



Oncode Institute

*Outsmarting cancer
Impacting lives*

Metrics Report

2023

I. Preamble

Oncode institute is an independent research institute dedicated to understanding cancer and translating research into clinical practice. It is Oncode's vision to crack the code of cancer for a future in which everyone can survive cancer with the best possible quality of life. Oncode unites ~52 research groups totaling more than 700 researchers at 12 institutes in a shared mission: to accelerate breakthrough discoveries and speed up their translation into new diagnostics and treatments for cancer patients. To achieve this goal, Oncode is founded on three pillars: Excellent Science, Collaboration, and Valorization – together creating impact.

This Metrics Report details Oncode Institute's performance in 2023, through a broad set of indicators. The report provides detailed bibliometric insights into the institute's activities, achievements, developments, and progress towards achieving the Key Performance Areas (KPA's) set for Oncode Institute's current term (2023-2027). For each indicator, the annual performance values are included. In addition, to enable application of public international benchmarking tools and assess the institute's performance in relation to international peers and top research institutes in the field, trend values (averages) are determined for a four-year window for selected indicators, specifically related to publication and citation impact analysis and valorization performance.

Content

1	Oncode Institute and Research Community	3
1.1	Organization and community	3
1.2	Community building and training	3
2	Research Funding	4
2.1	Secured Commitments	4
2.2	Annual Research Budget	6
3	Science	7
3.1	Publication output	8
3.2	Citation impact	8
3.3	Open Science	8
4	Collaboration	9
4.1	Collaborative research activities	9
4.2	Collaborative research output	10
5	Valorization	11
5.1	Technology Transfer	11
5.2	Impact on health	13
5.3	Impact on Economy	15

1 Oncode Institute and Research Community

1.1 Organization and community

Table 2.1.1 Population size

Population size	2018	2019	2020	2021	2022	2023
Oncode Institute staff						
- Staff core organization	12	16	17	18	15	22
- Staff including personnel through contractors	20	27	28	28	25	27
Management, boards and committees						
- Management Board	3	3	3	3	2	2
- Management Team	n/a	n/a	5	5	4	6
- Supervisory Board	7	8	8	8	8	7
- International Advisory Board	7	8	7	7	7	7
- Research Management Committee	7	8	8	8	8	8
- Clinical Advisory Board	9	9	11	10	10	10
Research Community						
- Total Research Community	606	875	928	924	826	731
- Oncode Investigators	43	61	61	61	60	52
- Senior Oncode Investigators	37	43	43	43	42	40
- Junior Oncode Investigators	6	18	18	18	18	12
- Oncode Researchers	563	814	867	863	766	679
- Postdoctoral / Sr Researchers	190	269	284	264	249	207
- PhD candidates	242	356	354	369	337	317
- Support staff / Technicians	131	189	229	230	180	155
PhD defenses						
- PhD defenses	39	64	48	40	59	62

Table 2.1.2 Gender diversity

Gender Diversity (# female/male/unknown)	2018	2019	2020	2021	2022	2023
Oncode Institute staff						
- Staff core organization	11/9/0	8/8/0	10/7/0	11/7/0	10/5/0	14/8/0
- Staff including personnel through contractors	6/6/0	16/11/0	18/10/0	18/10/0	17/8/0	18/8/0
Management, boards and committees						
- Management Board	0/3/0	0/3/0	1/2/0	1/2/0	1/1/0	1/1/0
- Management Team	n/a	n/a	2/3/0	2/4/0	2/2/0	3/3/0
- Supervisory Board	1/6/0	2/6/0	2/6/0	2/6/0	2/6/0	1/6/0
- International Advisory Board	3/4/0	4/4/0	3/4/0	3/4/0	3/4/0	3/4/0
- Research Management Board	2/5/0	2/6/0	2/6/0	2/6/0	2/6/0	2/6/0
- Clinical Advisory Board	5/4/0	4/5/0	6/5/0	5/5/0	5/5/0	5/5/0
Research Community						
- Oncode Investigators	7/36/0	17/44/0	17/44/0	17/44/0	17/44/0	15/37/0
- Senior Oncode Investigators	7/30/0	9/34/0	9/34/0	9/34/0	9/33/0	7/33/0
- Junior Oncode Investigators	0/6/0	8/10/0	8/10/0	8/10/0	8/10/0	8/4/0

1.2 Community building and training

To drive community building, numerous conferences, trainings, and mentoring sessions are organized, fostering talent development as well as interaction and collaboration between investigators.

Table 2.2.1 Events

Events, training & mentoring	2018	2019	2020	2021	2022	2023
Events total	7	15	11	10	13	9
- Meetings & conferences	5	7	6	4	7	5
- Training and workshops	2	8	5	6	6	4

Table 2.2.1 Participants

Event participants	2018	2019	2020	2021	2022	2023
Events total	713	1552	987	1386	1171	1454
- Meetings & conferences	649	1252	817	1191	1055	1162
- Training and workshops	64	300	170	195	116	109

2 Research Funding

Oncode Institute's research funding capacity is measured based on the following data:

- i) Competitive Grants and Awards: Funding from secured grants and awards. Data obtained from OI annual reports.*
- ii) Oncode Institute Funding: Oncode Base Research Funding and Oncode Institute Project Funding. Data obtained from Oncode Institute administration.
- iii) Public-Private Partnerships: Funding from public-private collaborative research projects, i.e. industry-sponsored research collaborations** and collaborations under the Match call of TKI-LSH. Data obtained from Oncode Institute administration***.
- iv) Investments in spin-offs: Committed third-party investments into Oncode Institute portfolio companies****. Data obtained from Oncode Institute and Oncode B.V. administrations.

