



Decision on Optimal Combinatorial
Therapies in IMIDS using Systems
Approaches

DocTIS

**Deliverable 9.2. Intermediate report on
dissemination activities**

GRANT AGREEMENT NUMBER 848028

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1 EXECUTIVE SUMMARY

The deliverable D9.2 Intermediate report on dissemination activities compile the tools, actions, procedures and results of the dissemination and communication actions, achieved during the firsts months of the project. As established in the Communication Plan, for each audience, we have tried and we will continue trying different means of work during the whole life by using targeted messages, and language.

The dissemination and communication actions gathered in the Dissemination Plan are being implemented since the beginning of the project.

The main progresses compile in this report have been the following:

- **Design and implementation of the DOCTIS brand:** logo, visual guidelines, unified style, easily recognizable and identified with the main goals of the project.
- **Website and Social Media channels:** A Digital Marketing strategy has been designed with the aim to attract as much as possible visitors to the DOCTIS website. Contents and news are updated with topics focused on the main advances of the project, relevant events of the industry and related European policies.
- **Work with Media:** Milestones of the project have been detected with the aim of reaching the general and specialized Media. On this way knowledge and information about DocTIS can be shared among the industry, end-users, and the public. Media outlets are important generators of public opinion.

2 APPROACH OF THE DISSEMINATION AND COMMUNICATION STRATEGY

2.1 COMMUNICATION PLAN AND TOOLS

The Communication Plan was issued in Month 6 and was internally redesign a year later with more specifications regarding the actions to perform during the entire length of the project. The plan's objective is to maximize the impact of the communication and dissemination actions and was set up on four basic pillars: 1) Definition of the dissemination objectives; 2) Identification of the relevant target audiences; 3) Description of the dissemination actions to be addressed; and 4) Identification of the specific tools to be developed to support effective communication.

The communication tools of the project such as the logo, project website, and template have been developed and identified in the plan and they allow to perform a correct Digital Marketing Strategy. Besides, we have also applied internal steps such as a Communication Webinar, so the partners know how to correctly perform such actions. Not only the communication tools and internal measures will help to promote the strategy planned, but social media channels have also been set (Twitter and LinkedIn) to establish a communication hub and reach the relevant stakeholders of the sector.

2.2 COMMUNICATION AND DISSEMINATION ACTIONS

Table 1 Diss&Comm actions

MEANS	DESCRIPTION	Stage
Logo and presentations	Logo and presentation template for all partners.	DONE
Project website and positioning	Project's website, providing information about the project, and results, showcasing project's news	DONE, in process

	and acting as a communication hub.	
Social media channels	Twitter account and LinkedIn community	On going
Written content	Articles and interviews will be produced and distributed to the media, specialist press, scientific websites, and other relevant information outlets.	On going

3 DISSEMINATION TARGET

The main principle of the Dissemination activities is to use the research results generated during the project to create value within the target communities and initiatives in the EU. This approach ensures that public funding will lead the progress and positioning of European Industries as benchmark players within the global market. They are the cornerstone for generating a deep impact of the results generated in the project in terms of attracting the interest of the main stakeholders involved.

- It secures the commitment of the **key stakeholders** to the project aims by ensuring timely and effective communication between the consortium partners throughout the different phases of the project and work packages.
- Builds awareness of the project among a **wide defined group of audiences** allowing them engaging in a two-way dialogue with DocTIS stakeholders – consortium partners, scientific community, civil society and communities, regulatory authorities, and industry - by ensuring effective management of the communication platforms and tools.
- Ensures that **policy and decision makers** at the national and international levels are fully aware of the DocTIS work and project outcomes.
- Ensures that the identified audiences are **aware** (or can be effectively informed) **of the project progress** and deliverables through the continuous, clear, and targeted use of relevant dissemination channels.

