

07/09/2017

# Evaluation of VILLUM Young Investigator Programme 2012-2017

Report prepared for VILLUM FONDEN

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# Contents

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<b>Executive Summary and recommendations</b>	<b>4</b>
<b>1 Introduction</b>	<b>8</b>
<b>2 Profile of VILLUM Young Investigator Programme grantees</b>	<b>10</b>
<b>3 VILLUM Young Investigator grant – career-defining</b>	<b>14</b>
<b>4 Research performance</b>	<b>20</b>
<b>5 Quality of the VILLUM Young Investigator Programme organisation and administration</b>	<b>22</b>
<b>Appendix I Comparable programs</b>	<b>26</b>
<b>Appendix II Methodology and data</b>	<b>31</b>
<b>Appendix III Workshop programme and participants</b>	<b>34</b>
<b>Appendix IV Members VILLUM Young Investigator Programme Committee 2011-2017</b>	<b>36</b>
<b>Appendix V Villum Young Investigator Programme grantees</b>	<b>37</b>
<b>Appendix VI VILLUM Young Investigator Programme Call 2016</b>	<b>40</b>

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# Executive Summary and recommendations

## Background and purpose of the evaluation

The VILLUM Young Investigator Programme has been in existence for six years. Since 2012<sup>1</sup>, it has funded 111 early-stage researchers in the technical and natural sciences. The specific aim has been to help talented young researchers set up their own research groups based on the ideas they are most passionate about, allowing them to come out of the shadow of well-established professors.

The aim of this evaluation is to assess the Young Investigator Programme (YIP) and its ability to meet its aims.

The five-month evaluation sought to answer the following three questions through desk research, questionnaires, personal interviews and bibliometric publication data:

1. Does the YIP grant have an impact on the scientific performance of the grantees?
2. Does the YIP grant influence the career paths of the grantees?
3. Is the quality of the programme organisation – in particular VILLUM FONDEN, the host institutions and research groups – in line with the overall aim of the programme?

The key results and recommendations of the evaluation are summarised below.

## Findings

The overall result of the evaluation is that the VILLUM Young Investigator Programme is appreciated and highly effective in supporting talented young researchers in setting up their own research teams, establishing their own scientific profiles and obtaining permanent positions at universities. This conclusion is supported by data from the interviews, the

questionnaire and the publications. The programme is achieving its goal. The more detailed results of the evaluation are summarised below.

## YIP grantees develop independent profiles

The evaluation shows that grantees, to a larger extent than non-recipients, do develop their own independent academic profiles and research groups. There are clear indications of this in both the interviews and survey data. The evaluation survey shows that 73 pct. of grantees currently lead a research group, while this is the case for only 39 pct. of non-recipients.

The publication data show that grantees have a scientific impact close to the Danish average, while they, on average, are cited 12 pct. more often than the OECD average. For the young grantees, these are rather good results, since the grantees are both compared with the wider research community and its large number of experienced researchers, and since it can be assumed that they must use significant time and effort establishing an independent research profile.

## The YIP grant benefits careers

Grantees have a positive career development measured in terms of their ability to attract additional competitive funding from a broad range of national and international sources. In addition, YIP grants help grantees move into tenure tracks at universities.

The 111 grantees have managed to obtain additional funding 64 times from 27 different sources in Denmark and 13 foreign sources. Almost all grantees, both Danish and foreign, who have attracted

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<sup>1</sup> The board of VILLUM FONDEN awarded the first YIP grants in December 2011, but the grant letter was received by the grantees in January 2012. Hence the use of 2012 as the starting year.

additional competitive funding agree that the YIP grant played an important role in doing so.

Also, while 70 pct. of YIP grantees did not have a permanent position when they applied for the grant, almost 50 pct. obtained one during their grant period.

### **High quality of organisation and information**

YIP grantees, non-recipients, the assessment committee, the host institutions, and other research-financing private and public foundations and councils interviewed as part of the evaluation hold the YIP and the organisation behind it in high regard. Grantees, their host institutions and the assessment-committee members concur that the current grant provides sufficient funding and that the five-year grant period is adequate for establishing a research group.

According to the workshop participants, VILLUM FONDEN has made significant improvements in the information it makes available about the YIP. This is reflected by the fact that 94 pct. of grantees rated the information from VILLUM FONDEN as excellent, good or satisfactory.

Also worth noting is that non-recipients were almost as satisfied as grantees with the information provided and the way the review and interview process was carried out.

The interviews and survey results point to growing acknowledgement and understanding amongst applicants, the host institutions and VILLUM FONDEN of the goals and measures of the YIP. This is linked to growing professionalisation of university administration and external fund-raising.

Finally, several grantees mentioned that they valued the YIP's networking opportunities. They mentioned the annual YIP workshop event as important

in this regard. Each year, VILLUM FONDEN hosts a workshop for current Young Investigators to provide them with an opportunity to reflect on being in the programme, network with other grantees as a way to foster collaboration, and to offer advice to those just starting in the programme. Grantees feel this is a useful way to stimulate independent projects and find talented employees.

As part of the evaluation, to put the YIP in context and especially to inspire recommendations, we have collected information and conducted interviews with representatives from three comparable programmes: Danmarks Frie Forskningsfond (DFF), Sapere Aude – Starting Grant, Denmark, Wallenberg Academy Fellows, Sweden and the SNSF Ambizione Grant, Switzerland. The information is used throughout the evaluation report

### **Recommendations**

A number of key recommendations (below) emerged from the evaluation. They are based on the quantitative data and the interview and survey results, which were tested during a final workshop with grantees, the host institutions, other research-financing foundations and councils, as well as VILLUM FONDEN.

#### **1) Close dialogue with host institutions about tenure track is needed**

As mentioned above, the evaluation points to growing acknowledgement of the goals of the programme amongst participating parties. However, the level of support offered by host institutions still varies considerably.

As also mentioned, roughly half of grantees that did not have a permanent position at the time of applying obtained one during their grant period. A relevant question to ask is whether VILLUM FONDEN is satisfied with this result.

Our study found that comparable programmes perform better in this respect. Data from the Wallenberg Academy Fellows in Sweden show that about 40 pct. of its grantees are offered tenure immediately, while an additional 30 pct. begin in a tenure track during their grant period.

Given these results, we recommend that VILLUM FONDEN sets an ambitious goal that 70 pct. of grantees obtain a permanent position during their grant period. This will require close dialogue and a strong commitment by the host institutions to make tenure positions available. Plans and measures must also be aligned and co-ordinated.

## **2) Facilitate international recruitment – A new goal for the YIP?**

During the evaluation workshop, several of the participating host institutions raised the question if the YIP should have a goal of increasing its international recruitment in order to expand the overall pool of talented young researchers.

This could be realised with a formal requirement linked to the grant's target group, as is seen in the Swiss National Science Foundation's Ambizione Funding Scheme. The scheme supports Swiss researchers, but it also has the formal goal of giving researchers the opportunity to come back to Switzerland after time abroad. Furthermore, it encourages researchers with no formal link to Switzerland to do research there.

Ambizione Funding Scheme figures indicate that 58 pct. of grantees have a foreign background and 40 pct. have applied from abroad. For the Wallenberg Academy Fellows programme, 62 pct. of recipients have a foreign PhD. In comparison, 48 pct. of YIP

grantees have foreign backgrounds, while almost 40 pct. hold a foreign PhD.

These figures suggest that there is a potential for increasing the number of YIP grantees from abroad. Whether VILLUM FONDEN should move in this direction is an open question. We recommend that VILLUM FONDEN engages in dialogue with Danish universities about the extent to which the YIP and Denmark could benefit from emphasising international recruitment.

## **3) Strengthened assessment and feedback process**

It is commendable that non-recipients are almost as satisfied as grantees with the information provided by VILLUM FONDEN, as well as with the way the review and interview process is carried out. Grantees and non-recipients agree that the interview process generally works well, and it is broadly appreciated.

Nevertheless, several non-recipients responded that they would have appreciated feedback from VILLUM FONDEN and the assessment committee about their application and the interview process. Formalising the feedback process is thus an important way VILLUM FONDEN can strengthen the assessment process.<sup>2</sup>

## **4) Separate funding for infrastructure and focus on host institution facilities**

During the workshop, it emerged that the YIP grant does not always defray the full cost of equipment necessary to establish a research group. If lab materials are needed, grantees have to apply for additional grants or ask their host institution for funding.

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<sup>2</sup> More information about the assessment committee and its members is available in the appendices.

For this reason, we recommend that VILLUM FONDEN separate the funding for infrastructure (lab material and equipment) in the general application form. Similarly, the host institutions recommend that VILLUM FONDEN and the assessment committee pay greater attention to the quality and the infrastructure of the facilities at the applicants' institutions, as this is seen as key to being able to build up research groups.

#### **5) Knowledge about collective impact with similar programmes**

The members of the Assessment Committee recognise the efforts of the VILLUM FONDEN to work with institutions that finance public research. While this is seen as significant advantage of the Danish system, they also advise VILLUM FONDEN to look into how the YIP funding scheme complements other private and public funding sources with the same target group, i.e. the DFF Sapere Aude Starting Grant and the comparable schemes operated by the Lundbeck Foundation, the Novo Nordisk Foundation and the Carlsberg Foundation. In the evaluation report, we have reassembled some of the data that show where VILLUM FONDEN stands in the broader system of research-financing institutions. The report shows where VILLUM FONDEN has a significant financing role and lists the main receiving institutions, but it does not show where the system is coherent and where there are overlapping measures.

In addition, we need a better understanding of the background, behaviour and scientific results of researchers and institutions across funding schemes. For this reason, we recommend that VILLUM FONDEN work with the other research financiers to share data and establish a general consensus about how they can co-ordinate their efforts to help talented young researchers create independent research identities and obtain permanent positions at Danish research institutions.

# 1 Introduction

VILLUM FONDEN established the VILLUM Young Investigator Programme (YIP) as way to help young researchers overcome the limitations and barriers to establishing a scientific profile.

In the natural sciences, the contributions made by VILLUM FONDEN in the period 2012-14 are estimated to be no less than 54 pct. of all private non-profit funding for R&D. When it comes to technical research, VILLUM FONDEN is estimated to have contributed 30 pct.<sup>3</sup> of all private non-profit funding during the period. Private non-profit funding amount to more than half of all competitive funding for research in Denmark.

Competition amongst research groups for external funding is tough. As a result, young researchers – post-doctoral fellows and juniors – are often forced to work within the context and constraints of a larger, well-funded research group. This often limits their ability to establish a clear scientific identity of their own. For post-docs, not having a clear scientific profile can preclude obtaining a permanent position.

The YIP functions in a research system burdened by the so-called 'post-doc challenge'. The post-doc challenge is a consequence of a doubling in the number of PhD candidates in the period 2006-2010. This has resulted in a similar increase in the number of employees at the level of post-doc/assistant professor. However, on a global scale, the number of permanent positions for associate and full professors has not increased at the same pace, leading to a disequilibrium between the supply of researchers and the supply of permanent academic positions.<sup>4</sup> The YIP has been in existence for six years. Since 2012, it has funded 111 early-stage researchers in

the technical and natural sciences. The specific aim has been to help talented young researchers to set up their first research teams based on the ideas they are most passionate about, thus allowing them to emerge from the shadow of their well-established professors.

