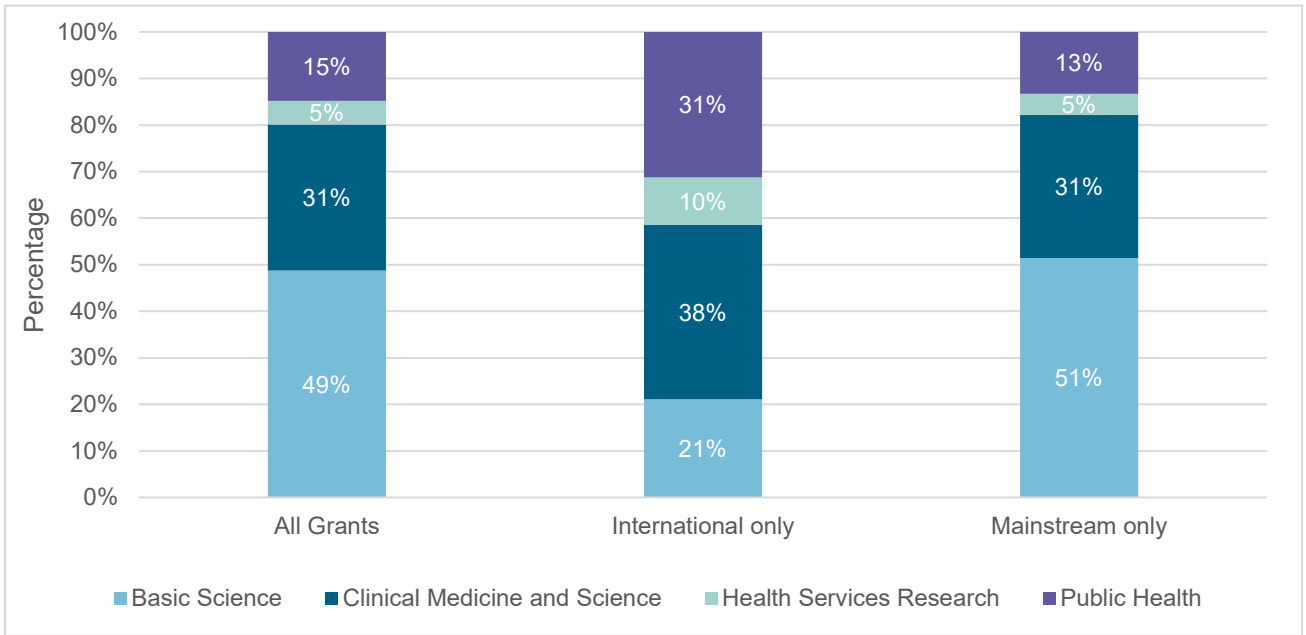
**Figure 8. Funds committed for each international scheme as a percentage of the total funds committed for International Collaborative Schemes**



### 3.1.5 Broad Research Area (BRA) of grants with an international collaborator

Across all grants with an international collaborator in 2012-2021, almost half (49%) were allocated by the applicant to Basic Science, followed by Clinical Medicine and Science (31%), Public Health (15%) and Health Services Research (5%) (Figure 9). A higher proportion of grants in the International Collaborative Schemes were classified as Public Health compared to the other mainstream grant schemes (31% vs 13%). There was a much smaller proportion of Basic Science grants within the International Collaborative Schemes than in the mainstream schemes (22% vs 51%) (Figure 9). Figure 10 shows the percentages of grants by BRA within specific grant schemes.