* Competitive Grants and Awards: excluding any Oncode Funding or TKI-LSH project funding, which are reported separately under Oncode Institute Funding and Public-Private Partnerships respectively.

** Industry-sponsored collaborations: excluding any public-private collaborations that are part of a grant, which are reported under Competitive Grants and Awards.

*** For TKI-LSH related projects pre-dating 2023, data is complemented with OI annual reports.

**** Investments in spin-offs: excluding any investments from the Oncode Oncology Bridge Fund.

2.1 Secured Commitments

Secured in cash commitments to Oncode Research

Annual secured commitments are calculated from the public and private funding for research projects that has been formally secured in the reported period. Research project funding is considered formally secured when all requirements for its commitment are met (e.g. an executed agreement) allowing formal project start.

Secured commitments to Oncode Research include only those commitments to a research project, either in cash or in kind, that are allocated to an Oncode Investigator Research group, and as such allocated to conduct Oncode Institute Research. Any fraction of the budget that is allocated to an organization and/or research group not affiliated with Oncode Institute is therefore excluded. Presented herein are the secured in cash commitments allocated to Oncode Research.

Table 3.1.1 – Secured in cash commitments allocated to Oncode Research

Secured Commitment (Euro x10 ⁶)	2018	2019	2020	2021	2022	2023
Secured Commitments total	64,9	53,1	43,6	39,8	49,6	43,8
- Competitive grants and awards	61,1	46,5	32,8	29,9	41,5	35,0
- Oncode project grants	1,4	1,9	3,7	3,3	5,6	1,0
- Public-Private Partnerships	2,4	4,6	7,0	6,6	2,6	7,8
Secured commitments per Oncode Investigator	1,5	0,9	0,7	0,7	0,8	0,8

Table 3.1.2 – Secured in cash commitments allocated to Oncode Research through Grants and Awards by funder type

Secured Commitment (Euro x10 ⁶)	2018	2019	2020	2021	2022	2023
Grants and Awards to Oncode Research total	61,1	46,5	32,8	29,9	41,5	35,0
- Public	34,4	29,7	22,8	17,9	29,5	20,5
- Private total	26,7	16,8	10,0	12,0	11,9	14,6
- Private: KWF	17,0	5,5	5,0	8,9	8,0	9,2
- Private: non-KWF	9,7	11,3	5,0	3,1	3,9	5,4
Grants and Awards per Oncode Investigator						

Table 3.1.3 – Competitive Grants and Awards by funder geographical distribution

Geographical distribution (#)	2018	2019	2020	2021	2022	2023
Grants and Awards total	101	95	71	85	88	88
- NL	58	57	50	61	62	54
- Europe	30	24	19	19	17	26
- European Commission	17	15	11	9	10	16
- EU other	13	9	8	10	7	10
- UK	1	2	0	0	0	0
- USA	9	9	1	3	5	6
- Other	3	3	1	2	4	2
Relative Grants & Awards / OI	2,3	1,6	1,2	1,4	1,5	1,7

Table 3.1.5 – Secured in cash commitments allocated to Oncode Research through Public-Private Partnerships by type

Secured in cash commitment (Euro x10 ⁶)	2018	2019	2020	2021	2022	2023
P:P:P in cash total	2,4	4,6	7,0	6,6	2,6	7,8
- Industry Sponsored projects	2,0	1,5	3,5	5,2	0,7	4,0
- TKS-LSH projects	0,4	3,1	3,6	1,4	1,9	3,8
PPP in cash per Oncode Investigator	0,05	0,08	0,12	0,11	0,04	0,15

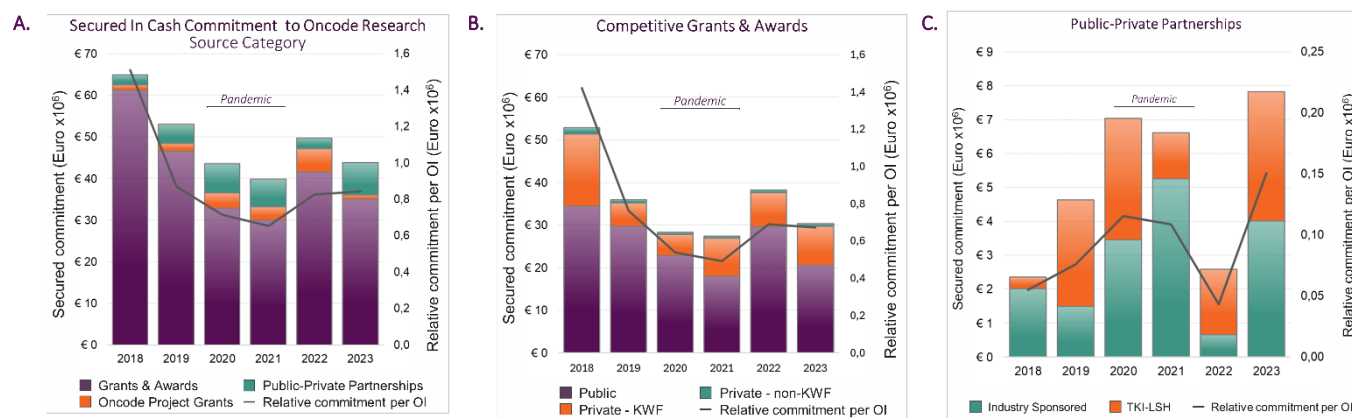


Figure 3.1.1 Secured in cash commitments allocated to Oncode Research. A) Total secured in cash commitments by source category; B) Secured competitive grants and awards by funder type [public, private – Dutch Cancer Society (KWF)], and C) Secured in cash commitments through Public-Private Partnerships by project type [Industry sponsored, TKI-LSH].