A VILLUM Young Investigator grant is expected to be a 'defining grant', i.e. a grant that enables the grantee to establish his/her first research group and to demonstrate independent scientific leadership.

Grants amount to 7-10 million DKK over five years. An individual can only be awarded a grant once. Applicants define their own project, and a large proportion of the funding is usually spent on salaries for the Danish and foreign PhD students and post-doctoral researchers who make up the research team.<sup>5</sup>

It is against this background, and as part of a complete evaluation of the programmes within the area of the technical and natural sciences, that VILLUM FONDEN initiated an evaluation of the YIP.

The five-month evaluation sought to answer the following three questions through desk research, questionnaires, personal interviews and bibliometric publication data:

1. Does the YIP grant have an impact on the scientific performance of the grantees?
2. Does the YIP grant influence the career paths of the grantees?
3. Is the quality of the programme organisation – in particular VILLUM FONDEN, the host institutions and research groups – in line with the overall aim of the programme?

<sup>3</sup> Danish Ministry of Higher Education and Science (2015) Private foundations – A mapping of the contribution to Danish research, innovation and higher education.

<sup>4</sup> The Danish National Research Foundation (2015): The post-doc challenge. <http://dg.dk/filer/Publikationer/The-Post-doc-Challenge.pdf>.

<sup>5</sup> For more information, see the text from the YIP call in the Appendix.



The structure of the report is as follows. First, we describe the profile of YIP grantees, as well as applicants who did not receive a grant (non-recipients). We then look more closely at grantees' career development, followed by a bibliometric analysis of the quality of grantees' research and scientific impact.

The evaluation also studied the quality of the YIP organisation. Insights from a number of comparable programmes are included in order to put the YIP into context and form the basis for our recommendations. A more thorough description of the methodology and data used in the evaluation can be found in Appendix II.

## 2 Profile of VILLUM Young Investigator Programme grantees

### Applicants, success rate and grant size

Figure 2.1 provides an overview of the number of grantees and non-recipients, as well as size of grants made during the YIP's six-year existence.

The overview shows some fluctuations in the number of applicants over the period. This is due to the way in which the grant has been announced to potential applicants. Most applications were received in 2015, when a total of 265 were submitted. The overall success rate for applications is between 7 pct. and 15 pct. This is at the level of similar types of grants. For example, in 2013, the application success rate for the European Research Council Starting Grant was 13 pct.<sup>6</sup> For the SNSF Ambizione Funding Scheme, the success rate was 18 pct. in 2016.

Total funding for YIP grants has doubled over the six-year period, from 75.5 million DKK in the first year, to 146.2 million DKK in 2017.

Without a similar increase in the number of grantees, this means that there has been a concurrent near doubling of average YIP grant amounts, from

5 million DKK in 2012 to more than 9 million DKK in 2017.

Respondents broadly agree that the current grant size is commensurate with the five-year grant period.

FIGURE 2.1  
Number of grantees vs non-recipients, success rates and total grant funding per year

Grant start year	Non-recipients	Grantees	Total	Success rate	Total grant size (million DKK)
2012	191	15	206	7%	75.5
2013	132	19	151	13%	93.0
2014	155	20	175	11%	95.5
2015	244	21	265	8%	100.6
2016	113	20	133	15%	119.1
2017	206	16	222	7%	146.2
<b>Sum</b>	<b>1041</b>	<b>111</b>	<b>1152</b>	<b>10%</b>	<b>630.0</b>

Source: VILLUM FONDEN & DAMVAD Analytics 2017

<sup>6</sup> European Research Council (2017), ERC Starting Grants 2016 Outcome: Indicative statistics.

### Gender, age and nationality of applicants

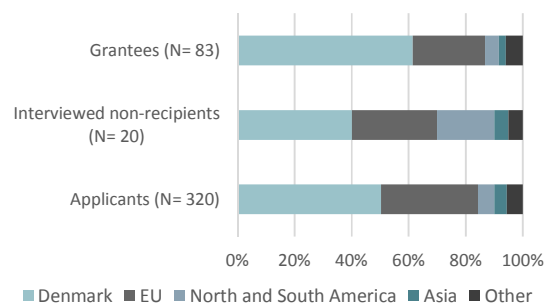
The application data show that about one fourth of grantees and non-recipients are women. However, female and male applicants have a similar success rate (9-10 pct.).

The average age of grantees is 36, and 80 pct. are between the ages of 30 and 40. The average age of non-recipients is 37. There is no substantial difference between the age of men and women. The average age of male non-recipients is 37, while the average age of female non-recipients is 38. Likewise, the average age of male grantees is 36, while the average age of female grantees is 37. Statistically, female grantees and non-recipients tend to be slightly older.

Danes make up the largest nationality of grantees, at 52 pct. Almost 40 pct. of grantees have earned

their PhD abroad. In total, 52 different nationalities have applied for a YIP grant.

FIGURE 2.3  
Where did applicants obtain their PhD?



Source: VILLUM FONDEN & DAMVAD Analytics 2017

In comparison, evaluations show that 58 pct. of Ambizione Scheme grantees have a foreign background and 40 pct. have applied from abroad. For the Wallenberg Academy Fellows programme, 62

FIGURE 2.2  
Gender, age and nationality distribution of grantees and non-recipients, 2012-2017

Gender	Non-recipients	Grantees	Total	Success rate
Female	25%	23%	25%	9%
Male	75%	77%	75%	10%
Sum	100%	100%	100%	10%
Age	Non-recipients	Grantees	Total	Success rate
Under 30	8	1	9	11%
30-34	242	33	275	12%
35-39	489	56	545	10%
40-44	213	18	231	8%
45-49	37	1	38	3%
Over 50	4		4	0%
Missing	48	2	50	4%
Sum	1041	111	1152	10%
Nationality	Non-recipients	Grantees	Total	
Asia	7%	4%	7%	
Denmark	42%	52%	43%	
EU	27%	23%	27%	
North and South America	3%	7%	4%	
Other*	20%	14%	19%	
Sum	100%	100%	100%	

Note: \*) Includes Africa, the Middle East, Russia etc. and missing.

Source: VILLUM FONDEN & DAMVAD Analytics 2017

pct. of grantees have a foreign PhD. The YIP grant thus caters less to foreign researchers than similar schemes.

Applicants come from all of the universities in Denmark, with the exception of Copenhagen Business School. There are large variations in the number of applications, the success rate of applicant and, consequently, the share of grantees amongst Danish universities (Figure 2.4).

A total of 86 pct. of grantees come from the University of Copenhagen, the Technical University of Denmark and Aarhus University. Of the three biggest receiving institutions, University of Copenhagen has the highest success rate, at 12 pct., which is considerably higher than for applicants from the Technical University of Denmark and the University of Southern Denmark, 8 pct. and 6 pct., respectively. Figure 2.5 shows the distribution of grantees by department at the host institutions.

FIGURE 2.4  
Number of applicants, grantees and success rates by university, 2012-2017

Host institution	Non-recipients	Grantees	Total	Success rate	Share of grantees
<b>University of Copenhagen</b>	362	48	410	12%	43%
<b>Technical University of Denmark</b>	304	27	331	8%	24%
<b>Aarhus University</b>	175	21	196	11%	19%
<b>University of Southern Denmark</b>	115	7	122	6%	6%
<b>Geological Survey of Denmark and Greenland</b>	8	3	11	27%	3%
<b>Aalborg University</b>	63	3	66	5%	3%
<b>IT University</b>	4	1	5	20%	1%
<b>Roskilde University</b>	8	1	9	11%	1%
<b>The Royal Danish Academy of Fine Arts, Schools of Architecture &amp; Design</b>	2		2	0%	0%
<b>Sum</b>	<b>1041</b>	<b>111</b>	<b>1152</b>	<b>10%</b>	<b>100%</b>

Source: VILLUM FONDEN & DAMVAD Analytics 2017

FIGURE 2.5  
Distribution of grantees by department (2012-2017)

Organisation	Department	Grantees
<b>Technical University of Denmark (DTU)</b>	DTU Aqua	1
	DTU Biosustain	1
	DTU Compute	3
	DTU Energy	2
	DTU Fotonik	6
	DTU Chemistry	3
	DTU Mechanical Engineering	1
	DTU Nanotech	5
	DTU Physics	3
	DTU Systembiologi	2
<b>Geological Survey of Denmark and Greenland (GEUS)</b>	Hydrology	1
	Glaciology and Climate	2
	Geochemistry	1
<b>IT University of Copenhagen (ITU)</b>	Computer Science	1
<b>University of Copenhagen (KU)</b>	Niels Bohr Institute	17
	Biology	8
	Pharmacy	1
	Plant and Environmental Sciences	6
	Chemistry	5
	National History Museum of Denmark	9
	The Bioinformatics Centre	1
	Science, Systems and Models	1
<b>Roskilde University (RUC)</b>	Biology	1
	Biochemistry and Molecular Biology	3
	Physics, Chemistry and Pharmacy	2
	Mathematics and Computer Science	1
<b>Aalborg University (AAU)</b>	Architecture, Design & Media Technology	1
	Electronic Systems	1
	Chemistry and Bioscience	1
<b>Aarhus University (AU)</b>	Bioinformatics Research Centre	1
	Interdisciplinary Nanoscience Center	4
	Agroecology	1
	Bioscience	1
	Computer Science	1
	Physics and Astronomy	3
	Geoscience	4
	Engineering	1
	Chemistry	2
	Mathematics	1
	Molecular Biology and Genetics	1
Science and Technology	1	
<b>Total</b>		<b>111</b>