**Figure 9. Percentage of grants by Broad Research Area across all grants with an international collaborator**



**Figure 10. Percentage of grants by Broad Research Area and category**

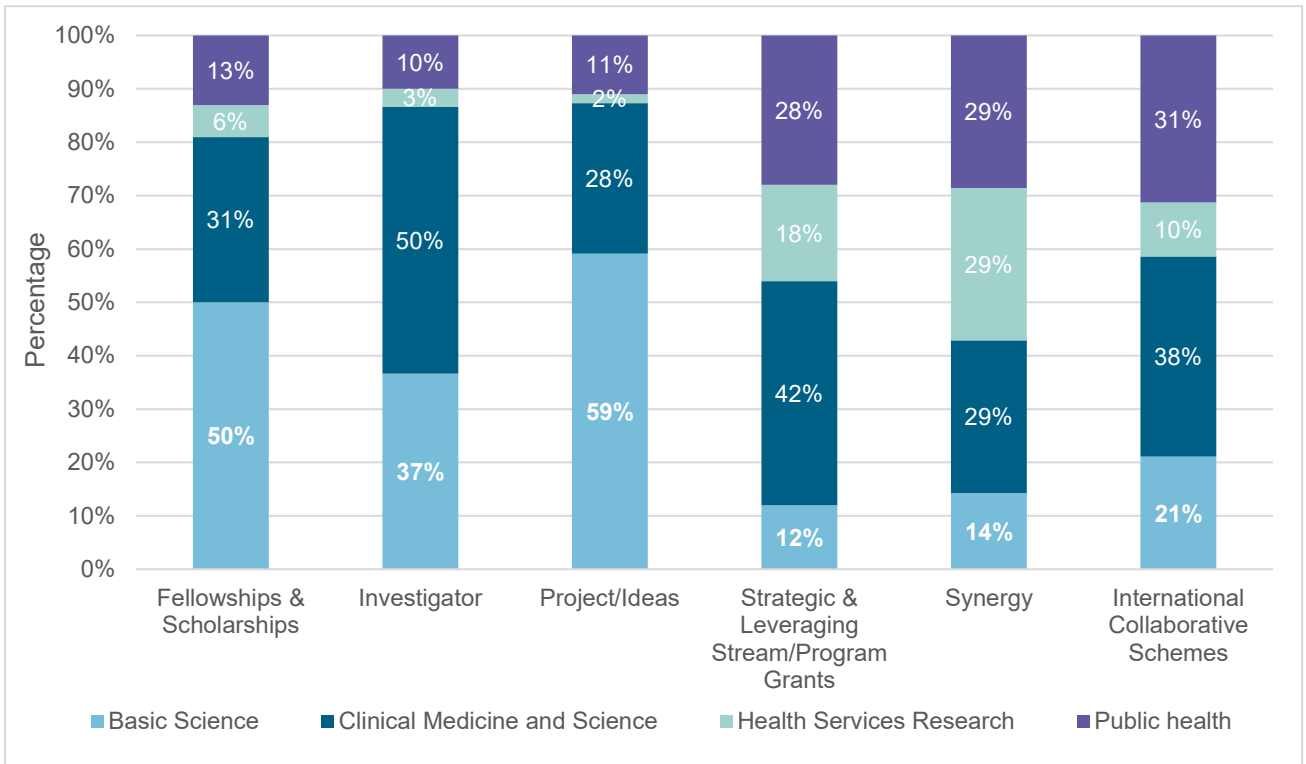
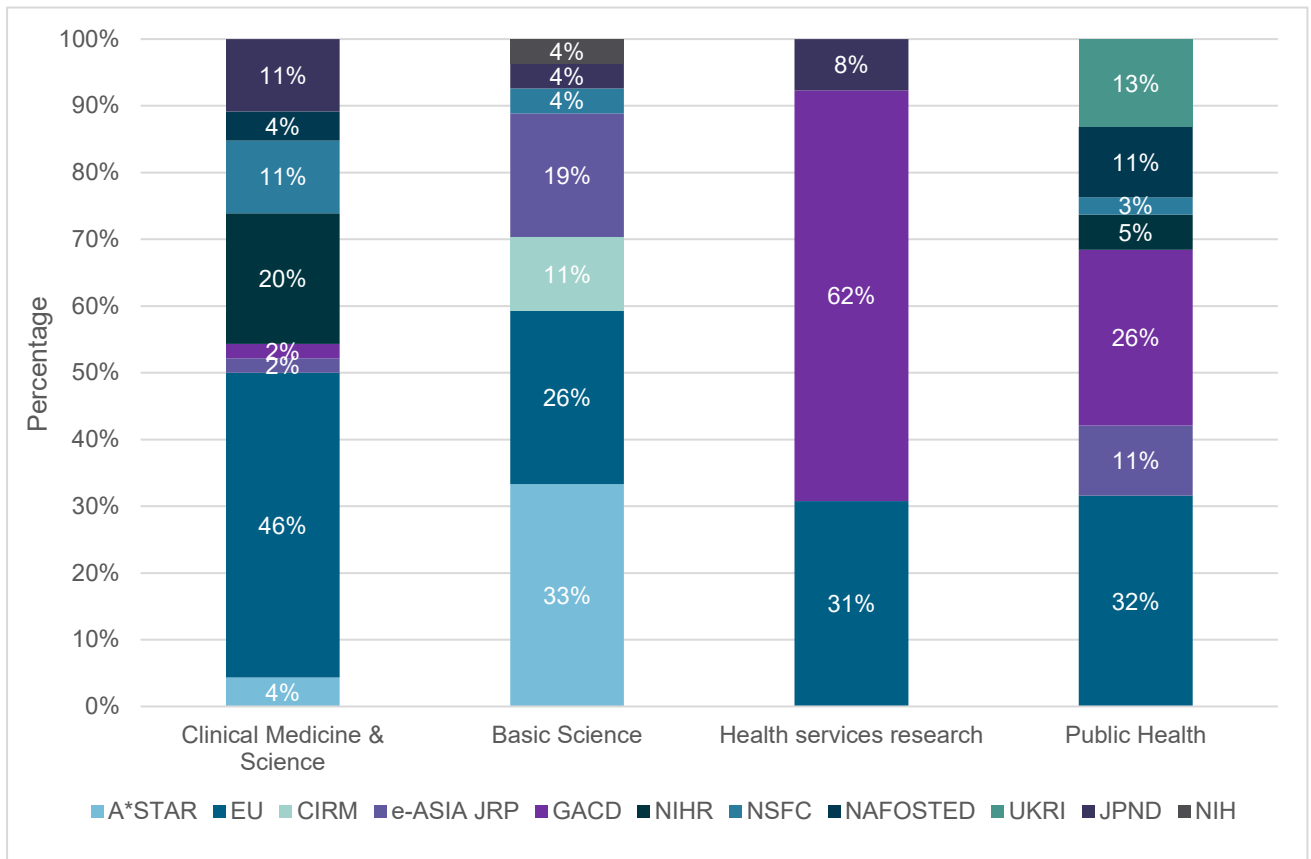