Leveraging of Oncode Core Funding with committed in cash contributions from private funding sources

For the current term (2023-2027), a total of €90 million core funding is committed to Oncode Institute by its funders: the Dutch Cancer Society (KWF), the Dutch ministries of Economic Affairs & Climate (EZK; through RvO), Education Culture & Science (OCW), Health, Welfare & Sport (VWS; through ZonMw), and the Top Sector Life Sciences & Health (TKI-LSH). Oncode Institute is committed to leverage this Oncode Core Funding through securing in cash commitments from private sources.

Such Leveraging is calculated as the sum of in cash commitments from private funding sources allocated to Oncode Research or Oncode spin-offs, excluding any commitment from an Oncode Institute funder (i.e. KWF):

- i) Secured grants and awards from national and international private funding sources, excluding funding committed by KWF.
- ii) Secured in cash commitments from private funding sources through Public-Private Partnerships: including in cash commitment from industry parties through either sponsored research collaborations or projects under the match call of TKI-LSH, excluding any TKI allowance committed by TKI-LSH.
- iii) Secured investments from private sources in Oncode Institute spin-off companies, excluding any committed investments from the Oncode Oncology Bridge Fund.

Table 3.1.6 – Secured private in cash commitments towards leveraging of Oncode Institute Core Funding

Secured in cash commitment (Euro x10 ⁶)	2018	2019	2020	2021	2022	2023
Private in cash commitment total	10,7	12,8	8,5	7,9	23,8	10,8
- Grants and awards: Private non-KWF	9,7	11,3	5,0	3,1	3,9	5,4
- Industry in cash commitments	1,0	1,5	2,8	3,2	0,7	4,1
- Donations	n/a	n/a	n/a	n/a	n/a	0,6
- Investments in spin-off companies	0,0	0,0	0,7	1,6	19,3	0,6

Table 3.1.7 – Leveraging Oncode Core funding with private in cash commitments

Secured in cash commitment (Euro x10 ⁶)	2018	2019	2020	2021	2022	2023
Core Funding (leveraging target %)						
Term 2018-2022		113,9 (50%)				
Term 2023-2027		90,0 (60%)				
Total private in cash commitment	10,7	12,8	8,5	7,9	23,8	10,8
Cumulative in cash commitment in term	10,7	23,5	32,0	39,9	63,7	10,8
Leveraging (%) in period	9%	11%	7%	7%	21%	12%
Cumulative leveraging (%) in term		9%	21%	28%	35%	56%

2.2 Annual Research Budget

The annual research budget for Oncode Research represents the total funding in cash that is available to Oncode Investigators and their research teams in the reported year. The annual research budget is calculated from the committed in cash contributions, as the average budget per year based on i) the total in cash contribution allocated to an Oncode Investigator research group and ii) project duration. To calculate the annual research budget, also in cash contributions secured pre-dating an Oncode Investigator’s affiliation with Oncode Institute are included, for commitments to projects which projects have a duration extending into the Oncode Institute affiliated term. Such data is obtained through Oncode Investigator reporting.

N.B.: Detail on potential research funding committed by the partner institutions at which an Oncode Investigator is embedded is not available to Oncode Institute, therefore such data is not included in the calculations, consequently resulting in a potential under-appreciation of the annual research budget.

Table 3.1.6 – Total in cash research budget

Annual in cash budget to Oncode research (Euro x10 ⁶)	2018	2019	2020	2021	2022	2023
Annual Research Budget total	65,3	83,2	80,2	65,9	55,9	49,6
- Competitive grants and awards	51,1	63,5	58,4	44,1	37,4	33,0
- Public	31,0	37,3	36,2	27,6	24,5	22,0
- Private total	20,1	26,1	22,1		12,9	11,0
- Private: KWF	6,9	12,1	10,7	8,2	4,8	3,1
- Private: non-KWF	13,2	14,0	11,5	8,3	8,2	7,9
- Oncode Institute	10,4	15,0	16,1	16,5	14,0	11,0
- Base Funding	10,2	14,1	14,1	14,1	10,7	8,0
- Project grants	0,3	0,9	2,0	2,4	3,3	2,9
- Public-Private Partnerships	3,8	4,8	5,7	5,4	4,5	5,7
- Industry sponsored projects	0,5	1,8	3,1	4,4	3,9	5,2
- TKI-LSH projects	3,3	3,0	2,6	1,0	0,6	0,5
Relative annual research budget per Oncode Investigator	1,5	1,4	1,3	1,1	0,9	1,0