Source: DAMVAD Analytics on the basis of VILLUM FONDEN data 2017

### 3 VILLUM Young Investigator grant – career-defining

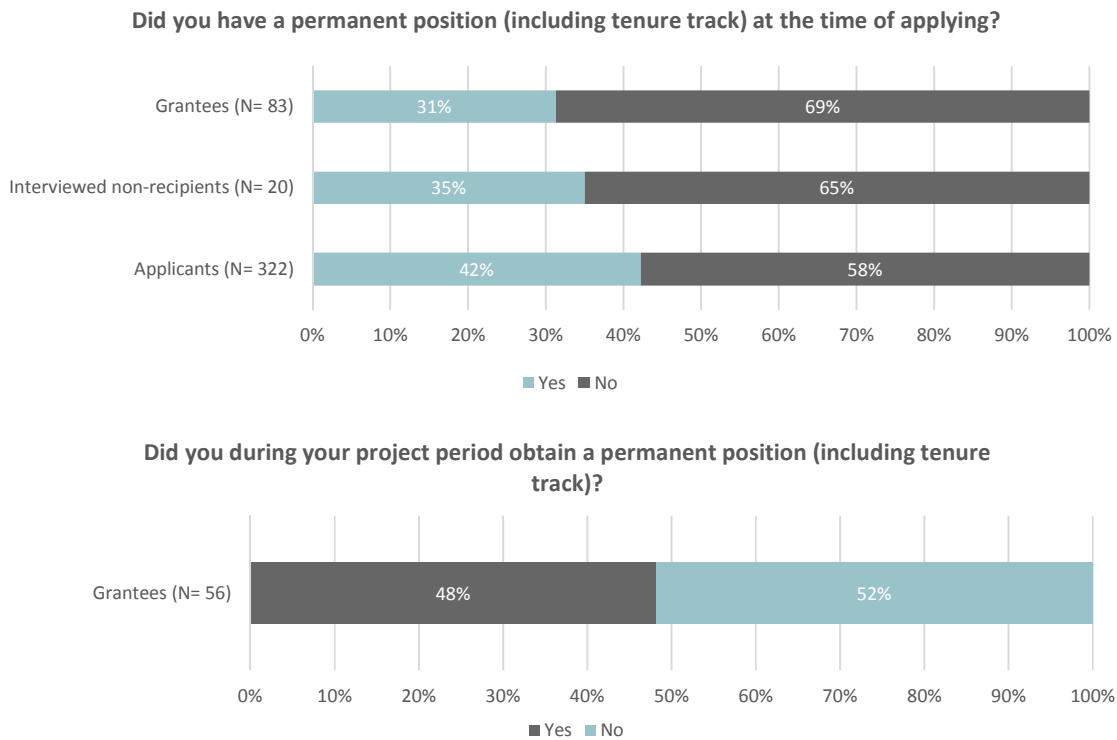
The YIP grant is career-defining. The questionnaire shows that almost 70 pct. of grantees were neither permanently employed nor in a tenure track at the time they applied. However, almost 50 pct. obtained a permanent position during their grant period (Figure 3.1). It is difficult to say if this is satisfactory, given the framework conditions in Denmark, but a comparison with Sweden indicates that the share could be higher. According to data on Wallenberg Academy Fellows, 40 pct. are offered tenure immediately, while an additional 30 pct. begin in a tenure track during their grant period. The survey data shown in Figure 3.3 indicate that the number of

grantees who obtain a permanent position is commensurate with how far the grantees are into their grant period.

The questionnaire asked grantees and non-recipients what their job title was at the time of applying for the YIP grant, as well as their current job title. Grantees' show a faster career progression than non-recipients. We also asked grantees and non-recipients if they are currently leading their own research groups.

As shown in Figure 3.2, 73 pct. of grantees are leading a research group, compared with 39 pct. of non-recipients. Amongst grantees, 16 pct. reported that

**FIGURE 3.1**  
Position at time of application and during supported grant period

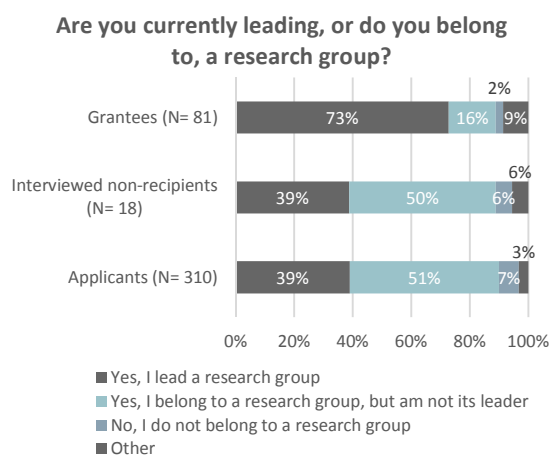


Source: VILLUM FONDEN & DAMVAD Analytics 2017  
Note: Permanent position is defined here as a position with no formalised official termination date.

they do not lead their research group. The answers may reflect the fact that some of the respondents were awarded a YIP grant while they were post-docs, and since post-doc fellows are not allowed to be supervisors, these respondents do not see themselves as group leaders.

***“Receiving a YIP grant gives an advantageous position in terms of employment.”***  
**Host institution**

**FIGURE 3.2**  
 Are grantees becoming research leaders?



Source: VILLUM FONDEN & DAMVAD Analytics 2017

In addition, as shown in Figure 3.4, many of the grantees who were post-docs at the time of their application have become assistant professors and associate professors during their grant period.

Figure 3.5 shows the institutional distribution of grantees who state that they had a permanent position at the time of applying (A) compared with the applicants who obtained a permanent position during their grant period (P).

It is worth noting that there is a large variation amongst institutions and departments or centres when it comes to providing permanent positions for grantees.

***“The freedom within the YIP project has contributed to the fact that we have had the opportunity to research more freely and follow new exciting ways.”***  
**Grantee**

**FIGURE 3.3**  
 Number of grantees holding permanent positions

	Grantees holding permanent position at the time of applying	Grantees who obtained permanent position during their grant period	Total number of grantees (in survey)	Share of grantees with permanent position at the time of applying
<b>2012</b>	4	5	11	36%
<b>2013</b>	4	5	11	36%
<b>2014</b>	5	7	16	31%
<b>2015</b>	4	6	16	25%
<b>2016</b>	5	2	16	31%
<b>2017</b>	4	2	13	31%
<b>Total</b>	<b>26</b>	<b>27</b>	<b>83</b>	<b>31%</b>

Source: VILLUM FONDEN & DAMVAD Analytics 2017





FIGURE 3.5  
Distribution of grantees by department

Organisation	Department	Grantees	A*	P**
Technical University of Denmark (DTU)	DTU Aqua	1	1	0
	DTU Biosustain	1	0	0
	DTU Compute	3	0	2
	DTU Energy	2	2	0
	DTU Fotonik	6	1	2
	DTU Chemistry	3	1	0
	DTU Mechanical Engineering	1	0	1
	DTU Nanotech	5	1	0
	DTU Physics	3	1	1
	DTU Systembiologi	2	2	0
Geological Survey of Denmark & Greenland (GEUS)	Hydrology	1	1	0
	Glaciology and Climate	2	0	1
	Geochemistry	1	0	0
IT University of Copenhagen (ITU)	Computer Science	1	1	0
University of Copenhagen (KU)	Niels Bohr Institute	17	1	6
	Biology	8	2	2
	Pharmacy	1	0	0
	Plant and Environmental Sciences	6	1	0
	Chemistry	5	3	2
	National History Museum of Denmark	9	0	2
	The Bioinformatics Centre	1	0	1
Roskilde University (RUC)	Science, Systems and Models	1	0	0
University of Southern Denmark (SDU)	Biology	1	0	0
	Biochemistry and Molecular Biology	3	1	0
	Physics, Chemistry and Pharmacy	2	1	0
	Mathematics and Computer Science	1	0	0
Aalborg University (AAU)	Architecture, Design & Media Technology	1	1	0
	Electronic Systems	1	1	0
	Chemistry and Bioscience	1	0	1
Aarhus University (AU)	Bioinformatics Research Centre	1	0	1
	Interdisciplinary Nanoscience Center	4	0	3
	Agroecology	1	0	0
	Bioscience	1	1	0
	Computer Science	1	0	0
	Physics and Astronomy	3	0	2
	Geoscience	4	1	0
	Engineering	1	1	0
	Chemistry	2	1	0
	Mathematics	1	0	0
	Molecular Biology and Genetics	1	0	0
	Science and Technology	1	0	0
<b>Total</b>		<b>111</b>	<b>26</b>	<b>27</b>

Source: DAMVAD Analytics Survey data and application data from VILLUM FONDEN 2017

Note: \* A: Number who held a permanent position at the time of applying. \*\* P: Number who obtained a permanent position during their grant period. However, data is not comprehensive as the two last columns represent survey data.

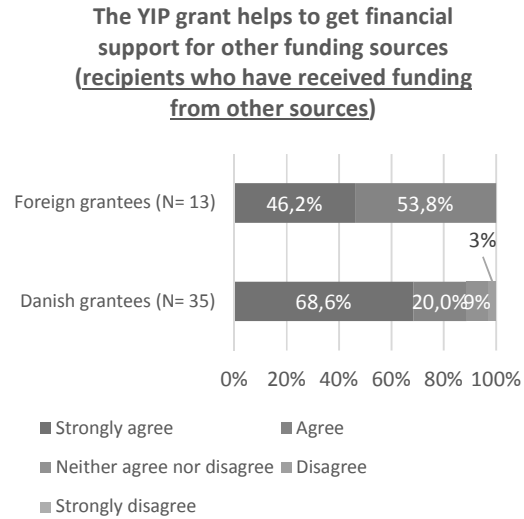
Another indicator of the career benefits of YIP grants for young researchers is their improved ability to attract competitive funding from other sources. Figure 3.6 shows that 60 pct. of grantees have obtained funding from other sources. This is considerably higher than for non-recipients.

Grantees have obtained additional funding a total of 64 times from 27 different sources in Denmark and 13 foreign sources.

The primary Danish funding bodies for grantees are the Danish Council for Independent Research (DFF), the Carlsberg Foundation, Innovation Fund Denmark and the Lundbeck Foundation.

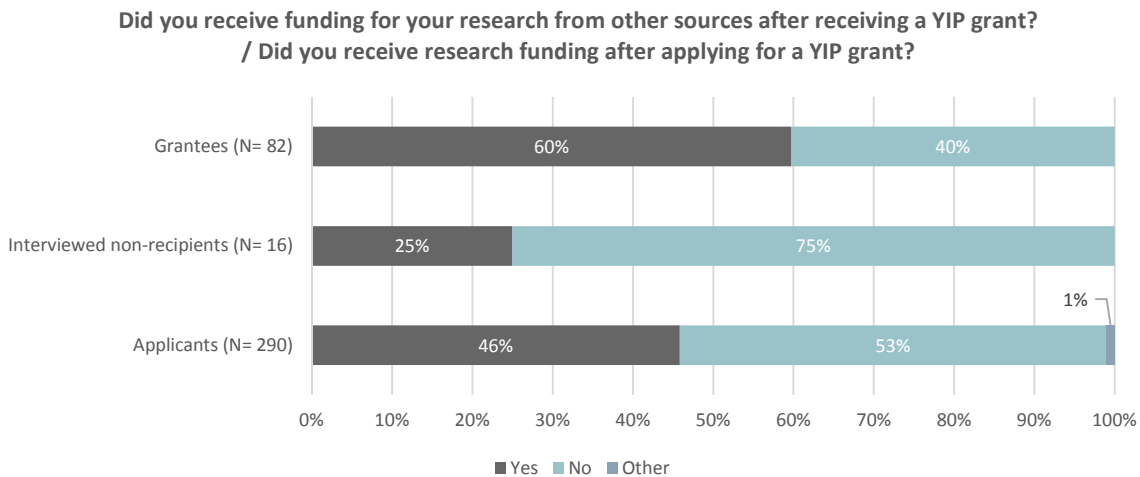
Almost all grantees, both Danish and foreign, who have obtained additional competitive funding, either strongly agree or agree with the following statement: *the VILLUM YIP grant helps to get financial support from other funding sources* (Figure 3.7).

