852985 SIMICA

Deliverable D 1.8 Report

Impact assessment by the end of the project and forecast of the following 3-year period

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Overview of the report

This document has been written to coincide with the conclusion of the project "Site-selective protein-modification chemistries for antibody-drug conjugates (ADCs)" (hereinafter referred as SIMICA), which received funding from the European Union's H2020-WIDESPREAD-TWINNING-2018-2020, under the GA 852985.

This report describes the completion of deliverable D 1.8: Impact assessment by the end of the project and forecast of the following 3-year period. It strongly relies on deliverable D 1.2: KPIs definition for SIMICA and the results from the programme overall.

KPI definition for SIMICA

Fourteen relevant Key Performance Indicators (KPIs) were defined as a measure of achieving the SIMICA project objectives, as shown in the table below:

OB Number	OB Description	KPI Definition
1	Effectively place iMM at the forefront of science and processes in Europe	1.1. Number of scientific publications in peer-reviewed journals 1.2. Number of newsletters or press releases 1.3. Number of scientific publications with international partners 1.4. Number of students with international exposure
2	Ignite an ambitious research community	2.1. Number of researchers benefiting from international mentoring 2.2. Number of international expert visits to iMM
3	Increased participation in international collaborative projects	3.1. Participation in collaborative proposals 3.2. Number of submitted *versus* funded projects
4	Increase the entrepreneurial and risk-taking spirit among iMM's community	4.1. Number of new patents 4.2. Number of entrepreneurial training and innovation initiatives attendance
5	Better integration of iMM in regional, national and European business community	5.1. Number of new contracts and collaboration agreements with industry
6	Leverage iMM's research excellence and impact across its different research areas	6.1 Number of documents cited relative to the institution
7	Scientific and innovative boost to the region and the country	7.1 Number of documents cited relative to country/ territory
8	Contribute to increased scientific awareness among the general public	8.1 Number of public engagement activities

Fourteen relevant Key Performance Indicators (KPIs), defined as a measure of achieving the project objectives, the data source and methodology of their assessment for the period between 2019 and 2023 are described in this report.

Various data sources were evaluated, and the choice was made to allow more robust analysis and a better comparison between different KPIs. Internal data was mostly retrieved from iMM Lisboa Annual Activity Reports and the Administrative Facilities feedback. The selected external data source was Web of Science™ (Thomson Reuters), which is currently available through institutional assess.

The data here presented will provide updates from previous reports as well as forecast what can be anticipated in the following three-year period.

Impact assessment

KPI 1.1 Number of scientific publications in peer-reviewed journals

Before the commencement of the SIMICA project, a list of peer-reviewed publications originating from iMM in the research area of chemistry was compiled from data available through the Web of Science™ (Thomson Reuters) service. At the beginning of the programme it was noted that there were some discrepancies and inconsistencies in the way that the institutional affiliation of iMM was being cited, which necessitated the results from three different query names to be combined from Web of Science™ (Thomson Reuters) data in order to get the most reliable information set for this programme, namely Query: AD=(Inst Med Mol SAME Portugal) OR AD=(Mol Med Inst SAME Portugal) OR AD=(Inst Mol Med SAME Portugal). The search was further refined by selecting the “Chemistry” research areas and only “Articles” and “Review Articles” as document types. The report was generated on 10 May 2023. In the table below, the number of peer-reviewed publications per year in the chemistry research area can be found.

** It should be noted that here and throughout this report there are discrepancies relative to the data provided in the initial Impact report D 1.2 for SIMICA. This is a direct result of changes to the Web of Science service, and the ways in which indexing and categorisation is made. To ensure that trends in data can be viewed on a level playing field, all data has been regenerated with the same search and refinement data for all years. Only fundamental primary and secondary research was selected as the article type, which will exclude a small portion of peer-reviewed materials in the areas of, for example, “Letters” and “Book Chapters” which is a category that can range from peer-reviewed scientific comment to simple opinion columns.

Pleasingly, we can see a steady but sure increase in the number and quality of the publications emanating from iMM and a similar trend is seen across Portugal in the area of chemistry. The success of the SIMICA programme is expected to be built upon in the coming few years and as

such we anticipate that the numbers of publications will continue to show steady and sustainable growth.

Publication Year	2017	2018	2019	2020	2021	2022	2023
Total number of peer-reviewed publications at iMM in the research area of chemistry	62	68	110	148	164	201	104

KPI 1.2 Number of newsletters or press releases

KPI 1.2, the number of newsletters or press releases, was designed to be a way of assessing not only the quantitative impact of the programme but also as a qualitative measure of success. Ways of sharing key information about SIMICA and its results could be considered as a result. Over the course of the programme generated: 12 newsletters were circulated and well received by readers; 22 items of associated news were published and promoted to consortium members and their contacts; several publications on the website and Twitter; many contacts made through participation at conferences. We consider these outputs to be a considerable success of the programme, and the programme will continue to be acknowledge over the next 3 years as research that was undertaken as part of the SIMICA programme is published and acknowledged accordingly or presented at conferences.