Table 2 Target groups for dissemination and communication actions

TARGET AUDIENCE	DISSEMINATED MESSAGE	DISSEMINATION PROGRAMME
Scientific community, including scientific organizations	Ensure the scientific community is aware of the project and of work not reflected in scientific publications from which other scientists may benefit. Opportunities to contribute.	Publications in high-impact factor journals / Scientific articles and abstracts / Lectures in scientific venues, including academia, congresses, symposia and workshops/ Invitation of key scientific leaders to final workshop / website of the project (www.DocTIS.eu)
Clinical community (including clinical societies)	Ensure the clinical community is aware of the project and the opportunities to benefit and contribute.	Scientific articles and abstracts / Participation of partner members in clinical meetings and symposia / Invitation of key clinical leaders to final workshops / website of the project (www.DocTIS.eu)
Participants involved in the clinical trial	Project aims and planning, possible outcomes, consequences of withdrawing from DocTIS.	For the recruitment, adverts will be displayed in hospitals. During and after the clinical trial, participants will be updated on latest information via letter and a digital newsletter (subscription via the clinical site).
People affected by IMID (including patient associations)	Project progress, outcomes, and results.	Website, publications, presentations, patient focus groups, brochure, generic poster, social media (Twitter, Facebook).
Purchasers/payers of healthcare systems	Maintain close contact with healthcare providers/users that will eventually manage and cover the	Scientific articles and abstracts, participation of partner members in scientific meetings and symposia, website, brochure, generic poster,

	cost of treatment.	social media (Twitter), press releases
Policy makers and the public in Europe	Importance and limits of cure research.	Scientific articles and abstracts, website, social media (Twitter, Facebook), press releases
Industry	Biotechnological companies aware of the possibility of co-development of a companion diagnostic for IMIDs that could be of broad medical use.	Stands in main international biotechnology conventions; face to face meetings with pharmaceutical companies interested in companion diagnostics; press notes.
Public at large	At the right time, release information on the key clinical and scientific milestones achieved by the project.	Dissemination to the lay public: Website, publications, social media (Twitter, Facebook), brochure, generic poster, press releases, workshop, seminars.
Healthcare providers: National and regional	Ensure that healthcare providers know the advance in precision medicine for IMIDs, facilitate its adoption in daily clinical routine.	Face to face meetings with decision makers of public and private healthcare organisations.

Clinical trials on combinatorial therapies based on targeted drugs are a novel concept in IMIDs. For this reason, special emphasis will be applied to the dissemination of this novel clinical trial. The CREATE Centre (partner #4, CARDIFF) will work with the Community Engagement Team at CARDIFF to inform the public about its research and activities. The Community Engagement Team was established in 2006 to work closely with academic staff to effectively disseminate the University's research and knowledge, and to increase public awareness of and engagement with Cardiff's academic specialisms and expertise. The main tasks of CET at CARDIFF will be to support create in:

- Managing partnerships in engagement and coordinating multidiscipline or corporate-level engagement events
- Taking part in engagement activities such as coordinating festivals and Science Cafés.
- Developing a coherent media strategy in liaison with Arthritis Research UK.
- Publishing its latest research in the public media including print, broadcast and online at local, national, or international levels to ensure maximum publicity.
- Drafting press releases and setting up media interviews as well as using social media through the Facebook and Twitter Account of the Cardiff University Research Office.

4 DOCTIS BRAND

4.1 PROJECT LOGO

From the very early stages, a project logo was created to identify the project. It was used for the first time during the kick-off meeting of the project. There were different options and a round of voting took place in the Consortium before the kick-off meeting of the project. The figure below shows the final version selected:



Figure 1 DOCTIS logo

5 DIGITAL MARKETING STRATEGY

The Digital Marketing Strategy in DocTIS project wants to attract people by creating valuable content and experiences tailored to them. This technique forms connections they are looking for and tries to solve problems or questions they already have.

To reach this objective, the strategy has been divided in two lines of work: To create quality content aligned with the interests of the stakeholder. And on the other hand, to establish links between all the communication channels to direct the audience to the website of the project.

5.1 WEBSITE

The website of the project is the place where all the official information of the project is gathered. It is the entry point for external stakeholders to look for information about the activities the project is developing and a meeting place for all the stakeholders. The creation of the DocTIS website started in month 1 of the project and was launched in May 2020, as a tool for external and internal communication of the project both by the Consortium and the European Commission.