FIGURE 3.7  
Perspectives on additional funding



Source: DAMVAD Analytics 2017  
 Note: Additional funding has been obtained from 27 different Danish sources. The amount of amount the additional funding is missing for one of the nine grants made by DFF, and for the one grant made by DNRF.  
 Source: VILLUM FONDEN – ResearchFish Data 2017

FIGURE 3.6  
Researchers' ability to attract funding from other sources



Source: DAMVAD Analytics Survey 2017

*“YIP provides the basis for applying for other types of funding. YIP is a seal of approval and has a very positive effect when applying for other grants.”*

Host institution

However, in several of the interviews and during the workshop it was stressed to grantees that the YIP grant was intended to be large enough to be a ‘career-defining’ grant that facilitated the establishment of grantees’ own research group.

*“The results we have obtained with help from the grant have contributed to the fact that we have received a large grant from the Innovation Fund. The YIP has been crucial in this regard.”*

Grantee

For this reason, it is expected that grantees, at least in the early stages, are spending the bulk of their time recruiting researchers and getting established in new facilities, rather than using their time to apply for additional funding. It is worth noting that grantees have been able to attract further competitive funding nonetheless.

During the workshop and in interviews, several participants pointed out that the YIP grant does not always defray the full cost of equipment if the grantee also wants to establish a research group. If lab materials are needed, grantees have to apply for additional grants or ask their host institution for funding.

*“My research has moved several levels up after receiving the grant. I am working at a higher rate now and we are going to do much more research in the next five years than if I have not received the YIP grant.”*

Grantee

## 4 Research performance

This section presents the results from the bibliometric analysis of the scientific impact of publications authored by grantees compared with applicants who were rejected after being interviewed.

The analysis is based on *i)* ResearchFish<sup>7</sup> data that the researchers reported to VILLUM FONDEN and *ii)* publications authored by grantees and covered by the bibliometric database Scopus<sup>8</sup>.

Scientific impact is measured in terms of a *Field Normalised Citation Score*, a state-of-the-art bibliometric indicator used for citations analysis. The indicator takes into account differences in publication patterns for different scientific fields, publication types and publication year. We utilise two separate benchmarks for the analysis: Denmark as one unit and the OECD countries.

*“The YIP grant has, in many ways, given me a scientific head start. Without the money, it would have been difficult to get the results we have obtained.”*

Grantee

The data reported in ResearchFish indicate that grantees have a scientific impact equal to the Danish average, while they on average are cited 35 pct. more than the OECD average (data not shown).

Scopus data about publications authored by grantees reveals the same trend (Figure 4.1). Here we see that the grantees have a higher relative citation rate than non-recipients.

For the young grantees, these are rather good results, since they are compared with the wider re-

search community and its large number of experienced researchers, who, it could be assumed, have more time to prioritise publication of their work.

FIGURE 4.1  
Scientific impact of publications measured by Field Normalised Citation Score

Impact relative to DK		Impact relative to OECD	
Non-recipients	Grantees	Non-recipients	Grantees
0.88	1.12	1.03	1.31

Source: DAMVAD Analytics, based on Scopus data, 2017

*“The fact that a younger researcher can obtain funding for a larger project and manage it convincingly is an important indicator of the researcher’s ability to transform a brilliant research idea into a research focus for a group of researchers.”*

Research-financing foundation

YIP is meant to be a ‘defining grant’ that leads to new research ideas. It is expected to be the first major grant that young researchers receive in their efforts to establish their research identity and their own research group. Researchers who have already obtained significant funding from other sources are excluded from receiving YIP grants. This is a principle that VILLUM FONDEN adheres to strictly.

Since early career researchers must use significant time and effort to establish a research group, one

<sup>7</sup> Researchfish® is an online facility that enables research funders and research organisations to track the impacts of their investments, and researchers to log the outputs, outcomes and impacts of their work.

<sup>8</sup> For a comprehensive presentation of Scopus, please visit [www.elsevier.com/online-tools/scopus](http://www.elsevier.com/online-tools/scopus).

would not expect a large increase in research performance as measured by publication rates or impact the first years after a YIP grant is received. This is reflected by the impact scores for publications authored by grantees (Figure 4.1).

## 5 Quality of the VILLUM Young Investigator Programme organisation and administration

This chapter provides an in-depth evaluation of the quality of the YIP organisation and administration, particularly in regards to how the (best) young researchers are selected for the YIP grant. To learn more about the structures supporting the YIP, we asked grantees and non-recipients about the assessment process and whether they were satisfied with it.

We also asked if the YIP grant gives recipients sufficient opportunities for a head start on their research projects and establishing their research teams. We also asked if there is a good match between the grant size and the length of the grant period.

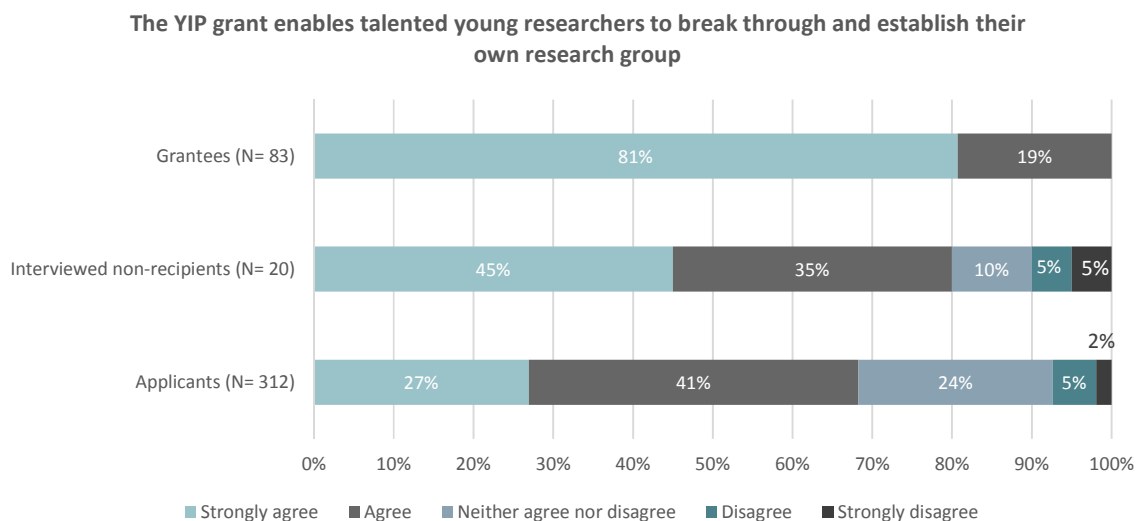
A central question was the role of research area and host institution, including how the host institutions support applicants during the application process,

and grantees as they seek to establish a research identities and research groups.

All grantees and non-recipients agree that the YIP grant plays a significant role in the efforts of talented young researchers to break through and establish independent research identities and research groups (Figure 5.1). This trend can be seen in all the data and it was clearly stated during interviews and in discussions during the final workshop.

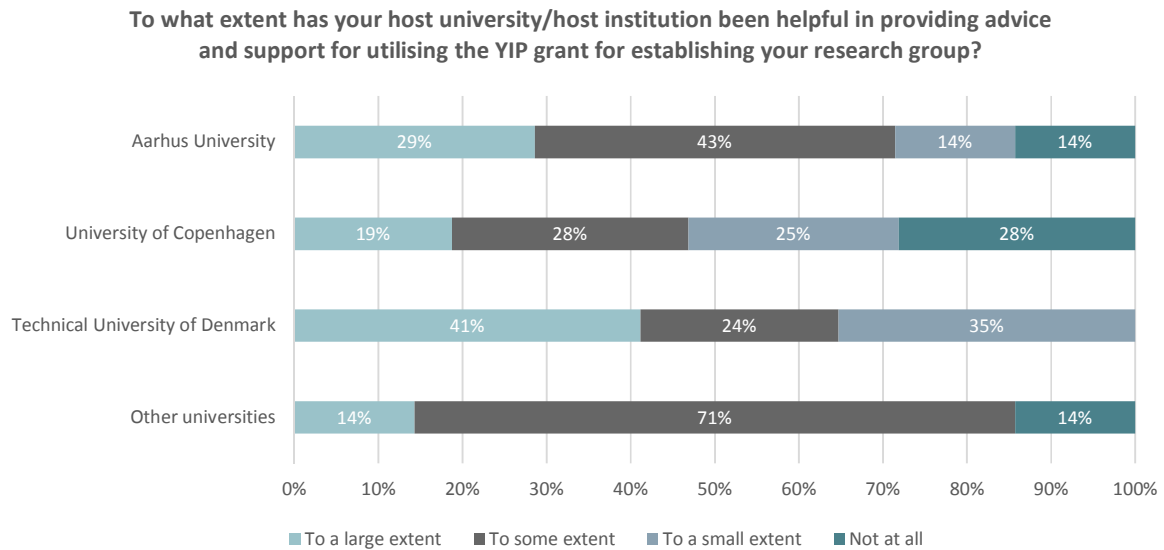
Grantees are more divided when it comes to whether they received sufficient support from their host institutions for establishing research groups. Overall, a relatively large share (40 pct.) felt that they received little or no support from their host institutions. There are, however, wide variations across the institutions (Figure 5.2).

FIGURE 5.1  
Researchers' overall impression of the impact of the YIP grant



Source: DAMVAD Analytics Survey 2017

**FIGURE 5.2**  
Host institutions' support for YIP grantees



Source: DAMVAD Analytics Survey 2017  
 Note: 'Other universities' includes: the University of Southern Denmark, IT University of Copenhagen and Aalborg University. They are combined in a single category in order to preserve the anonymity of respondents.

This is supported by the answers given during the interviews. Answers varied widely about the amount of support grantees were given by their host institution. Some reported receiving significant assistance recruiting, setting up labs, managing additional grants, building up research groups etc, while others reported receiving almost no help.

The same variation is observed when it comes to whether host institutions offer permanent positions to grantees.

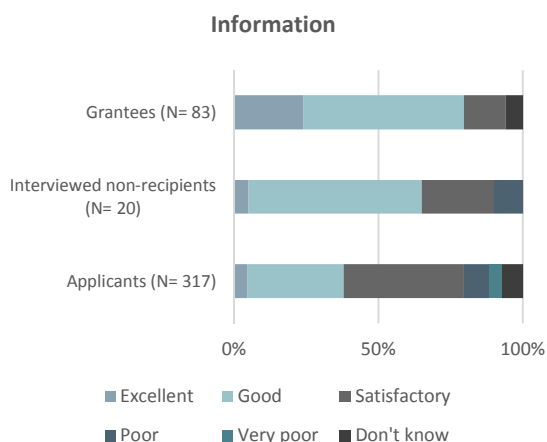
The general opinion amongst interviewees and workshop participants was that it is important for universities help their young researchers establish a research identity and a research group. The researcher should be motivated to take a leadership role, and it is important that researchers get help in all areas, from budgeting to recruitment. For their part, the host institutions point out that they cannot favour YIP grantees over other talented young researchers.