Figure 11 shows the percentage of grants in each BRA by International Collaborative Scheme. The majority of grants funded within Clinical Medicine & Science were through the EU Collaborative Research Grant scheme. For Health Services Research, it was primarily GACD grants. For the other broad research areas, there was a variety of different schemes represented.

**Figure 11. Percentage of grants in each Broad Research Area by International Collaborative Scheme**



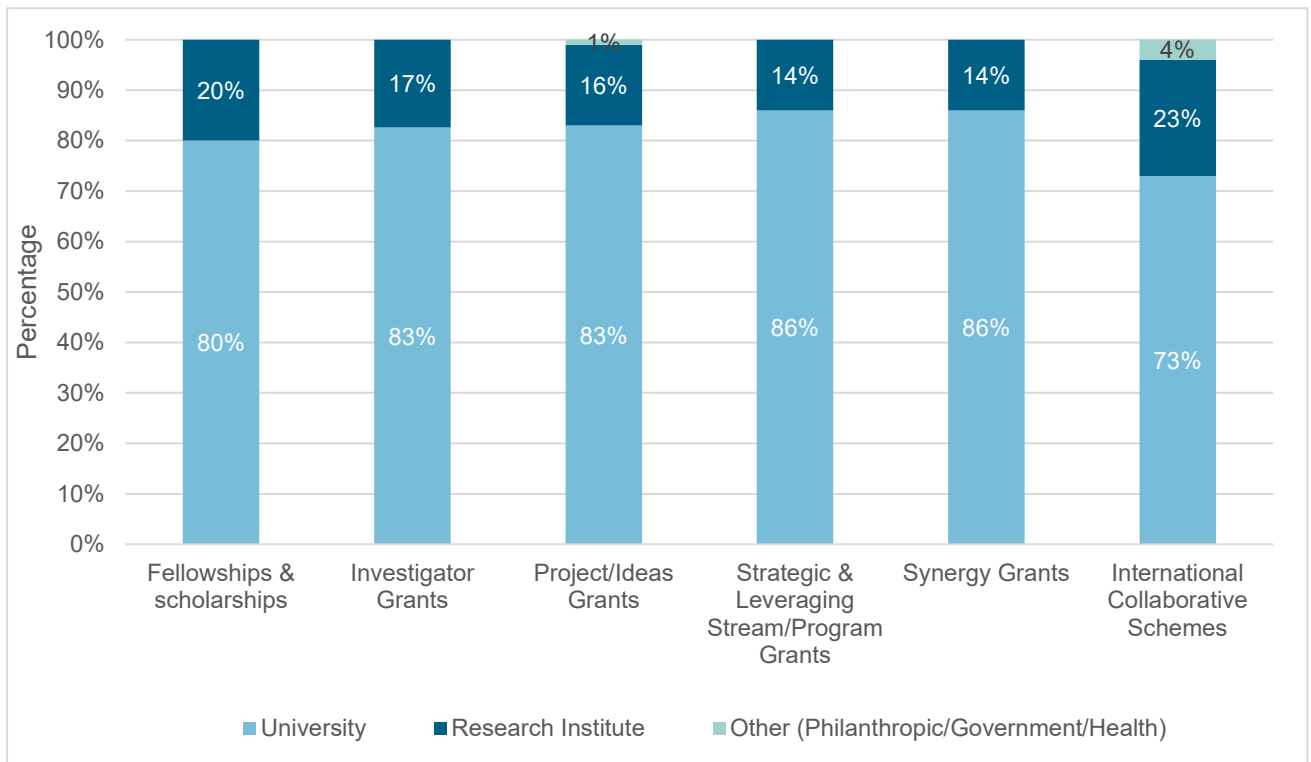
### 3.2 Reach - who are we engaging with and where is the research taking place?

#### 3.2.1 Research sector

Just over 80% of all grants with an international collaborator are administered through universities followed by research institutes (17%). International Collaborative Schemes had a slightly higher proportion of grants funded through research institutes (23%) and other institutions (Government, Charity, Health) (4%) compared to the other mainstream schemes (Figure 12).