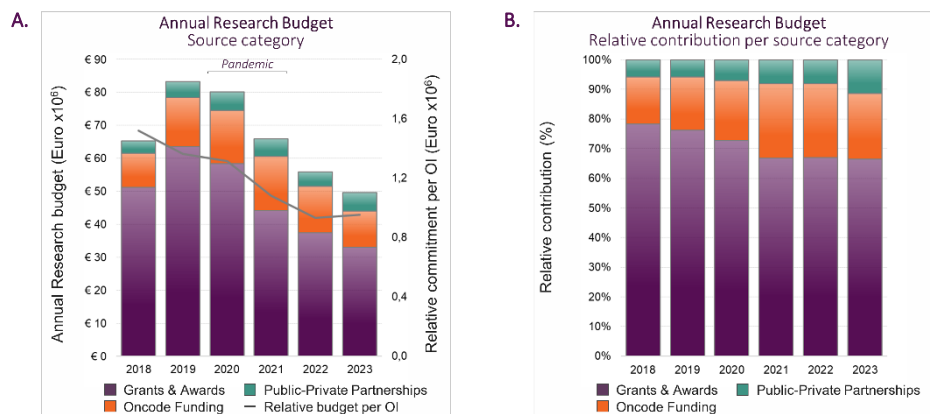


Figure 3.2.1 Annual Research Budget. The annual in cash budget allocated to Oncode Investigator research by source type, represented as A) absolute, and B) relative values. **N.B.:** detail on core funding provided by the research institute where the Oncode Investigator labs are embedded was unavailable and as such not included in the calculation.

3 Science

To gain bibliometric insights into the Oncode Institute's scientific and open access performance, it employs the CWTS Leiden Ranking¹ system developed by the Centre for Science and Technology Studies (CWTS; Leiden University). The Leiden Ranking represents a set of bibliometric indicators providing insights into the performance of universities and research institutes based on bibliographic data from scientific publications. Its indicators allow an assessment that takes into consideration different perspectives, including field, region, and size of the institute. Each year, CWTS releases an updated edition of the Leiden Ranking, currently including over 1400 major universities worldwide. This enables university ranking and comparative assessment of Oncode Institute's performance, based on a 4-year window trend performance.

The Leiden Ranking bases calculation of indicators related to citation impact and open access on article and review type publications that are in English, published in international scientific journals in fields suitable for citation analysis, and that have not been retracted – herein referred to as Core Publications. To perform the bibliometric analysis of Oncode Institute's publication output, the assessment includes publications on which at least 1 (co-)author has indicated an affiliation with Oncode Institute. To allow reliable analysis of both i) citation impact and ii) open access publication, this 2023 Metrics Report provides annual indicator values as well as 4-year window trend analyses for publications that were published before or on 31 December 2022.

The following indicators are included:

- Core Publications: Article and review type publications that are in English, published in international scientific journals in fields suitable for citation analysis, and have not been retracted.
- P(full): Total number of Core Publications.
- P(fract): Number of Core Publications using fractional counting of institute contribution to a given publication.
- P(top10%): The number of Core Publications that, compared with other publications in the same field and in the same year, belong to the top 10% most frequently cited.
- PP(top10%): The proportion of Core Publications that, compared with other publications in the same field and in the same year, belong to the top 10% most frequently cited.
- MNCS: The average number of citations of the Core Publications, normalized for field and publication year. An MNCS value of 1 is the worldwide average field-normalized citation performance. An MNCS value of two means that the core publications have been cited two times more than the average of their field and publication year.
- P(oa): Number of Core Publications published with open access.
- PP(oa): Proportion of Core Publications published with open access.
- P(gold): Number of Core Publications published with gold open access, i.e. published in a fully open access journal.
- PP(gold): Proportion of Core Publications published with gold open access.
- P(hybrid): Number of Core Publications published with hybrid open access, i.e. published in a subscription journal that is part open access.
- PP(hybrid): Proportion of Core Publications published with hybrid open access.
- P(green): Number of Core Publications published with green open access, i.e. (also) published in an open access repository.
- PP(green): Proportion of Core Publications published with green open access.
- P(unknown): Number of Core Publications of which the open access publication classification is unknown.
- PP(unknown): Proportion of Core Publications of which the open access publication classification is unknown.

N.B.: The different open access classifications partially overlap, i.e. a publication can be classified as both green open access and gold or hybrid open access. Open access classification is assessed at a given moment in time, and such classification may change as time progresses, e.g. a publication may become open access once an embargo is lifted but was not open access at the time of publication.

¹ CWTS Leiden Ranking: <https://www.leidenranking.com/>

3.1 Publication output

Table 4.1.1 – Publication output by type

Publication output (#)	2018	2019	2020	2021	2022	2023
Publication output total	150	294	376	477	373	398
- Article	113	212	289	331	275	306
- Biographical item	0	0	1	0	0	0
- Correction	0	0	1	3	2	4
- Editorial material	10	12	16	26	18	17
- Letter	1	7	3	7	4	6
- Meeting abstract	7	19	12	33	22	21
- News Item	0	0	0	1	0	0
- Review	19	44	54	76	52	44
P(full) = total Core Publications	131	251	335	401	321	328

3.2 Citation impact

Table 4.2.1 – Citation impact

Citation Impact	2018	2019	2020	2021	2022		
PP(top10%)	36%	26%	30%	24%	25%		
P(full)	131	251	335	401	333		
P(fract)	55	92	118	135	98		
P(top10%)	20	24	35,1	32,5	22		
MNCS	2,66	1,96	2,04	2,11	2,24		
Citation Impact 4-year trend							
PP(top10%)						'18-'21	'19-'22
MNCS						28%	25%
						2,13	2,06