The host institutions argue that the past two or three years have seen increasing professionalisation of their support for young research-grant recipients. The young researchers we interviewed saw no indication this was the case.

Grantees and non-recipients had overall high ratings for the information the VILLUM FONDEN makes available about the YIP. Grantees were generally more satisfied than non-recipients, but the difference was marginal (Figure 5.3). Workshop participants reported that VILLUM FONDEN has improved its information about the YIP considerably. Finding information was reported to be much easier than it had been, and this is reflected in their responses.

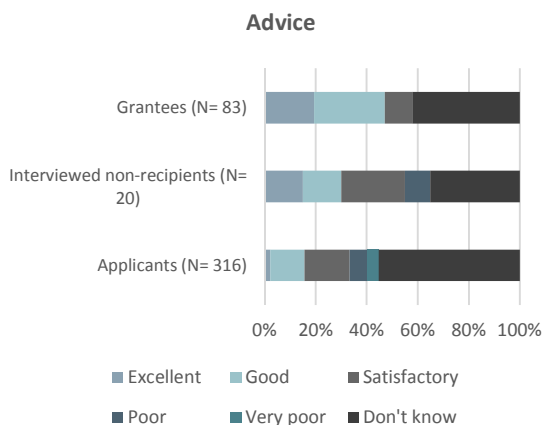
The picture was less clear when it came to the quality of advising VILLUM FONDEN provided. When asked to rate the quality of YIP advising, a majority of the respondents answered 'Don't know' (Figure 5.4). This may stem from a lack of experience with the VILLUM FOUNDATION as an advisor.

**FIGURE 5.3**  
Rating of the quality of YIP information



Source: DAMVAD Analytics Survey 2017

**FIGURE 5.4**  
Rating of the quality of YIP advising



Source: DAMVAD Analytics Survey 2017

It is worth noting is that non-recipients are almost as satisfied as grantees with the information provided and the way the review and interview process was carried out. This is a good quality indicator.

Grantees seemed confused about the selection criteria. They mention, for instance, that it was not clear how many years after being awarded a PhD

an individual can apply, or if an applicant may hold an assistant or associate professorship. In general, grantees and non-recipients were uncertain about how VILLUM FONDEN defined the two titles.

Grantees and non-recipients agreed that the interview process generally works well, and it is broadly appreciated. Several non-recipients responded that they would have appreciated feedback from VILLUM FONDEN and the assessment committee about their application and the interview process.

Grantees believe that the YIP allows for curiosity-driven research and felt that budgeting is flexible. They also indicate that a five-year grant period is sufficient. A shorter period would be insufficient to establish a research group.

Grantees stressed that the YIP works well because it allows them to work independently and because it is a mark of recognition, not just in the field but also more broadly at the host institution and amongst colleagues and students.

Grantees mentioned that they valued the YIP's networking opportunities. They mentioned the annual YIP workshop event as important in this regard.

During the workshop, representatives from VILLUM FONDEN, as well as others in leadership and research positions, offered their insights in leading high-performance teams and how individuals such as YIP grantees can measure the success of their research groups. The workshop also gives an opportunity for grantees to reflect on being in the programme, network with other grantees to foster collaboration, and to offer advice to those just starting in the programme.

The host institutions stressed the importance of the YIP's support for basic research and the need for it to maintain its considerable size. They argue that



the grant has significant benefits for an institution, notably in terms of national reputation. This is due to the fact that the grant is well-known and considered to be prestigious. Grants also benefit the scope of the research institutions do and allow them pursue new directions in their research.

*“The grant period of five years is in concordance with the size of the grant. Three years is too little time to build up a research group. There must be time to attract the right researchers.”*

**Host institution**

The host institutions also view YIP funding as important when submitting ERC applications. They find the size of the grant and the grant period to be appropriate. The consensus amongst interviewees was that shortening the period would make it more difficult for the programme to achieve its goals.

Representatives from the host institutions underscored during their interviews the importance of external evaluation of the applications. The host institutions feel that securing a YIP grant is a noteworthy accomplishment. However, they also stress that, given that grantees are early-stage researchers, and given the short amount of time the YIP has been in existence, it is still too early to tell if it selects the best researchers. They find that YIP grantees are not always the most talented researchers.

Some of the host institutions also pointed out that the 15 pct. overhead can make it difficult to make additional resources available.

The host institutions recommend that VILLUM FONDEN and the assessment committee pay greater attention to the quality and the infrastructure of the facilities at the applicants' institutions, as this is seen as key to being able to build up research groups.

The host institutions also recommend that the YIP increase its international profile by more actively recruiting researchers from abroad.

The members of the YIP Assessment Committee were a valuable source of information during the evaluation. They are of the opinion that the YIP grant is considered to be a major opportunity and that its size suits its purpose. The difficulty academics face getting tenure in Denmark makes the programme important. The Assessment Committee finds it important that applicants benchmark themselves against the biggest research profiles in their field, and they underscore that this is an important element of the review and interview process.

Furthermore, the members of the Assessment Committee recognise the efforts of the VILLUM FONDEN to work with institutions that finance public research. While this is seen as significant advantage of the Danish system, they also advise VILLUM FONDEN to look into how the YIP funding scheme complements other private and public funding sources with the same target group, i.e. the DFF Sapere Aude Starting Grant

## Appendix I            Comparable programs

As part of the evaluation, to put the YIP in context and especially to inspire recommendations, we have collected information and conducted interviews with representatives from three comparable programmes:

- Danmarks Frie Forskningsfond (DFF), Sapere Aude – Starting Grant, Denmark
- Wallenberg Academy Fellows, Sweden
- SNSF Ambizione Grant, Switzerland

The information is used throughout the evaluation report and a summary of the results are presented in the table on the following pages.

Even though the four programmes are in many ways similar, profound differences exist. Each programme has a distinct approach to helping talented young researchers develop and strengthen their research. The DFF Sapere Aude-starting Grant and the Wallenberg Academy Fellows focus on the projects and how they help grantees develop. The Ambizione and YIP grants aim to help grantees become scientifically independent at an early stage in their career.

	<b>DFF SAPERE AUDE – STARTING GRANT (DENMARK)</b>	<b>WALLENBERG ACADEMY FELLOWS (SWEDEN)</b>	<b>SNSF AMBIZIONE (SWITZERLAND)</b>	<b>VILLUM YOUNG INVESTIGATORS (DENMARK)</b>
<b>BACKGROUND</b>				
<b>TARGET GROUP</b>	Excellent, young researchers who intend to gather a group of researchers in order to carry out a research project at a high international level.	The most promising young researchers of all disciplines.	Young, qualified researchers from Switzerland as well as excellent researchers from abroad in all disciplines.	Talented young researchers in the technical and natural sciences.
<b>BASIC CHARACTERISTICS</b>	Duration: up to four years Maximum amount of 4.1 mio DKK excl. overhead. Until 2015, the Sapere Aude Programme consisted of three funding instruments, but due to cuts in the national budget for 2016-2017, DFF has decided to reduce the Sapere Aude Programme to only one funding instrument, which is the DFF-Starting Grant	Duration: five years Grant amounts to a total of SEK 5.0-9.0 mio. SEK (3.9-7.2 mio DKK) The programme has existed since 2012 It was established by the Knut and Alice Wallenberg Foundation in close co-operation with the five royal academies and 16 Swedish universities	Grants are awarded for a maximum of four years Grantees are supported with a budget of up to 400,000 CHF (approx. €380,000/2.8 mio. DKK) The Ambizione was launched with a first call in November 2007	The grant amount is 7-10 million DKK and covers a research period of up to five years The YIP funding programme was started in 2011
<b>ELIGIBILITY REQUIREMENTS</b>	DFF-Starting Grant is aimed at younger, highly talented researchers who at the time of the application deadline and within the last eight years have obtained their PhD or achieved equivalent qualifications, and who have demonstrated an ability to carry out original research at a high international level	The programme is open to researchers in all academic disciplines and in the interfaces between them. Candidates nominated in 2016 must have obtained their PhDs after January 1, 2008	Applicants must hold a doctorate (PhD) or have completed their medical studies. Applicants must submit their application no later than four years after completing their PhD. Applicants who have completed their medical exam and have done clinical work for at least three years after completing their studies must submit an application no later than nine years after completing their medical exam	Applicants are selected on the basis of their independent research accomplishments, creativity and potential to become leaders in the scientific community through their contributions to their research fields Applicants must have a clearly defined research goal for the next five years and the research must be of such a scope that it requires the formation of a research group. A typical applicant is under 40 and will at the time of applying be an experienced post-doctoral researcher, assistant professor or associate professor. Associate professors may not have more than two years' standing. Leaves of absence will be taken into account
<b>MAIN PURPOSE</b>	DFF-Starting Grant gives younger, highly talented researchers an opportunity to develop and strengthen their research ideas. The instrument also aims at promoting mobility internationally as well as nationally between research environments, and thereby to strengthen the researchers' networks and careers	The purpose of the new career programme and the long-term funding is to enable the most promising young researchers to focus on their projects and address difficult research questions over an extended period of time	The purpose of the Ambizione grant is to enhance researchers' scientific profile and to help them to become scientifically independent at an early stage in their career by conducting their own research project	The primary aim of the YIP is to fund talented young researchers in the technical and natural sciences Each year, VILLUM FONDEN awards the grant to a number of young researchers at Danish universities as a way to ensure that they can pursue the ideas they are most passionate about, and to accelerate their research careers