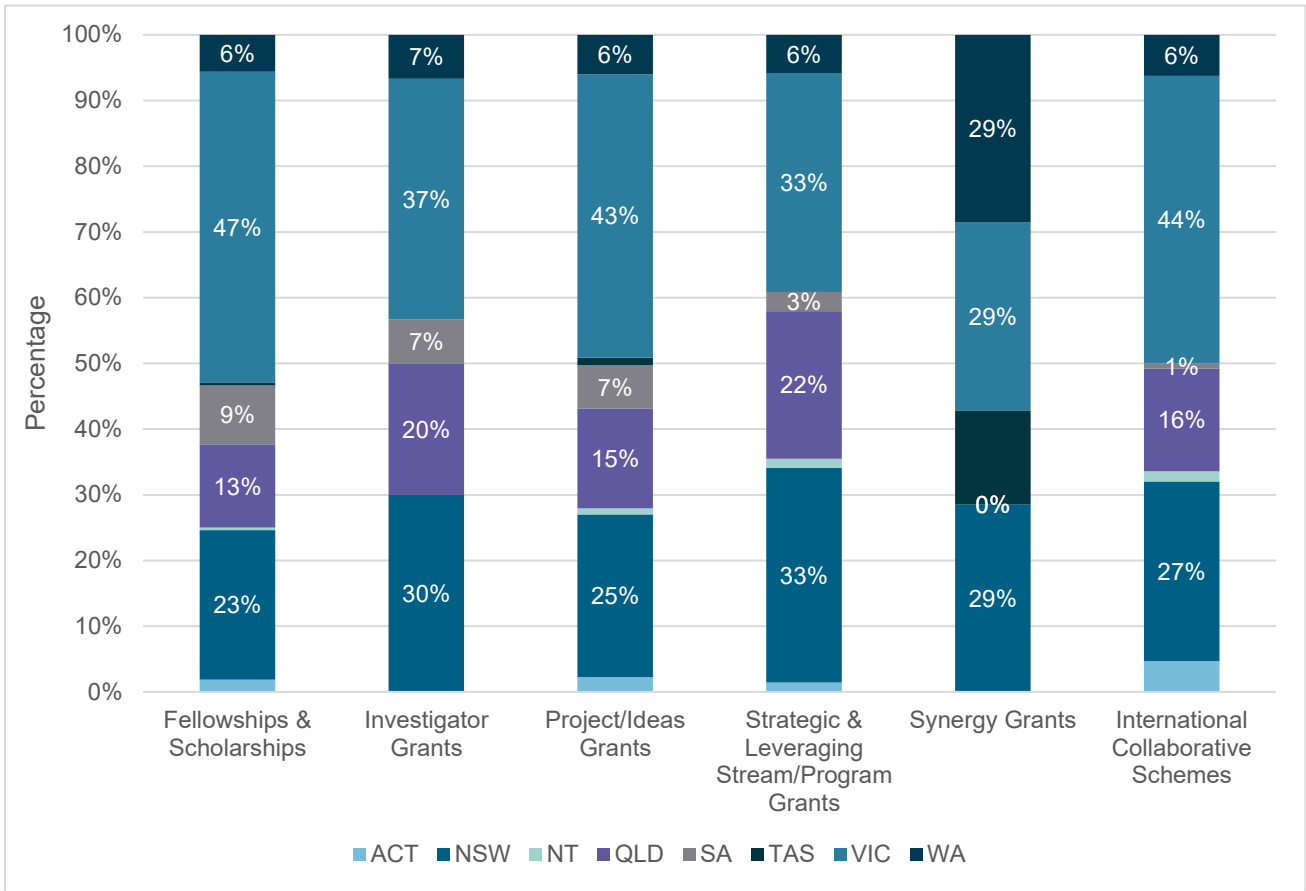
**Figure 12. Research sector of all grants with an international collaborator by category**



### 3.2.2 Location of the research within Australia

The highest percentage of grants with an international collaborator was administered through Victoria (43%) followed by NSW (25%) and QLD (15%) (based on Administering Institution location). Figure 13 shows the proportions of grants by State/Territory for each category.

**Figure 13. Location of Administering Institution by category for all grants with an international collaborator**



**3.2.3 Researchers – Number of grants received by lead investigators**

International Collaborative Schemes - In total, there have been 120 different lead researchers (Chief Investigator As) who have received a grant through the International Collaborative Schemes (Table 5). The majority of the lead investigators (113; 94%), have received one grant; six (5%) have received two grants and one (1%) has received three grants (all GACD grants).

Mainstream schemes with international collaboration - In total, there have been 1,036 CIAs who have received a grant with an international collaborator in the project team. Most of the CIAs (860; 83%) have received one grant; 130 (13%) have received two grants; 31 (3%) have received three grants. One CIA has received six grants within the past 10 years.