3.3 Open Science

Table 4.2.1 – Open Access Publication

Open Access	2018	2019	2020	2021	2022		
PP(oa)	82%	87%	88%	91%	94%		
P(full)	131	251	335	401	333		
P(oa)	107	219	296	365	312		
P(gold)	48	99	128	179	139		
PP(gold)	37%	39%	38%	45%	42%		
P(hybrid)	32	57	80	100	112		
PP(hybrid)	24%	23%	24%	25%	34%		
P(bronze)	13	31	44	31	14		
PP(bronze)	10%	12%	13%	8%	4%		
P(green)	95	200	266	332	297		
PP(green)	73%	80%	79%	83%	89%		
P(unknown)	0	0	0	2	0		
PP(unknown)	0%	0%	0%	<0,1%	0%		
Open Access 4-year trend							
PP(oa)						'18-'21	'19-'22
PP(gold)						88%	93%
PP(hybrid)						40%	42%
PP(bronze)						25%	31%
PP(green)						9%	7%
PP(unknown)						80%	86%
						<0,1%	0%

4 Collaboration

To gain insights into the level of collaboration achieved by Oncode Investigators and their teams, both between different Oncode research groups as well as between these groups and the broad international research community, collaboration is measured through:

- i) Active research collaborations, measured through secured collaborative grants and awards as well as public-private collaborative research projects.
- ii) Collaborative research output, measured through collaborative Core Publications.

4.1 Collaborative research activities

Table 5.1.1 – Collaborative Grants and Awards

Competitive Grants and Awards (#)	2018	2019	2020	2021	2022	2023
Total Competitive Grants and Awards	101	95	71	85	88	88
- Personal	44	56	40	43	51	46
- Collaborative	57	39	31	42	37	42
- Personal	44%	59%	56%	51%	58%	52%
- Collaborative	56%	41%	44%	49%	42%	48%

Table 5.1.2 – Public-Private Partnerships

Public-Private Partnerships (#)	2018	2019	2020	2021	2022	2023
Total Public-Private Partnership projects	9	19	23	21	12	20
- Industry sponsored projects	8	11	16	19	8	12
- TKI-LSH projects	1	8	7	2	4	8

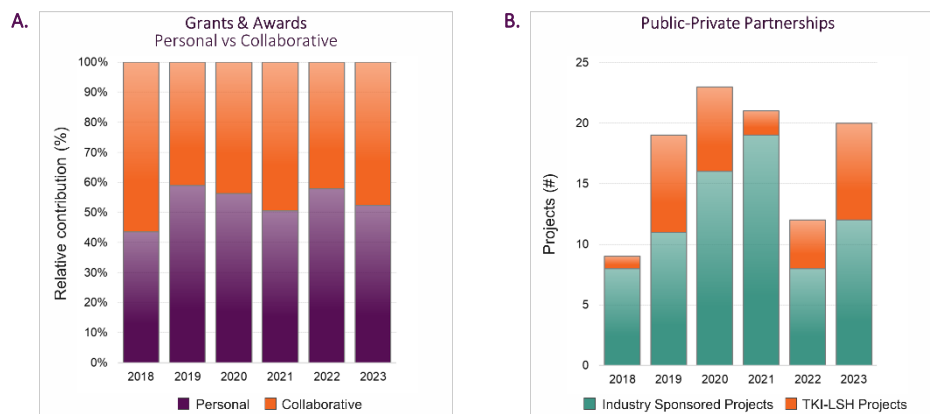


Figure 5.1.1 Collaborative research activities. Collaborative research activities indicated through: A) successful Grants and Awards, measured including competitive grants and awards, excluding Oncode grants and TKI-LSH projects; and B) Public-Private Partnerships, measured including industry-sponsored collaborative research projects and TKI-LSH collaborative research projects.

4.2 Collaborative research output

To gain bibliometric insights into Oncode Institute’s collaborative research output performance, the CWTS Leiden Ranking¹ is used. To assess collaborative research output, Core Publications with at least 1 (co-)author indicating an affiliation with Oncode Institute are considered Oncode Institute affiliated publications, and are therefore included in the analysis. Collaboration indicators for collaborative research output are assessed for collaborations with: (a) national parties, (b) international parties, and (c) between different Oncode Investigator teams ('Oncode inter-community collaborative research output'). To assess effective collaboration between Oncode Investigators rather than indirect collaborative co-publication through collaboration with the same third party, category (c) is also assessed on the subset of publications within P(full) on which an Oncode Investigator is the last author and lead investigator of the published research.

Table 5.2.1 – National collaborative research output

National collaborative research output (#)	2018	2019	2020	2021	2022	2023
P(full)	131	251	335	401	321	328
National collaboration output	36	72	104	118	102	101
Fraction national collaboration output	27%	29%	31%	29%	32%	31%

Table 5.2.2 – International collaborative research output

International collaborative research output (#)	2018	2019	2020	2021	2022	2023
P(full)	131	251	335	401	321	328
International collaboration output	70	146	190	240	200	204
Fraction international collaboration output	53%	58%	57%	60%	62%	62%

Table 5.2.3 – Oncode Institute inter-community collaborative research output

Oncode inter-community collaborative research output (#)	2018	2019	2020	2021	2022	2023
P(full)	131	251	335	401	321	328
Oncode collaboration	31	56	56	72	57	70
Fraction Oncode collaboration	24%	22%	17%	18%	18%	21%
Primary article- Oncode Researcher as last author	100	147	168	216	149	124
Oncode collaboration within primary articles	25	45	39	47	42	45
Fraction Oncode collaboration within primary articles	25%	31%	23%	22%	28%	36%

5 Valorization

To provide insights into Oncode's valorization performance, valorization activity and output are measured through indicators organized into the following categories:

- i) Technology Transfer: including indicators measuring technology transfer activity and output through research-related agreements, research collaborations, industry participation, valorization program activities, intellectual property and company creation.
- ii) Impact on Health: cancer patients and individuals at risk of developing cancer including indicators measuring clinical activities in the Oncode Clinical Program, translation of basic research results into clinical development stage, as well as activities on patient engagement and towards affordable and sustainable healthcare.
- iii) Impact on Economy including indicators measuring licensing and revenue generation and spin-off creation and investment performance, as well as the Institute's performance on a set of valorization indicators in relation to its international peers.