				The YIP was established in 2011 to help younger research talents from Denmark and abroad emerge from the shadow of well-known and well-established professors
<b>RESULTS (INTERVIEWS)</b>				
<b>WHO ARE THE RECIPIENTS?</b>	<p>Younger researchers</p> <p>Should not have had a PhD for more than eight years</p> <p>The grant is widely distributed in all disciplines. There is no bias in distributing the grants.</p> <p>It is the quality of the projects that determine who receives the grant – not whether the applicant is male or female</p> <p>The grant is highly targeted towards recipients starting their own career</p> <p>Recipients have a fairly high rate of success on ERC grants</p> <p>Many of the recipients are either employed as post-doc, lector or equivalent before they receive the grant, or they are on their way to be employed</p> <p>The grant is important to their career path and is considered a recognition of the quality of the recipient's work</p>	<p>Average age at start is 35.2</p> <p>38 pct. females</p> <p>62 pct. foreign PhD</p> <p>Most recipients study a natural science or medicine</p> <p>Most of the recipients are from Uppsala, Karolinska or Stockholm universities</p> <p>The grant affords the recipient the right opportunities to get carry out their research project and establish their research group. They usually also have funding from other sources</p> <p>About 40 pct. are offered tenure immediately, 30 pct. in a tenure track, 30 pct. not defined</p>	<p>There are no requirements about nationality</p> <p>Goal for female participation is 35 pct. The scheme comes close to that target but remains slightly below</p> <p>There are no age requirements but is typically awarded to younger researchers</p> <p>There are no research field requirements</p> <p>42.3 pct. of the awards in 2016 went to applicants with a mathematics, natural sciences or engineering degree, making this group the largest to receive funding</p> <p>There are two target purposes and thus target groups: i) give researchers the opportunity to come back in Switzerland after time abroad, ii) encourage researchers without any formal link to Switzerland to come and do research there</p> <p>But changes are also made based on evaluation results</p> <p>The grantees will not necessarily get into a tenure-track, and it is not a goal either</p>	<p>In 2017 the VILLUM Young Investigator Programme granted 16 young men and women from five Danish universities almost 150 million DKK</p> <p>The grant covers research in technical and natural science.</p>
<b>IMPORTANCE OF GRANT</b>	<p>Sapere Aude is internationally recognised and is valuable when applying for other funding or jobs</p> <p>Focus on spreading knowledge of the grant, but DFF has no targeted information or strategy</p>	<p>It gives recognition, it is together with ERC and the Göran Gustafsson award from KVA the most prestigious a young scientist in Sweden can get</p> <p>It is too early to say whether it has benefited the institutions' reputation nationally/internationally, but most likely there will be a long-term impact, given the calibre of the early-stage researchers recruited</p> <p>The grant does not immediately improve a recipient's ability to attract financial support from other sources, but later on it does</p> <p>KAW runs programmes completely independent of the</p>	<p>Positive feedback from the institutions. Get knowledge transfer</p> <p>Applicants do not need to teach but they are allowed to</p> <p>One important goal is to support the researchers. The institutions have to ensure that the recipients should be allowed to establish their own research profile.</p> <p>The researcher's independence is important</p> <p>The Ambizione Grant improves a recipient's ability to attract financial support from other sources</p>	<p>The overall result of the evaluation is that the YIP is a highly effective and appreciated programme that supports talented young researchers in setting up their own research team, establishing their own scientific profiles and obtaining permanent university positions.</p>

<p><b>OVERALL OBJECTIVE</b></p>	<p>There is plenty of time to complete the project three to five years. Flexible. If there is good academic motivation, it may be possible to make changes to the original project plan</p> <p>Amongst researchers, the grant is well-known and attractive. It is a way to get tested as a research leader</p> <p>The application process gives advice and guidance on the formal framework</p> <p>There are various events for recipients. They meet and share experiences during seminars</p> <p>The grant is given to the individual, not the institution. So most of the information is directed at the recipient. Advice is technical or advisory</p> <p>Does not use applicants' institutional knowledge. They must all be treated equally</p> <p>The grant provides young researchers with the opportunity to gain valuable experience starting their own career and leading their own group</p> <p>There are no requirements for the nature of the research as such. It can be both basic research and application-oriented.</p> <p>There are clearly some good research results that are produced in connection with the Sapere Aude grant. Also by the reception of ERC later on, etc.</p>	<p>EU. But the foundation coordinates its efforts with the Swedish Research Council.</p> <p>Grants range from 5-9 million SEK over a five-year period, depending on subject and whether the candidate is an international recruitment. In addition, the university covers 50 pct. of the salary and in many instances 100 pct. of the salary. About 50 pct. of the fellows can get a second five-year term making this one of the most durable career support programmes in the world</p> <p>Without any doubt, KAW is after HHMI the foundation that in relative terms contributes with most 1 pct. top cited papers. The cohort of young scientists, Wallenberg Fellows, Wallenberg Clinical fellows, Wallenberg Molecular medicine fellows, WASP fellows contributes to almost 40 pct. of this.</p> <p>The universities nominate candidates to the programme and are thus responsible for supporting them during the application process. During the funding period two of the academies of sciences (KVA and IVA) provide an extensive mentoring programme for fellows.</p> <p>Gives academic freedom and prevents the university, institution or other hierarchic structures from restricting recipients' work</p>	<p>The size of the grant and the length of the grant period is in concordance (after the recent change)</p> <p>One major part at the office is to look at the project. Research council members and panels give scientific feedback. We provide researchers with thorough career counselling and information about the labour market</p> <p>We are moving to be more flexible by awarding the grant as a lump sum</p> <p>Applicants must submit a budget, but after the amount is awarded, recipients have flexibility within the budget, for instance if they can save money somewhere (instruments)</p>	<p>The size of the grant and the length of the grant period is in concordance</p> <p>Amongst the host institutions, researchers and other funding bodies, the grant is well-known and attractive</p>
<p><b>OTHER QUESTIONS AND INSIGHTS</b></p>	<p>Grantees have already shown in their PhD that they have potential. They must be considered to be amongst the best in their field. They should be looking to work independently</p> <p>The academic members of the assessment committee have good opportunities to assess whether the candidates are amongst the best in their field.</p> <p>The DFF experienced budget cuts back in 2015, therefore the last step in the Sapere</p>		<p>Want external reviewers to peer-review all applications</p> <p>After nine years, we have extended the grant period from three to four years</p> <p>It takes time to set up experiments and to publish</p> <p>Flexibility is important</p> <p>You must be a bit restrictive with regard to eligibility if you want to stick to your target group</p> <p>The external peer-review process is important</p> <p>The interview process is important to for assessing an applicant's competencies</p>	

Aude programme has been eliminated  
Overhead is 44% for universities. Funding levels are a political decision and is included in the national budget

and the applicant as an individual

## Appendix II Methodology and data

This section describes the methods and data that were applied in answering the evaluation questions. The evaluation model illustrated below provides an overview of the approach.

### Desk research

The evaluation relied on desk research to assess the quality of the YIP organisation and for the analysis of the research results. First, in the study of the programme organisation, we evaluated grantees and non-recipients based on a text analysis of application material and the annual reports VILLUM FONDEN has made available. In addition to gender, age, nationality, research area and host institution,

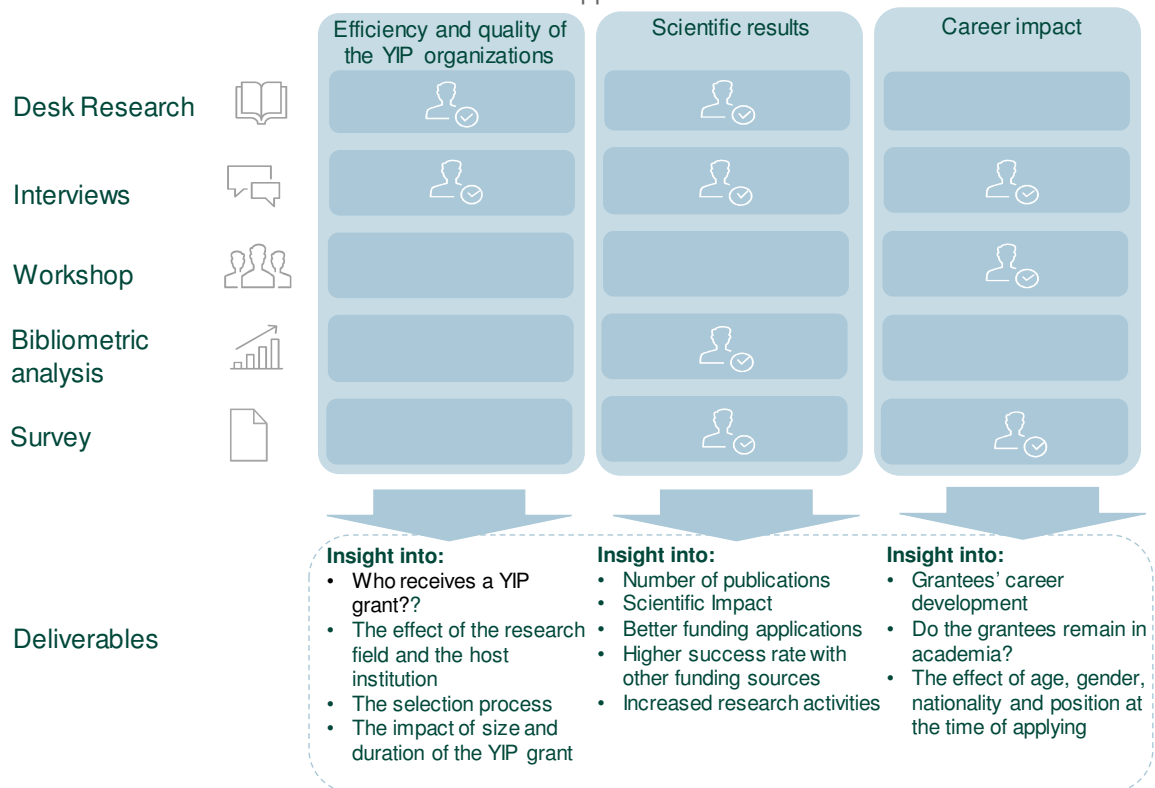
we looked at the size of the grant and the duration and appropriations planned for. We also used desk research to assess grantees' reports in Research-Fish and included available data from comparable programs in Denmark, Sweden and Switzerland.

### Interviews

Qualitative interviews were conducted with individuals from the following groups:

- Grantees
- Members of grantees' research groups
- The VILLUM FONDEN secretariat
- Representatives from the Assessment Committee

Evaluation model: Evaluation themes and methods applied



Source: DAMVAD Analytics 2017

- Representatives from the host institutions
- Representatives from comparable programmes
- Other research-financing foundations

In total, we conducted 27 interviews. The selection of interviewees was based on the principle that different main areas needed to be covered while taking into account the number of grantees from the subject area. The goal was to cover a wide range of the professional spectrum represented by the grantees. Prior to the planned interviews, interview guides were developed for the respective respondent groups. The interview guides contained closed and open-ended questions that allowed for comparisons, and left open the possibility of personal reflection and more detailed answers about some issues. It was important for the interview guide to be prepared to pose follow-up questions when an answer warranted it. The interviews addressed all the overall questions the evaluation sought to answer. The interviews lasted between 45 and 60 minutes and were carried out in person, if possible, or by phone.

### **Workshop**

As part of the evaluation, an intensive expert workshop was held to present, discuss, test and nuance the results of the evaluation activities. The three-hour workshop contributed to the evaluation by providing insight into how to interpret and use the results of the evaluation of the effect and impact of the YIP. In addition, we used the workshop to get the participants' insight and advice about the YIP grant in relation to other support measures for young researchers. The workshop had 19 participants. It was facilitated by the evaluators at the premises of DAMVAD Analytics from 9am to 12pm.

### **Bibliometric analysis**

In the bibliometric analysis, we draw a statistical image of grantees in comparison with non-recipients.

The results were used to assess how the YIP affected grantees in the following areas:

- Research output, measured by volume, quality and impact (citation analysis)
- Comparison of the above with a representative control group defined by the group of (qualified) applicants

We identified the necessary publication data independently of the researchers by using recognised bibliometric database Scopus in combination with the grantees' reports to the VILLUM FONDEN ResearchFish database. Publication data is identified in Scopus by the author's unique author ID (Au ID). For the control group of qualified applicants, Scopus's unique Au ID was also used. Using several independent sources ensured that the assessment of the effect of the YIP was as accurate as possible. The data collected covers the period 2007-2016.