**Table 5. Number of grants received by lead researcher (CIA)**

No. of Grants	International Collaborative Scheme		Mainstream Scheme with international collaboration	
	No. of Researchers	% of total	No. of Researchers	% of total
1	113	94%	860	83%
2	6	5%	130	13%
3	1	1%	31	3%
4	0	0%	9	1%
5	0	0%	5	0.5%
6	0	0%	1	0.1%
<b>Total</b>	<b>120</b>	<b>100%</b>	<b>1036</b>	<b>100%</b>

Twenty-five CIAs have received a grant through the International Collaborative Schemes and at least one other mainstream grant with an international collaborator.

### 3.2.4 Funding for researchers

Over the past 10 years, there have been a total of 298 grants awarded through postgraduate scholarships and research fellowships schemes that have included at least one international collaborator. The majority of these research fellowship grants have been awarded through the Early Career Fellowship scheme (2012-2018) and Emerging Leadership Level 1 Investigator Grants (2019-21) (83%). There was a significant drop in the number of research fellowships with an international collaborator once the Investigator Grants (Emerging Leadership Levels 1 and 2) were introduced in 2019, collectively replacing the previous Early Career Fellowships and some Career Development Fellowships.

There have been 30 Investigator Grants awarded with at least one international collaborator from 2019 to 2021, 70% of these have been at the Emerging Leadership Level 1, 20% at Leadership Level 1 and the remaining 10% have been at Leadership Levels 2 and 3.

### 3.2.5 Collaborations with countries

Across all grants with at least one international collaborator, there were 72 different countries represented as either a partner or participating country. Across the grant schemes, International Collaborative Schemes had the highest number of collaborating countries (62) followed by Project Grants (43), Ideas Grants (29) and Early Career Fellowships (23) (Table 6).