5.1 Technology Transfer

Technology Transfer activity

N.B.: In the current term (2023-2027), Oncode Institute continues to have the mandate to negotiate all agreements involving at least one industry party. Agreements that only include academic parties can be managed by Oncode Institute and are therefore not subject to the mandate. Consequently, in 2023 a reduction is observed in research agreements involving only academic parties, both in absolute numbers and contract values, compared to the first term (2018-2022).

Table 6.1.1 – Research-related agreements

Research related agreements (#)	2018	2019	2020	2021	2022	2023
Research Agreements total	48	150	190	257	199	174
Non-disclosure	20	67	70	111	71	70
Material/Data transfer	5	38	44	76	67	42
Research collaboration (including amendments)	10	28	36	35	31	29
License/Option	0	2	18	8	4	10
Other	13	15	22	27	26	23
- Academic only agreements	14	50	72	83	80	47
- Public-Private agreements	34	100	118	174	119	127

Table 6.1.2 – Research-related agreement contract values

Research related agreements Contract Values (Euro x10 ⁶)	2018	2019	2020	2021	2022	2023
Total contract value	13,7	41,7	27,4	27,4	41,8	20,1
- Academic only agreements	10,4	30,5	11	8,5	36,6	7,4
- Public-Private agreements	3,4	11,3	16,4	18,9	5,2	12,7
Total in cash commitment	13,5	33	24,9	20	40,3	16,9
- Academic collaboration	10,4	23,1	10,4	8,5	36,6	7,3
- Collaboration involving industry partner(s)	3,2	9,9	14,6	11,5	3,7	9,6
- Public party in cash commitment	1,5	8,4	2,1	8,3	3	5,4
- Industry in cash commitment	1,7	1,5	12,4	3,2	0,7	4,2
- Fraction in cash allocated to Oncode research	9,0	17,7	6,4	13,2	16,0	11,5
Total in kind commitment	0,2	8,7	2,4	7,4	1,5	3,2
- Academic collaboration	0	7,4	0,6	0	0	0
- Collaboration involving industry partner(s)	0,2	1,3	1,8	7,4	1,5	3,2

Table 6.1.3 – Invention disclosures

Invention Disclosure (#)	2018	2019	2020	2021	2022	2023
Invention Disclosures Total	43	41	48	36	34	28
- Legacy	11	3	3	0	0	0
- New	32	35	43	35	34	27
- Non-Oncode	0	3	2	1	0	1
Active Invention Disclosure Portfolio Total	43	64	81	98	115	115
- Legacy	11	9	5	4	3	2
- New	32	52	73	90	109	113
- Non-Oncode	0	3	3	4	3	3

Table 6.1.4 – Intellectual property

Intellectual Property (#)	2018	2019	2020	2021	2022	2023
IP filings total	22	25	28	40	70	59
- Priority	9	14	16	19	13	15
- PCT	6	11	7	12	13	11
- National	7	0	5	7	39	29
- Trademark	0	0	0	2	5	4
IP portfolio total	22	44	65	82	144	188
- Priority	9	24	35	41	42	44
- PCT	6	15	20	26	38	45
- National	7	5	10	13	57	80
- Trademark	0	0	0	2	7	19
Patent portfolio status						
- Active patent families	21	27	35	50	53	58
- Granted patents	0	1	3	2	1	3
- Optioned/licensed patents	0	3	8	9	14	16

Valorization programs

Oncode Institute's valorization programs provide project-based funding to advance development of Oncode Investigator research findings into products and potential clinical applications. These valorization programs include the Technology Development Program and the Clinical Proof-of-Concept Program.

Table 6.1.6 – Technology Development Program

Technology Development Program	2018	2019	2020	2021	2022	2023
Technology Development Projects						
- Awarded	n/a	7	10	7	11	3
- Awarded cumulative	n/a	7	17	24	35	38
- Completed	n/a	0	2	2	6	12
- Completed cumulative	n/a	0	2	4	10	22
- Terminated	n/a	0	0	0	2	1
- Terminated cumulative	n/a	0	0	0	2	3
- Active	n/a	7	15	20	23	15
Technology Development Funds (Euro x10 ⁶)						
- Funds allocated	0	0,7	1	0,9	1,1	0,4
- Funds allocated cumulative	0	0,7	1,7	2,6	3,7	4,1