Scientific production is measured using the number of publications authored by YIP grantees. Specifically, we looked at the number of publications in Scopus-indexed journals, reviews and conference contributions. The scientific output is measured in absolute numbers and fractional numbers for both the grantees and the control group. Scientific impact is measured by the bibliometric indicator Field Normalised Citation Score using Denmark and the OECD countries as benchmarks.

### **Questionnaire**

A questionnaire was sent to grantees and non-recipients. The purpose was to identify the importance of the YIP grant for recipients' research results, career development, and their ability to attract additional funding from other sources etc. We used a web-based questionnaire for this task. To ensure a high response rate, we were in systematic dialogue with recipients. This proved effective: 74 pct. of grantees and 43 pct. of non-recipients completed



the questionnaire. High response rates of this sort are important for the validity of the evaluation.

### Some final methodological considerations

When considering the results of the evaluation, it is important to note that the YIP is still in its early stages. Given that the programme started in 2012, and that grant periods last five years, some of the grantees involved in the evaluation were in the first years of their grant period. Even many of the earliest grantees have yet to reach the end of their grant period. This means that although we have learned a lot from the evaluation and have received early impact indications, we have not been able to measure any of the potential medium or long-term effects in either a qualitative or quantitative manner. This is also worth considering when comparing the YIP's results with the results of programmes that have been in operation for longer.

To be able to measure the medium-term effects of the YIP, we recommend that VILLUM FONDEN plan for an evaluation in 2020-21. By then, it will be possible to measure results amongst three consecutive groups of YIP grantees. By applying the same approach, the results from this evaluation can then be compared, tested and nuanced.

One of the methodological considerations that emerged during the present evaluation concerns the definition of the term 'permanent position'. We

define it as a position without a formal date of termination, but survey respondents and interviewees are likely to have other definitions. This means that we cannot assume that they have all answered correctly. In a future evaluation, it is important that central concepts like this are more precisely defined and that the respondents know what they are.

Another methodological consideration concerns the small number of interviewed non-recipients. We use this group as a comparative control group in the evaluation. However, given that only 20 members of this group completed the questionnaire, a valid comparison on a large and more systematic scale is impossible. A larger control group of interviewed non-recipients should be included in a future evaluation.

A final methodological consideration stemming from the evaluation relates to the more qualitative aspects. It would be worthwhile for a future evaluation to follow several grantees over the entire grant period in order to observe their efforts to establish research groups and research identities. Closely following eight or 10 individuals could provide valuable insights for VILLUM FONDEN.

### Questionnaire response rates

	Non-recipients		Interviewed non-recipients		Grantees		Overall	
	Status	Share	Status	Share	Status	Share	Status	Share
<b>Number invited</b>	725	100%	33	100%	109	100%	867	100%
<b>Number completed</b>	313	43%	20	58%	83	75%	410	47%
<b>Number refused</b>	46	6%	1	3%	2	2%	48	6%
<b>Number incomplete</b>	13	2%	0	0%	0	0%	14	2%

Source: DAMVAD Analytics 2017

Programme for the VILLUM YIP Evaluation Workshop, June 8, 2017

<b>Time</b>	<b>Content</b>
09:00 – 09:15	<b>Coffee and Croissants – Welcome and presentation of the participants</b>
09:15 – 09:30	<b>The background and purpose of the evaluation</b> <i>Thomas Sinkjær, Research Director VILLUM Foundation</i>
09:30 – 10:45	<b>The profile, careers and performance of applicants and grantees</b> <ul style="list-style-type: none"> <li>• 09:30 – 10:00: Presentation of results by Rasmus Lund Jensen DAMVAD Analytics</li> <li>• 10:00 – 10:45: Discussion</li> </ul>
10:45 – 11:45	<b>The effectiveness and quality of the programme organisation with a special view on the Foundation, the host institutions and research groups</b> <ul style="list-style-type: none"> <li>• 10:45 – 11:00: Presentation of results by Torben Vad</li> <li>• 11:00 – 11:45: Discussion</li> </ul>
11:45 – 12:00	<b>Summing up – what have we learned and what are the implications?</b>

Source: DAMVAD Analytics 2017

List of participants at YIP Evaluation Workshop, June 8, 2017

Name	Title	Institution
<b>Søren Rud Keidung</b>	Prodekan for forskning	AU Science and Technology
<b>Steven Wooding</b>	Dr., Lead for Research and Analysis	Centre for Science and Policy, University of Cambridge
<b>Anja Boisen</b>	Professor	DTU
<b>Søren Salomo</b>	Instituddirektør	DTU Management and Engineering
<b>Christer S. Ejning</b>	Lektor	Institut for Biokemi og Molekylær Biologi, SDU
<b>Ulla Gro Nielsen</b>	Lektor	Institut for Fysik, Kemi og Farmaci, SDU
<b>Inge-Sofie Sørensen</b>	Kontorchef	KU SCIENCE (Det Natur- og Biovidenskabelige Fakultet)
<b>Morten Pejrup</b>	Prodekan	KU SCIENCE (Det Natur- og Biovidenskabelige Fakultet)
<b>Martin Pessah</b>	Professor MSO	KU, NBI - Fastroffysik
<b>Eline Lorenzen</b>	Lektor	University of Copenhagen
<b>Jan Philip Solovej</b>	Professor	University of Copenhagen
<b>Lars Grindsted</b>	Head of Grant Operations	Lundbeck Fonden
<b>Rasmus Larsen</b>	Programme Manager	Novo Nordisk Fonden
<b>Lars Arnskov Olsen</b>	Fondsrådgiver	VILLUM FONDEN
<b>Michel Kristensen</b>	Fondsrådgiver	VILLUM FONDEN
<b>Thomas Sinkjær</b>	Forskningsdirektør	VILLUM FONDEN
<b>Signe Normand</b>	Lektor	Aarhus University
<b>Nina Lock</b>	Lektor	Aarhus University, iNANO
<b>Torben Bundgaard Vad</b>	Partner	DAMVAD Analytics
<b>Rasmus Lund Jensen</b>	Principal Consultant	DAMVAD Analytics
<b>Laura Mikkelsen</b>	Research Assistant	DAMVAD Analytics

Source: DAMVAD Analytics 2017

## Appendix IV Members VILLUM Young Investigator Programme Committee 2011-2017

### Members VILLUM YIP Committee 2011-2017

- Kristian Stubkjær, Technical University of Denmark, professor and Head of Department DTU Electrical Engineering
- Birger Lindberg Møller, University of Copenhagen, professor, Department of Plant and Environmental Sciences,
- Andrew Jackson, University of Copenhagen, professor, Niels Bohr Institute
- Eva Vedel Jensen, Aarhus University, professor, Department of Mathematics
- Karsten Høgh Jensen, University of Copenhagen, professor, Department of Geosciences and Natural Resource Management
- Ole Sigmund, Technical University of Denmark, professor, DTU Mechanical Engineering
- Anja Boisen, Technical University of Denmark, professor, DTU NANOTECH
- Peter Roepstorff, University of Southern Denmark, professor, Department of Biochemistry and Molecular Biology
- Jeppe Dyre, Roskilde University, professor, Department of Science and Environment
- Birthe Kragelund, University of Copenhagen, professor, Department of Biology
- Finn Surlyk, University of Copenhagen, professor, Department of Geosciences and Natural Resource Management
- Frede Blaabjerg, Aalborg University, professor, Department of Energy Technology
- Henrik Bruus, Technical University of Denmark, professor, Department of Physics
- Bart de Moor, Katholieke Universiteit Leuven (Belgium), professor, Department of Electrical Engineering
- Dorte Juul Jensen, Technical University of Denmark, professor, DTU WIND ENERGY

2011	2012	2013	2014	2015	2016
Kristian Stubkjær	Anja Boisen	Anja Boisen	Anja Boisen	Henrik Bruus	Henrik Bruus
Birger Lindberg Møller	Birger Lindberg Møller	Peter Roepstorff	Peter Roepstorff	Peter Roepstorff	Bart de Moor
Andrew Jackson	Andrew Jackson	Andrew Jackson	Birthe Kragelund	Birthe Kragelund	Birthe Kragelund
Eva Vedel Jensen	Eva Vedel Jensen	Jeppe Dyre	Jeppe Dyre	Jeppe Dyre	Dorte Juul Jensen
Karsten Høgh Jensen	Karsten Høgh Jensen	Karsten Høgh Jensen	Finn Surlyk	Finn Surlyk	Finn Surlyk
Ole Sigmund	Ole Sigmund	Ole Sigmund	Frede Blaabjerg	Frede Blaabjerg	Frede Blaabjerg

Source: VILLUM FONDEN, 2017.

## Appendix V

## Villum Young Investigator Programme grantees

List of VILLUM Young Investigator Programme grantees 2012 og 2013

Year	Primary Applicant	Organisation Name
2012	Anders Albrechtsen	University of Copenhagen
2012	Anders Bentien	Aarhus University
2012	Anders Tranberg	University of Copenhagen
2012	Darko Zibar	Technical University of Denmark
2012	Jesper Harholt	University of Copenhagen
2012	Joachim Mathiesen	University of Copenhagen
2012	Katrine Worsaae	University of Copenhagen
2012	Mads Græsbøll Christensen	Aalborg University
2012	Martin Bremholm	Aarhus University
2012	Martin Pessah	University of Copenhagen
2012	Mingdong Dong	Aarhus University
2012	Poul Martin Bendix	University of Copenhagen
2012	Riikka Rinnan	University of Copenhagen
2012	Sune Lehmann	Technical University of Denmark
2012	Ulla Gro Nielsen	University of Southern Denmark
2013	Christian Rechberger	Technical University of Denmark
2013	David García	University of Copenhagen
2013	Dirch Hjorth Petersen	Technical University of Denmark
2013	Eva Bundgaard	Technical University of Denmark
2013	Henrik Helligsø Jensen	Aarhus University
2013	Jacco van de Streek	University of Copenhagen
2013	Jonathan Brewer	University of Southern Denmark
2013	Katharine Marske	University of Copenhagen
2013	Lars Hagedorn Frandsen	Technical University of Denmark
2013	Lars Jelsbak	Technical University of Denmark
2013	Mads Faurschou Knudsen	Aarhus University
2013	Marek Stibal	University of Copenhagen
2013	Michael Ryan Hansen	Aarhus University
2013	Raquel Sanchez Perez	University of Copenhagen
2013	Silvan Schmid	Technical University of Denmark
2013	Susanna Seppälä	Technical University of Denmark
2013	Søren Besenbacher	Aarhus University
2013	Tais Wittchen Dahl	University of Copenhagen
2013	Tom Vosch	University of Copenhagen