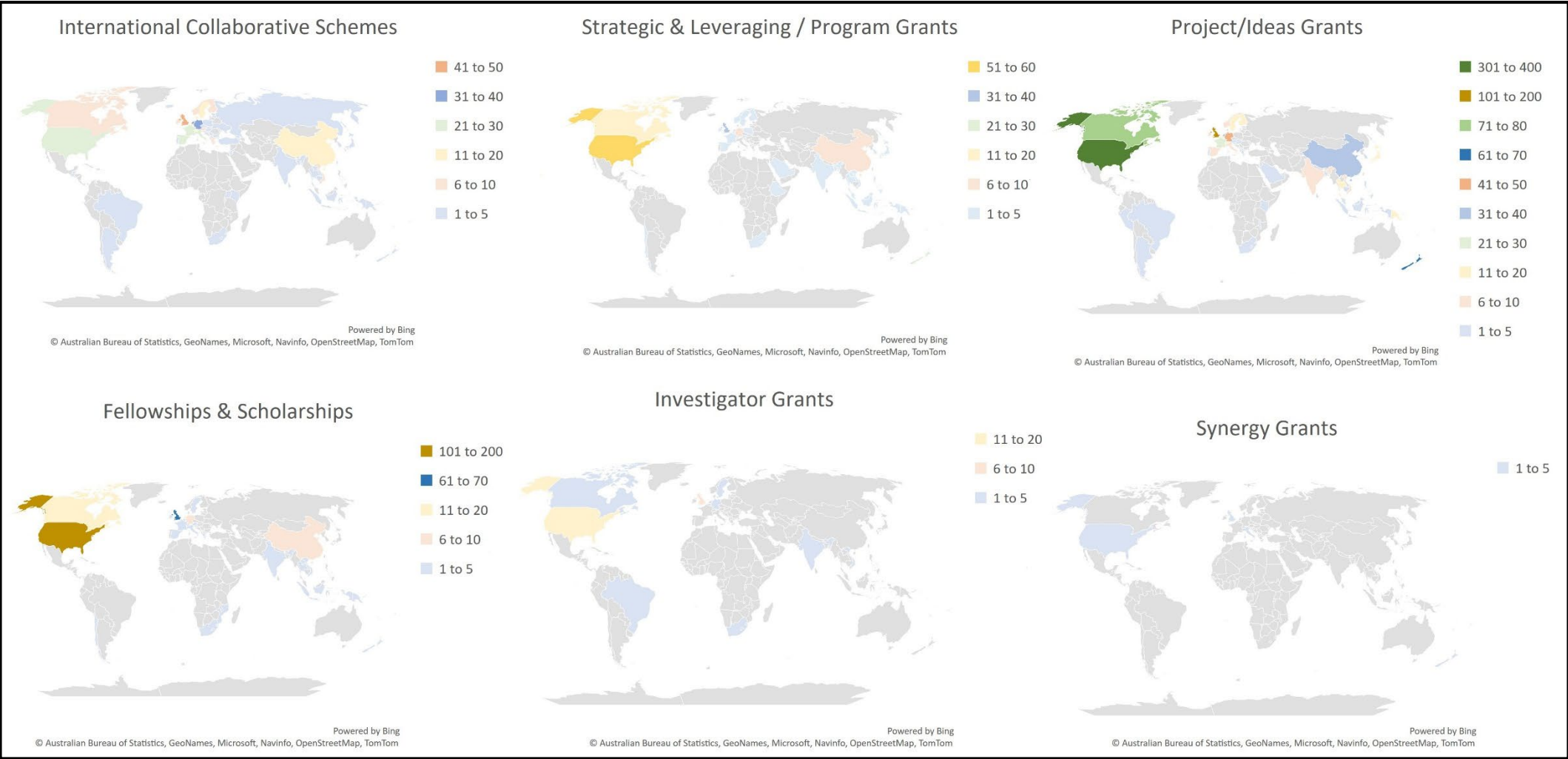
**Table 6. Number of countries participating as either a partner or a participating country in grants across all grants with an international collaborator by grant scheme**

Grant Scheme	Number of Countries
International Collaborative Schemes	62
Project Grants	43
Ideas Grants	29
Early Career Fellowships	23
Clinical Trials and Cohort Studies Grants	20
Centres of Research Excellence	18
Development Grants	13
Investigator Grants	12
Partnership Grants	10
Postgraduate Scholarships	9
Research Fellowships	8
NHMRC - ARC Dementia Research Development Fellowship	4
Targeted Calls for Research	8
Boosting Dementia Research Initiative	8
Translating Research into Practice Fellowships	7
Career Development Fellowships	6
Synergy Grants	5
Practitioner Fellowships	4
Program Grants	1

The top 5 collaborating countries across all grants with an international collaborator were the United States, United Kingdom, Canada, Germany and New Zealand. Across the International Collaborative Schemes only, the top 5 collaborating countries were United Kingdom, Netherlands, Germany, Italy and the United States. The International Collaborative Schemes have resulted in 20 new international collaborations, i.e. 20 countries that have not participated in any other mainstream grant scheme. Figure 14 shows the number of grants in each country by funding category.