Table 6.1.7 – Clinical Proof-of-Concept Program

Clinical Proof of Concept Program	2018	2019	2020	2021	2022	2023
Clinical Projects						
- Approved project applications	0	8	5	4	0	1
- Approved project applications cumulative	0	8	13	17	17	18
Clinical Projects status						
- Approved not yet started	0	0	2	3	3	2
- Active	0	8	9	11	9	8
- First patient included	0	5	3	2	4	0
- First patient included cumulative	0	5	8	10	14	14
- Completed	0	0	2	1	2	2
- Completed cumulative	0	0	2	3	5	7
- Cancelled	0	0	0	0	0	1
- Cancelled cumulative	0	0	0	0	0	1
Clinical Program Funds (Euro x10 ⁶)						
- Funds allocated	0,0	3,0	3,1	2,8	0,0	-0,3
- Funds allocated cumulative	0,0	3,0	6,1	8,9	8,9	8,6

Company creation

Table 6.1.8 – Spin-off companies

Spin off company portfolio	Partner Institute	Year established	OBF portfolio	Status
- Single Cell Discoveries	Hubrecht Institute	2018	Yes 2018	Exit 2022
- Oncosense	NKI-AVL	2017	Yes 2021	
- Cyclomics	UMC Utrecht	2018	Yes 2020	
- Immagene	NKI-AVL	2020	Yes 2020	
- Lumento Therapeutics	University Groningen	2020	No	
- Bimini Biotech	UMC Utrecht	2020	No	Discontinued 2022
- Laigo Bio	UMC Utrecht	2021	Yes 2021	
- Cell Control	NKI-AVL	2022	Yes 2022	
- Simmunext Biotherapeutics	RadboudUMC	2022	Yes 2022	
- 51X Therapeutics	NKI-AVL	2023	Yes	

5.2 Impact on health

Oncode Institute aims to maximize its researcher’s positive impact on health, including cancer patients, individuals at risk of developing cancer, their relatives, and the healthcare system. To provide insights into Oncode Institute’s ability to contribute to impact on health, indicators measuring the translation of basic research results into clinical development stage, as well as the status of the active clinical portfolio, are assessed.

The following definitions apply:

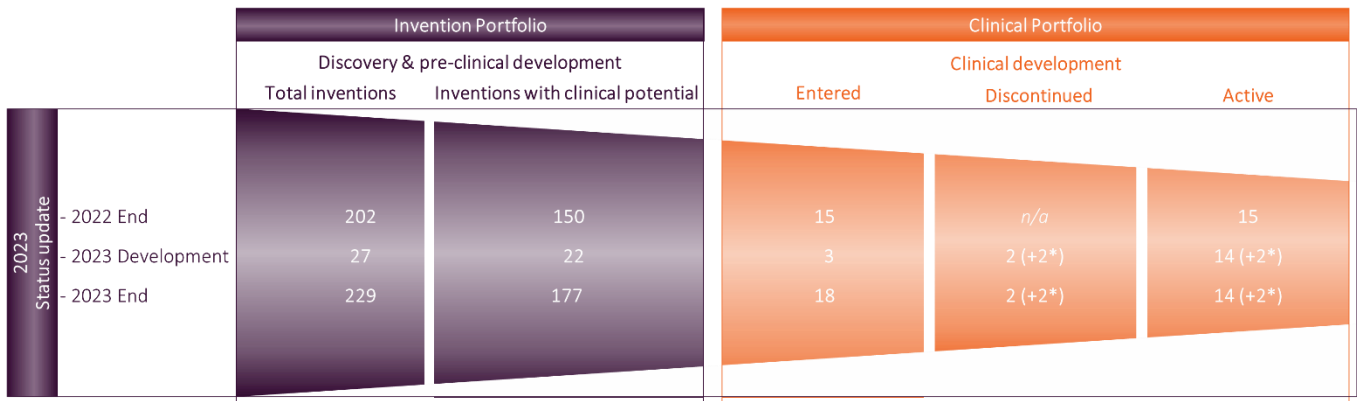
- Inventions with potential for clinical impact: Inventions from research results with potential application as a therapeutic, diagnostic, or recommendation for amendment of clinical guidelines.
- Translation into clinical development stage: First patient treated or included in research and development activities for therapeutics or diagnostics respectively, or for recommendations to amend clinical guidelines, such recommendations being integrated into relevant guidelines.
- Active clinical portfolio: The collection of inventions that have entered into the clinical development stage and are in active development at time of assessment.

Clinical translation of research

Table 6.2.1 – Clinical portfolio

Clinical portfolio	2018	2019	2020	2021	2022	2023
Oncode Invention Portfolio						
Oncode Invention Disclosures (IDF) total	43	38	46	35	34	27
- Oncode Inventions with potential clinical application	37	28	32	29	23	22
Oncode Clinical projects not associated with an IDF	0	4	1	1	2	0
Oncode Clinical Portfolio						
- Entered clinical development (1 st patient included)	1	4	3	2	5	3
- Entered clinical development cumulative	1	5	8	10	15	18
- Terminated	0	0	0	0	0	2
- Transferred, continued at third party*	-	-	-	-	-	2
- Oncode Active Clinical Portfolio	1	5	8	10	15	14

* Inventions with an investigator who is no longer affiliated with Oncode Institute but in continued active development, for which the intellectual property and/or know-how is returned to, and further development transferred to, the relevant partner institute are no longer considered as part of the Oncode Institute portfolio.



* Original development from Oncode Invention portfolio. Investigator no longer affiliated with Oncode Institute. Project no longer in Oncode portfolio, active development continues at partner institute.