KPI 1.3 Number of scientific publications with international partners

Authors' affiliations for each publication in the previously defined list of peer-reviewed publications in the chemistry multidisciplinary field at iMM (KPI 1.1) were assessed at the beginning of the programme and again at the end. Those having at least one author from institutions outside Portugal were summed. The table below depicts the number of scientific publications with international partners in each year. It can be seen from the Table below that the number of publications with international partners, which is indicative of the international reach of iMM and the strength of its collaborations, is growing steadily year and year and is expected to continue to do so in the future as the reach of the institute continues to grow and new collaborations formed.

Each partner within the SIMICA programme has provided significant contributions with regards to publications. Indeed, iMM has published 6 collaborative publications associated with this programme alone, and others are expected to come in the following years.

Publication Year	2017	2018	2019	2020	2021	2022	2023
Total number of peer-reviewed publications at iMM in the research area of Chemistry with international partners	47	53	83	105	115	121	55

KPI 1.4 Number of students with international exposure

The number of students at iMM participating in international events, including but not limited to conferences, workshops and summer schools in the chemistry research field is shown in the table below. iMM Lisboa Annual Activity Reports have been used as a source of data. The data, once again shows a steady increase in the international exposure of iMM students, with exception to 2020. In the year of 2020, due to the COVID-19 pandemic, the majority of international events was cancelled, with only a few taking place in the second semester with a virtual format, thus causing a reduction on the number of iMM students participating in international events.

Publication Year	2017	2018	2019	2020	2021	2022
Number of students with international exposure	11	22	29	14	33	36

KPI 2.1 Number of researchers benefiting from international mentoring

The KPI 2.1, the number of researchers benefiting from international mentoring through SIMICA, was considered zero prior to start of the project. The successful implementation of all of the SIMICA project has provided mentoring to 5 researchers and 7 students.

KPI 2.2 Number of international expert visits to iMM

iMM Lisboa has a rich agenda with various internal and external events organised in general or research field-specific categories. However, these events are also open to anyone in the scientific community. International experts are mainly hosted during the so-called “Monday lectures”, however they are often presented in other seminar series depending on their areas of expertise. The sources of information for the assessment of this KPI were the iMM Lisboa Annual Activity Reports. In the table below, the total number of international expert visits for the 2017–2022 period is presented. During the period of time when the SIMICA programme has been active, the number of lectures has remained at a respectable level especially when taking into account the negative e impact that COVID restrictions have had on internal travel opportunities. The number of international expert visits during 2020 was lower as might be expected, due to the restrictions in place. However, on-site visits were replaced by ZOOM presentations, which allowed to still provide a good number of presentations by international speakers. This demonstrates the commitment of iMM to provide a varied and accessible programme of lectures even during the

pandemic. Consequently, as the world began to open up to facilitate international travel once again, during 2021 it was possible to re-start the on-site visits of international experts, thus, it is fully expected that the programme of international speakers at iMM will return and continue to develop for the benefit of both iMM and the wider scientific community. At the time of writing this report data for 2023 was not available.

Year	2017	2018	2019	2020	2021	2022
Total number of international expert visits to iMM	72	99	69	36	55	60

KPI 3.1 Participation in collaborative proposals

The number of participations, as beneficiary, coordinator or other (e.g. subcontracted, third party), in collaborative project proposals submitted to international competitive funding were the obtained by consulting the information provided in iMM Lisboa Annual Activity Reports and are described in the table below. This data shows that iMM is growing in strength with its international collaborations, as can also be seen by the number of resulting publications. Given the number of new collaborative grants, we fully anticipate that the number of collaborations will only continue to amass.

Year	2017	2018	2019	2020	2021	2022
Total number of participations, as beneficiary, coordinator or other (e.g. subcontracted, third party), in collaborative project proposals submitted to international competitive funding	59	91	105	95	92	80

KPI 3.2 Number of submitted versus funded projects

Success rate in competitive international funding was assessed using the same data source described for KPI 3.1. The table below reports the total number of project proposals submitted and accepted to international funding schemes. As an example, in 2022 36% of IMM researcher's applications were to international funding sources, which led to a total of 6.4 millions of euros of secured funds (information from the iMM Lisboa Annual Activity Report of 2022). With some surprise, 2022 was the less successful year from the last 5 years in terms of total funds secured.

Year	2017	2018	2019	2020	2021	2022
Total number of participations, as beneficiary, coordinator or other (e.g. subcontracted, third party), in collaborative project proposals submitted to international competitive funding	59	91	105	95	92	80
Total number of collaborative project proposals accepted for international competitive funding	**12**	**25**	**16**	**15**	**16**	**5**

KPI 4.1 Number of new patents

The data from the iMM Lisboa Annual Activity Reports was used to assess this KPI. It is clear from the data in the table below that patent output at iMM at the beginning of the SIMICA programme period was at a relatively low level. However, from 2018 onwards the number of patents being filed by iMM has increased considerably. This increase is impressive and a direct reflection of the innovative nature of the research being done at the institute and of its inherent quality and potential for commercialisation. As science continues apace at iMM we fully anticipate and forecast that over the next three years this trend will be maintained. Simica recently submitted a patent application that will be counted in 2023 statistics.