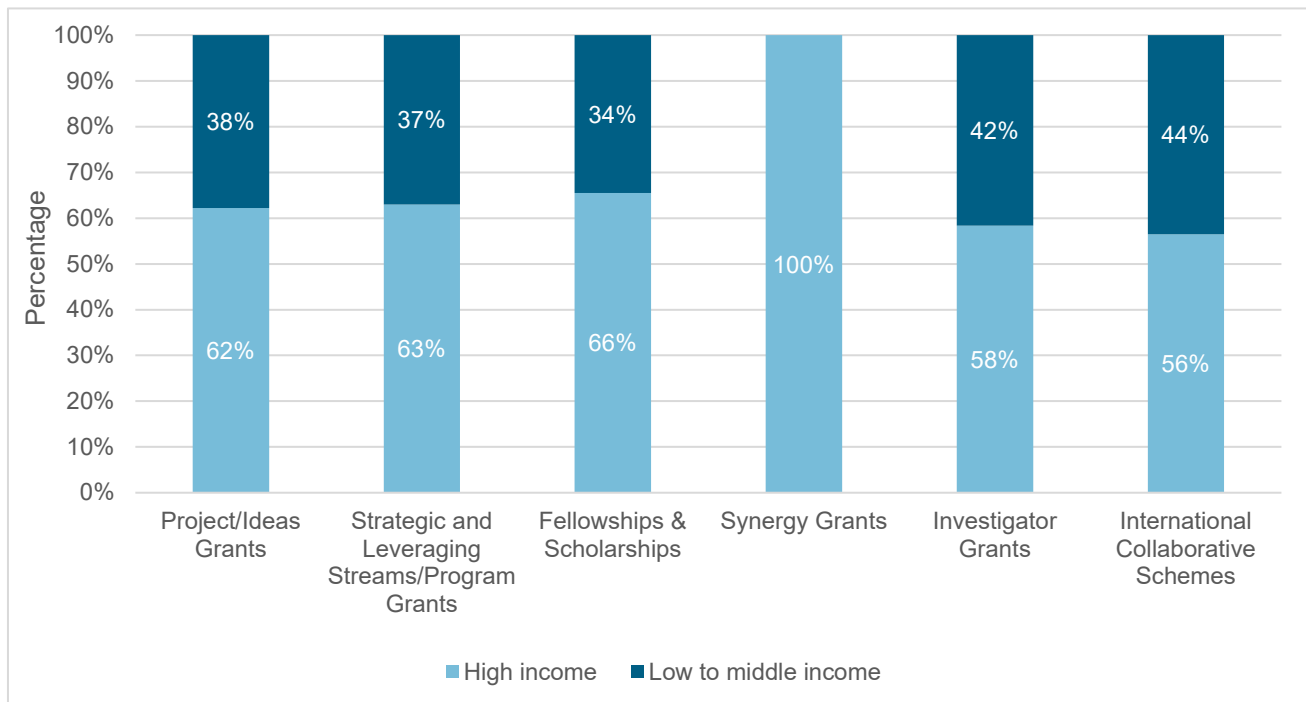
**Figure 14.** Number of grants with each country by category, 2012-2021. Darker shades represent higher number of grants.



### 3.2.6 High-income and low- to middle-income countries

Of the 72 countries that participated in all grant schemes with an international collaborator, 38 (53%) were high-income countries and 34 (47%) were low- to middle-income countries. Among the International Collaborative Schemes, 56% were high-income countries and 44% low- to middle-income countries. For the other categories, the proportion of high-income countries was at least 60% (Figure 15).

**Figure 15. Percentage of high-income and low- to middle-income countries by category**



### 3.2.7 Number of countries per grant<sup>2</sup>

**Mainstream schemes** – Across the mainstream grant schemes with grants with at least one international collaborator, the majority of the grants had one other country besides Australia involved as a collaborator. Scheme types with a high number of international collaborators included Project Grants (two projects had seven collaborators), Centres of Research Excellence and Clinical Trials and Cohort Studies Grants (up to five collaborators for both schemes).

**International Collaborative Schemes** – Across the International Collaborative Schemes, the number of countries that were a collaborator (as a partner or participant) on a project ranged from one to 17. Forty-six percent of the grants from 2012 to 2021 had two or more countries as a collaborator. Sixteen percent (13 grants) had 10 or more countries involved in their project. Projects with very high numbers of collaborators (i.e five or more) were funded through the NHMRC-EU Collaborative Research Grant scheme.

<sup>2</sup> Applicants are not required to list all collaborating countries in their grant application for all scheme types which may have resulted in an under-estimate of the number of international collaborations per grant.