Patient engagement

Table 6.1.6 – Patient Engagement

Patient Engagement	2018	2019	2020	2021	2022	2023
Participating (ex-)patients and representatives	n/a	n/a	10	11	15	23
Participating Oncode Investigator groups	n/a	n/a	5	8	8	13

Affordable and sustainable healthcare

To measure Oncode Institute's efforts contributing to more affordable and sustainable healthcare (ASHC), herein considered are activities related to:

- i) drug repurposing;
- ii) prevention of over- and under treatment, including development of patient-stratification and dose-optimization related technologies;
- iii) (early) Health Technology Assessments.

N.B.: the implementation of Socially Responsible Licensing (SLR) principles in licensing of healthcare-related inventions is considered to contribute to ASHC. However, SLR activities are included below under licensing activities in Section 5.3 Impact on Economy.

Table 6.1.6 – Affordable and sustainable healthcare activities

Affordable and Sustainable Healthcare (ASHC) activities	2018	2019	2020	2021	2022	2023
AHSC activities						
ASHC CPoC projects	0	5	3	1	0	0
Drug Repurposing Library	<i>n/a</i>	0	10	4	5	3
Early Health Technology Assessment (HTA)	0	3	0	2	1	0
Clinical program funds						
Clinical Program funds allocated - cumulative	0,0	3,0	6,1	8,9	8,9	8,6
- Funds to drug repurposing- % of total	<i>n/a</i>	7,8%	19,2%	19,1%	19,1%	21,1%
- Funds to patient stratification/dose optimization- % of total	<i>n/a</i>	28,6%	31,3%	21,5%	21,5%	22,2%

5.3 Impact on Economy

To measure Oncode Institute's contribution to establishing economic impact, the analysis not only considers economic impact on the institute itself, but also i) economic impact on the (inter)national oncology field, and ii) (indirect) impact on the Dutch economy. To provide insights into Oncode Institute's contribution to establishing such impact, its activities and outputs are measured through indicators that are related to licensing activities, revenue generation, company creation, and investments in Oncode Institute portfolio companies. Furthermore, a set of internationally recognized valorization indicators developed by AUTM for assessment and benchmarking of the quality of a valorization organization is used to measure Oncode Institute's performance and relative positioning in relation to its international peers.

Licensing and revenue

Table 6.1.6 – Licensing and income

License agreements and revenue	2018	2019	2020	2021	2022	2023
License Agreements						
- License and option agreement total	0	2	17	9	3	10
Socially Responsible Licensing (SRL) principles						
- Licenses- SRL principles relevant	n/a	1	5	5	3	7
- Licenses- SRL principles implemented	n/a	1	5	5	2	4
Licensing income						
- Gross licensing income [Euro x 10 ⁶]	0,00	0,03	0,03	0,02	0,03	0,23

Spin-off companies

Table 6.1.6 – Spin-off companies

Spin-off companies	2018	2019	2020	2021	2022	2023
Oncode Institute spin-off activities						
Oncode Institute spin-off portfolio						
- Company creation / Uptake into portfolio	1	1	4	1	2	0
- Exit	0	0	0	0	1	0
- Discontinued	0	0	0	0	1	0
- Active spin-off portfolio	1	2	6	7	7	8
Oncode Oncology Bridge Fund (OBF) Activities						
OBF company portfolio						
- Company creation / uptake into OBF portfolio	1	0	2	2	2	1
- Exit	0	0	0	0	1	0
- Discontinued	0	0	0	0	0	0
- Total OBF portfolio	1	1	3	5	6	7
OBF portfolio investments (Euro x10 ⁶)						
- OBF committed investment capital	0	0,1	0,3	0,5	1,4	0
- OBF committed investment capital- cumulative	0,0	0,1	0,4	0,9	2,3	2,3
- Attracted third party investment capital	0	0	0,7	1,1	20,5	0
- Attracted third party investment capital- cumulative	0,0	0,0	0,7	1,8	22,3	0

AUTM - Technology Transfer benchmark

To provide insights into Oncode Institute's valorization performance and enable benchmarking of the quality of Oncode Institute's valorization organization, valorization performance is depicted through a set of valorization indicators developed by AUTM as included in Table 6.1.6 below. Benchmarking values for the reported period are obtained from the annual AUTM Licensing Survey of 2022. Oncode Institute's relative performance is indicated as the 2018-2022 4-year Trend value, comparing Oncode Institute's performance to the mean performance of all institutions contributing to the AUTM Licensing Survey.

Table 6.1.6 – Technology Transfer benchmark – AUTM indicators

AUTM Technology Transfer Indicators	2018	2019	2020	2021	2022		
Annual Research Budget (ARB)							
- Annual Research Budget (Euro x10 ⁶)	65,3	83,2	80,2	65,9	55,9		
Valorization indicators							
- New Invention Disclosures	32	38	45	36	34		
- New Patents	9	14	16	19	13		
- New Licenses and Options	0	2	17	9	3		
- New spin-offs (OBF portfolio)	1	0	2	2	2		
Normalized Valorization Indicators (per Euro x10 ⁶ ARB)							
- New Invention Disclosures	4,88	4,57	5,64	5,45	6,08		
- New Patents	1,37	1,68	2,01	2,87	2,33		
- New Licenses and Options	0,00	0,24	2,13	1,36	0,54		
- New spin-offs (OBF portfolio)	0,15	0,00	0,25	0,30	0,36		
AUTM Technology Transfer Indicators 4-year Trend						'18-'21	'19-'22
- New Invention Disclosures						136%	160%
- New Patents						81%	99%
- New Licenses and Options						64%	79%
- New spin-offs (OBF portfolio)						115%	165%