Year	2017	2018	2019	2020	2021	2022
Number of filed patents with iMM researchers as inventors	6	26	13	37	34	42

KPI 4.2 Number of entrepreneurial training and innovation initiatives attendance

The SIMICA Joint Summer School was held at Octant Praia Verde, Portugal, in an event that combined both the Summer School and the Thematic Workshop, from 18-20th October 2022. The event counted with a total of 52 participants that attended in person. Participation online was also provided. These events benefited from the attendance of several experts, including from the Industry.

With the aim of bringing together research institutions and enterprises to share knowledge between all parts, the Industrial Day meeting was held on December 19th 2022, at IMM-JLA, Portugal, with the aim of actively promote innovation initiatives at IMM and stimulate young researchers to work towards bringing innovation to the market. This activity complemented the training planned for the SIMICA Action. From the academia perspective, IMM young researchers where mainly interested on learning how to bring innovation to the market and how to translate their research to the commercial setting. Thus, this meeting allowed to map the needs of pharma & biotech companies and cross them with the expertise and skills of IMM's R&D community.

The SIMICA Knowledge Transfer Zone was held on June 28th 2022, at Noah Surf House in Santa Cruz, Portugal, with the aim of actively promote innovation initiatives at IMM and stimulate young researchers to work towards bringing innovation to the market. The Knowledge Transfer Zone included a round table session, counting with the presence of attendees from the Industry, that lead a discussion about strategies on how to bring the potential of the research being done at IMM to the market.

Furthermore, both virtual and on-site presentations from Industry were provided during the course of the project.

KPI 5.1 Number of new contracts and collaboration agreements with industry

The total number of new contracts and collaboration agreements with industry at iMM Lisboa initiated in the given year are described in the table below. iMM Lisboa Annual Activity Reports have been used as a source of data. Pleasingly, as with all other KPI data, we see a noticeable increase in the number of new contracts and collaborations with industry.

Year	2017	2018	2019	2020	2021	2022
Total number of Research – Business agreements at iMM Lisboa	5	17	28	22	30	45

KPI 6.1 Number of documents relative to the institution

The assessment was performed on 20 May 2023, using Web of Science™ (Thomson Reuters) and the methodology previously applied to assess KPI 1.1. Briefly, the query AD=(Inst Med Mol SAME Portugal) OR AD=(Mol Med Inst SAME Portugal) OR AD=(Inst Mol Med SAME Portugal) was used with the exclusion document types “Correction”, “News”, “Retractions” and “Meeting abstracts”. This data gives a very strong indication that iMM is significantly increasing its impact in the international area. There has been significant growth in the number of publications emanating from iMM and promising performance to date in 2023. It is anticipated that steady growth will continue in the coming three years and into the future.

Publication Year	2017	2018	2019	2020	2021	2022	2023
Total number of peer-reviewed publications at iMM	924	949	1106	1353	1481	1382	355

KPI 7.1 Number of documents relative to country/ territory

The assessment was performed on 10 May 2023, using Web of Science™ (Thomson Reuters) and the methodology previously applied to assess KPIs 1.1 and 6.1. In short, the query AD=Portugal was used and the search was further refined as described above. The number of publications arising from Portugal has shown a marked increase, which is particularly pleasing. It is, of course, expected that this trend will continue over the coming three years.

Publication Year	2017	2018	2019	2020	2021	2022	2023
Total number of peer-reviewed publications in Portugal in the area of chemistry	1654	1749	2111	2499	2889	2518	1046

KPI 8.1 Number of public engagement activities

As dissemination, several activities were planned for the general public, high school students and regional scientific community. However, due to the COVID-19 pandemic that started in February 2020, on-site activities were not possible to organize. To overcome the impossibility of performing the above-mentioned activities, alternative approaches were followed:

- As an engagement strategy for the general public, iMM researchers participated in the Researchers Night, that assumed a virtual format in 2020.
- Flash cards on the SIMICA topic were prepared and released in the project social media to approach the general public;
- In order to engage with the Industry, several Industry experts were invited to participate in 3 events, the SIMICA Summer School and Thematic Workshop that occurred in October 2022, the Knowledge Transfer Zone (June 2022) and the Industrial Day (December 2022);

The participation of these Industry experts allowed to not only disseminate the project but also to train IMM researchers and get input on the researchers results and future perspectives;

- SIMICA dissemination material was distributed locally, as part of the SIMICA Summer School and Thematic workshop;
- To reach other researchers and help disseminating the project among the national scientific community, oral presentations planned for the SIMICA events were available online upon registration;
- Press communications by Gonçalo Bernardes and Alan Chan contributed for the dissemination of SIMICA with the general public.
- With the relaxation of the IMM rules regarding visits to IMM premises, since August 2021 it was possible to receive the visit of high school students, that got to know the laboratory routines and the SIMICA aims and results.