The project URL is: <https://www.doctis.eu>.

The main pillars of the digital strategy regarding the website will be:

- The use of Search Engine Optimization (SEO) and quality content in the news section for improving the visibility of the website in the organic results (Content Marketing).
- Stakeholders' engagement and creation of a community.
- Social networks.

The look and feel of the website have been designed considering the type of content to be communicated and the colour palette of the final logo of the project. The main goal is to have a simple, flexible display that can be equally accessible when using different resolutions and devices (computers, smartphones, tablets, etc).

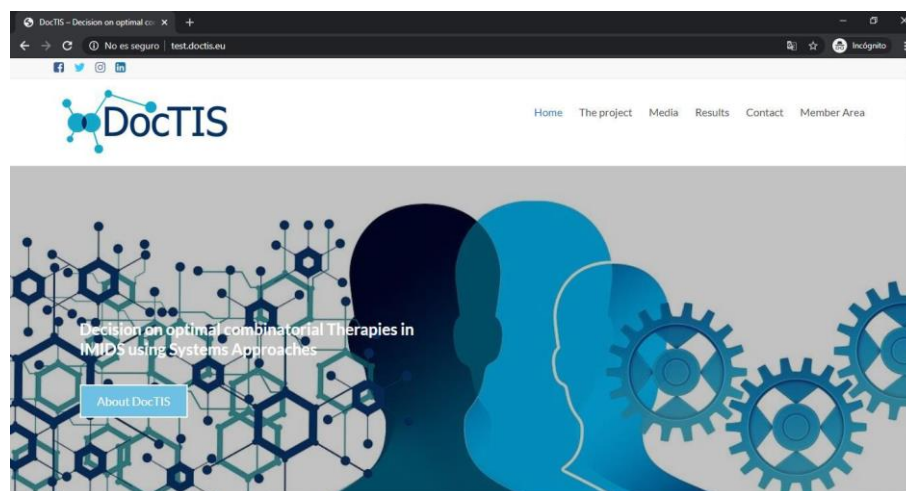


Figure 2 Website Homepage

First, to get high search results and provide traffic to the website, it is essential to create quality content in the news section of the website. To build up audience loyalty, this news part has to be updated by the communication team with content with the help of the partners of the project, who provide relevant information of interest. Some of the content that is expected to be produced include expert opinion articles,

news and press releases about the progress or the main milestones, reports published related to technical issues of the project and webinars that can attract visitors to the website. The social media channels are used to promote it.

The members of the consortium are requested to identify communication opportunities and offer information which enables the creation of articles on the website. Each of the partners must help providing complementary materials (such as piece of news, pictures from the workshop and the events, etc.) which can be later used for communication activities.

5.2 WEBSITE ANALYTICS

During this we have reached a total of 763 page visits, and 192 new users.

As Figure 3 shows DoctIS has had 192 new users, 368 sessions and 763 page visits. We can also see in the graphic that the medium interaction time is a little bit more than a minute.

Most of the people that visit our website are from Spain and United States and that is the reason behind the fact that most of the people that visit our website are Spanish speakers as seen in Figure 4 and Figure 5

Most of the users are Direct which is the result of a user entering a URL into their browser or using a bookmark to directly access the site. Second place goes to the Organic Searches, which is a method for entering one or several search terms as a single string of text into a search engine. Organic search results appear as paginated lists, are based on relevance to the search terms, and exclude advertisements; whereas non-organic search results do not filter out pay per click advertising. If the reader searches for DOCTIS on their computer, it will see that the DOCTIS page appears at the top of Google searches. That is a good thing. It means that our page complies with the SEO requirements established by Google, and it is a secure page. The third one is the people who enter to the website from the Social Media channels, and lastly the Referral Users, which are the people who find DOCTIS through a different origin or source which is not Google (see Figure 6)

As Figure 7 shows people want to learn about the project's events. The second most visited page is the Homepage. The third most visited place is the Consortium section in where we can find the people participating in the project.