List of VILLUM Young Investigator Programme grantees 2014 og 2015

Year	Primary Applicant	Organisation Name
2014	Anders Østergaard Madsen	University of Copenhagen
2014	Christer S. Ejsing	University of Southern Denmark
2014	Christian Mac Ørum Mosdal	University of Copenhagen
2014	Dorthe B. Ravnsbæk	Aarhus University
2014	Elizaveta Semenova	Technical University of Denmark
2014	Kim Lau Nielsen	Technical University of Denmark
2014	Mark Rudner	University of Copenhagen
2014	Michael J. Kastoryano	University of Copenhagen
2014	Mikael Rørdam Andersen	Technical University of Denmark
2014	Nicolaj Krog Larsen	Aarhus University
2014	Nika Akopian	Technical University of Denmark
2014	Nina Lock	Aarhus University
2014	Rasmus Heller	University of Copenhagen
2014	Rute Fonseca	University of Copenhagen
2014	Signe Normand	Aarhus University
2014	Simon Stisen	GEUS - The Geological Survey of Denmark and Greenland
2014	Sofia Ribeiro	GEUS - The Geological Survey of Denmark and Greenland
2014	Stephan Sylvest Keller	Technical University of Denmark
2014	Ulf R. Pedersen	Roskilde University
2014	Wouter Krogh Boomsma	University of Copenhagen
2015	Alireza Dolatshahi-Pirouz	Technical University of Denmark
2015	Anne Ersbak Bang Nielsen	Aarhus University
2015	Camilla Snowman Andresen	GEUS - The Geological Survey of Denmark and Greenland
2015	Christoffer Karoff	Aarhus University
2015	Claudio Grillo	University of Copenhagen
2015	Henrik Hjarvard De Fine Licht	University of Copenhagen
2015	Jan Østergaard	Aalborg University
2015	Jessica Bolinsson	University of Copenhagen
2015	Jonas Schou Neergaard Nielsen	Technical University of Denmark
2015	Juan José Vegas Olmos	Technical University of Denmark
2015	Juan Maria García Lastra	Technical University of Denmark
2015	Mette Burmølle	University of Copenhagen
2015	Michael Thomas-Poulsen	University of Copenhagen
2015	Michael Trott	University of Copenhagen
2015	Morten Erik Allentoft	University of Copenhagen
2015	Nikos Hatzakis	University of Copenhagen
2015	Oliver Kirsebom	Aarhus University
2015	Sally Anne Keith	University of Copenhagen
2015	Thomas Bruun Madsen	Aarhus University
2015	Tine Engberg Thingholm	University of Southern Denmark
2015	Victor Silva Aguirre	Aarhus University

List of VILLUM Young Investigator Programme grantees 2016 og 2017

Year	Primary Applicant	Organisation Name
2016	David Jason Koskinen	University of Copenhagen
2016	Eline Lorenzen	University of Copenhagen
2016	Elizabeth Heather Neilson	University of Copenhagen
2016	Emmanuel Arthur	Aarhus University
2016	Georgios Magdis	University of Copenhagen
2016	Irene Tamborra	University of Copenhagen
2016	Jan Baumbach	University of Southern Denmark
2016	Jan Olaf Mirko Härter	University of Copenhagen
2016	Kasper Green Larsen	Aarhus University
2016	Kira Astakhova	University of Southern Denmark
2016	Kaare Hartvig Jensen	Technical University of Denmark
2016	Lars A. Buchhave	University of Copenhagen
2016	Magnus Kjærsgaard	Aarhus University
2016	Martin Lindegren	Technical University of Denmark
2016	Meike Burow	University of Copenhagen
2016	Rasmus Ejlers Møgelberg	IT University of Denmark
2016	Søren Kegnæs	Technical University of Denmark
2016	Søren Stobbe	University of Copenhagen
2016	Thomas Sand Jespersen	University of Copenhagen
2016	Yi Sun	Technical University of Denmark
2017	Ana Sofia Reboleira	University of Copenhagen
2017	Fernando Geu Flores	University of Copenhagen
2017	Hao Hu	Technical University of Denmark
2017	Jacob Bourjaily	University of Copenhagen
2017	Kasper Steen Pedersen	Technical University of Denmark
2017	Kenneth Halberg	University of Copenhagen
2017	Kirsten Marie Ørnsbjerg Jensen	University of Copenhagen
2017	Knud Jønsson	University of Copenhagen
2017	Mads Albertsen	Aalborg University
2017	Nicole Rita Elisabeth Posth	University of Southern Denmark
2017	Sophie Beeren	Technical University of Denmark
2017	Stefan Kragh Nielsen	Technical University of Denmark
2017	Søren Hauberg	Technical University of Denmark
2017	Søren Ulstrup	Aarhus University
2017	Thomas Just Sørensen	University of Copenhagen
2017	Vivi Kathrine Pedersen	Aarhus University

# Appendix VI 2016

# VILLUM Young Investigator Programme Call

## Aim

The aim of VILLUM Young Investigator Programme is to fund particularly talented young researchers in technical and natural sciences.

Applicants are selected on the basis of their independent research accomplishments, creativity, and potential to become leaders in the scientific community through their contributions to their research fields.

Applicants must have a clearly defined research goal for the next five years and the research must be of such scope that it requires the formation of a research group.

A typical applicant is below 40 years of age and will at the time of application be an experienced post-doctoral researcher, assistant professor or associate professor. Associate professors must have no more than two years' standing. Leaves of absence will be taken into account.

The grant amount is 7-10 million DKK to cover a research period of up to five years.

## Assessment and selection

The assessment and selection process is divided into two steps.

Step 1: Based on the Terms of Reference (ToR) (LINK), the Foundation's VILLUM Young Investigator Committee (LINK) recommends to the board of VILLUM FONDEN which applicants should be invited for an interview.

Step 2: Based on the application and the interview with the applicant, the Committee recommends to the board of VILLUM FONDEN which applicants from Step 2 should receive a VILLUM Young Investigator grant.

## Conditions

- A VILLUM Young Investigator is appointed for a maximum of five years, at a Danish university or another Danish research institution.
- Postdoctoral researchers and assistant professors must have the scientific qualifications of a candidate eligible for a tenured position as associate professor (lektor) at a Danish university.
- Postdoctoral researchers and assistant professors who apply for a VILLUM Young investigator grant, but are considered by the VILLUM Young Investigator Committee not to have the scientific qualifications of a candidate eligible for a tenured position, cannot apply again in 2018.
- The salary of the VILLUM Young Investigator will continue to be paid by the host institution throughout the five-year period if the applicant at the time of the submission deadline holds a tenured position or tenure track position at the host institution. The salary of non-tenured applicants can be partly or fully covered by the grant if required.
- Associate professors must have no more than two years' standing. Any leaves of absence such as military/sick/maternity/parental leaves will be taken into account. The extended period is calculated as the actual number of months of leave. The period of any leave must be stated in the applicant's CV on page 1 (specified by number of months, year, and cause) and the effective PhD age calculated.
- VILLUM FONDEN may in special cases accept that an already approved VILLUM Young Investigator grant is transferred to another host institution within Denmark.

## Application

The application must contain the following documents:



Research publications. Attach up to three research publications or other documented outputs that best describe your most important scientific achievements/discoveries.

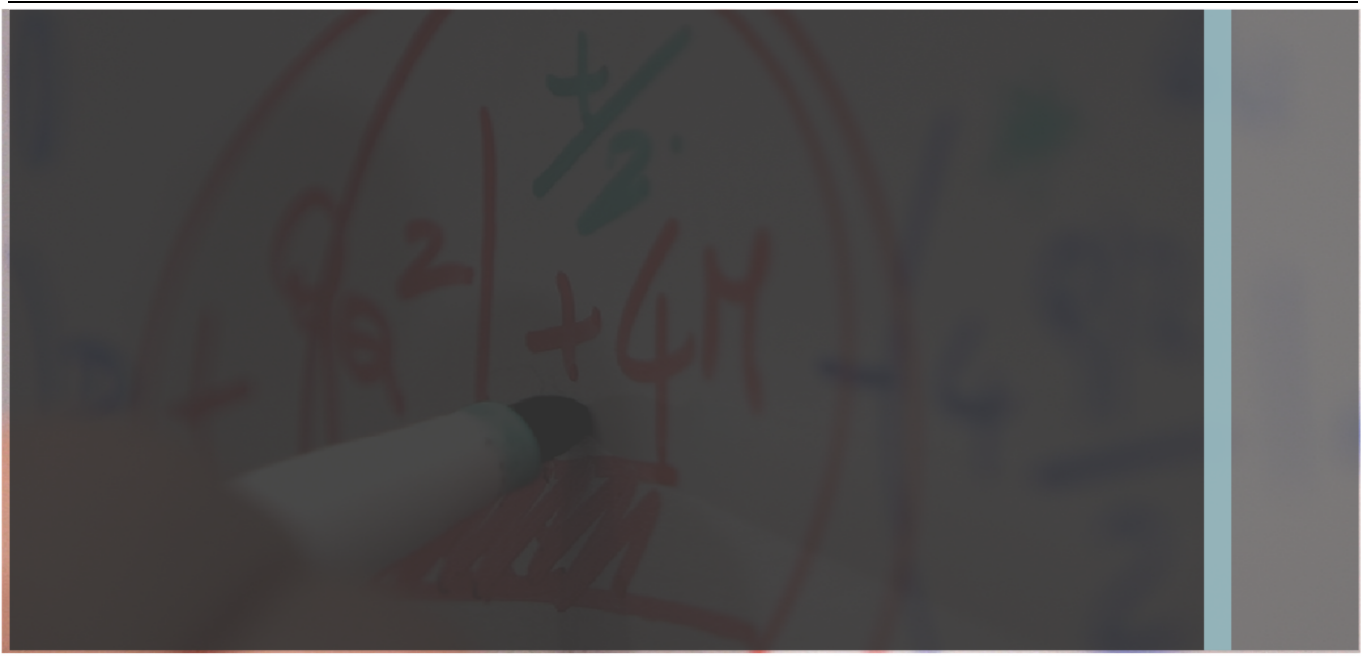
CV including a bibliography of research publications and a list of current research support. Mark explicitly any corresponding author publications.

Budget form. The VILLUM Young Investigator's grant is large and flexible. Applicants may apply for 7-10 million DKK for a period of up to five years, including a 15% overhead to the host institution. The grant can be used to fund postdoctoral researchers, PhD students, equipment, technicians and administrative assistance and other customary project expenses. Regarding salary of the applicant, please see "Conditions" above.

Letter of support. A letter must be supplied from the institution expected to host the VILLUM Young Investigator demonstrating its support and recognition of the application. The institution is invited to comment on the possibility for the VILLUM Young Investigator applicant to enter into a tenure track position at the host institution should the application be granted.

The documents above must be submitted on the application website as pdf files.

It is mandatory that you provide us with your ORCID (Open Researcher and Contributor ID) which assures that you have a unique ID in our application system and helps us to distinguish you from every other researcher in relation to look-ups in databases such as Web of Science. You can obtain your ORCID here (LINK to <http://orcid.org/>).



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