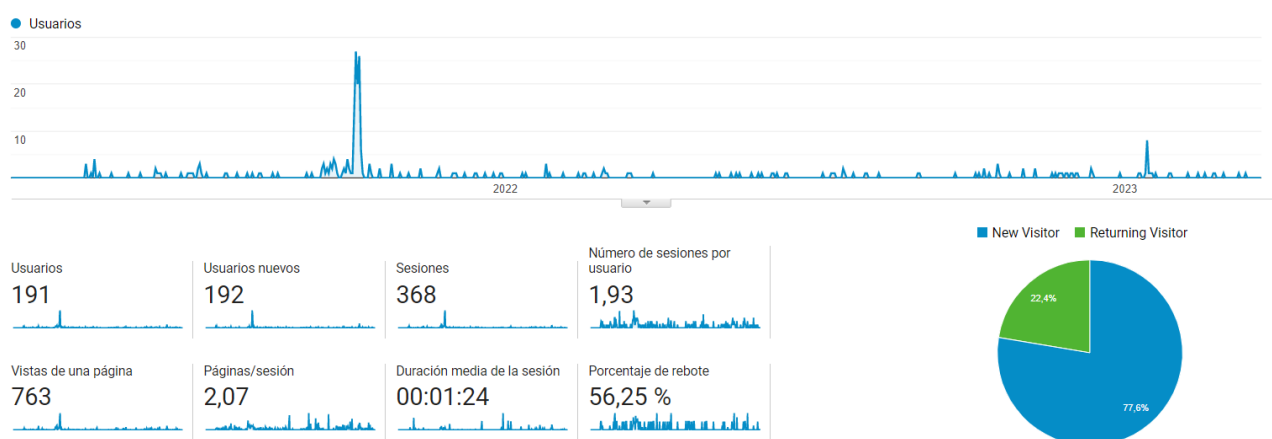


Figure 3 Audience Overview

Idioma	Usuarios	% Usuarios
1. es-es	51	26,42 %
2. en-us	50	25,91 %
3. ca-es	21	10,88 %
4. en-gb	19	9,84 %
5. it-it	12	6,22 %
6. es	8	4,15 %
7. de-de	6	3,11 %
8. nl-nl	4	2,07 %
9. ca	3	1,55 %
10. en	2	1,04 %

Figure 4 Language Overview

País	Usuarios	% Usuarios
1.  Spain	99	51,30 %
2.  United States	15	7,77 %
3.  Italy	10	5,18 %
4.  Germany	9	4,66 %
5.  India	7	3,63 %
6.  Sweden	7	3,63 %
7.  Belgium	4	2,07 %
8.  France	4	2,07 %
9.  United Kingdom	4	2,07 %
10.  Japan	4	2,07 %

Figure 5 Country overview

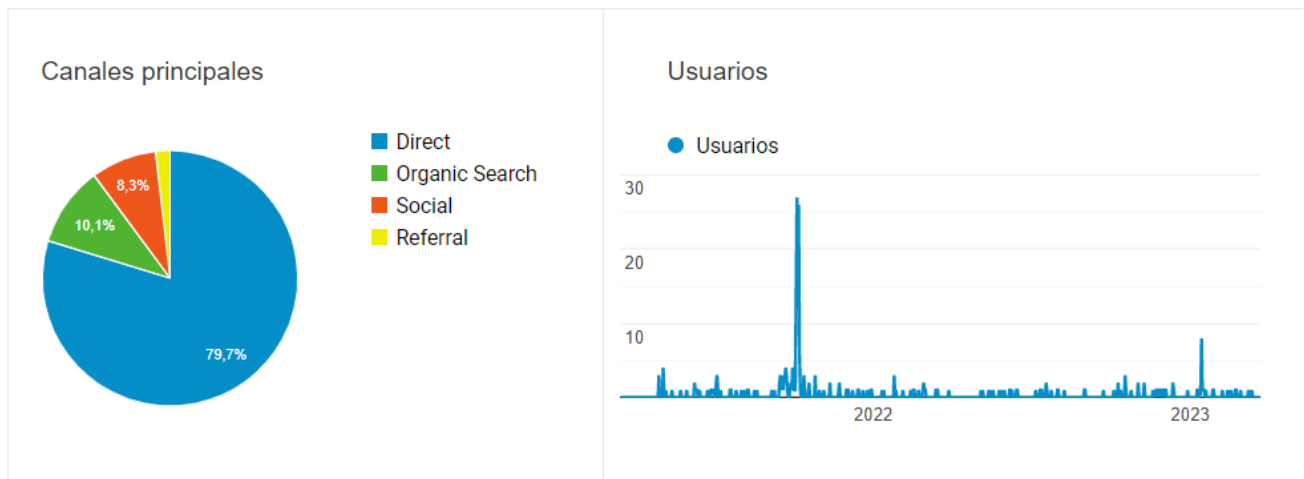


Figure 6 Acquisition Overview

Página		Vistas de una página	% Vistas de una página
1. /doctis-symposium-event/		218	 28,57 %
2. /		210	 27,52 %
3. /project/consortium/		56	 7,34 %
4. /news/		49	 6,42 %
5. /project/		43	 5,64 %
6. /project/work-packages/		36	 4,72 %
7. /contact/		35	 4,59 %
8. /project/management-structure/		25	 3,28 %
9. /doctis-interview/		18	 2,36 %
10. /results/		17	 2,23 %

Figure 7 Pages overview

5.3 SOCIAL MEDIA CHANNELS

Social media channels are essential to attract visitors to the website. They are mainly used to inform the audience about the new updates available to assure that all public outputs of the project published on the website reach its online dissemination potential.

The social media channels are also important to create a community around the project. They are an environment to interact with the stakeholders and to get to know the audience. They also facilitate the interaction with European institutions, relevant professionals, local authorities, policy makers and scientific/technical communities, so they are useful to inform and forge connections with them.

ZABALA is responsible for the management of the **Twitter and LinkedIn** channels for DOCTIS project and partner must collaborate by mentioning the Twitter account, retweeting the messages about the project, and sharing publications on LinkedIn. On Twitter we **have 55 followers and 117 publications** and on LinkedIn **12 followers and 94 publications**.

5.3.1 TWITTER

The credentials for Twitter are the following:

- @DoctISEU – twitter handler
- #DOCTISProject – hashtag

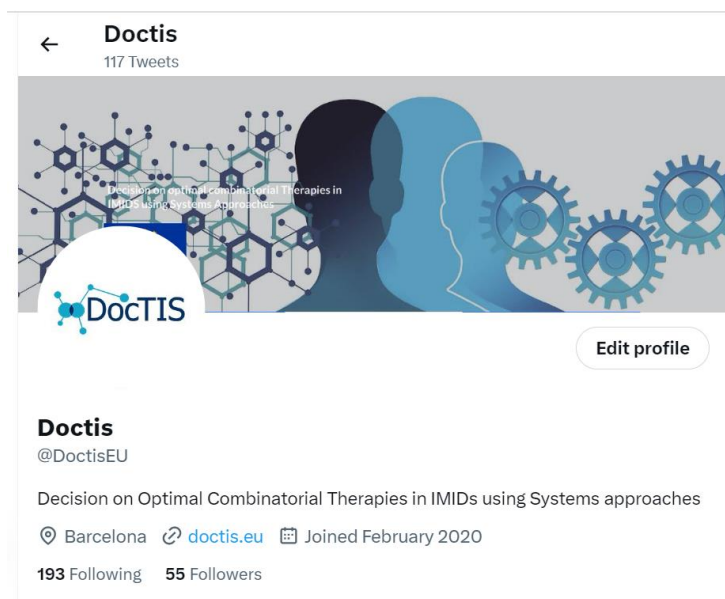


Figure 8 DOCTIS Twitter profile

5.3.2 LINKEDIN

The credentials for LinkedIn are the following:

- DocTIS Project – LinkedIn handler
- #DOCTISProject – Hashtag

LinkedIn is the business-oriented side of social networking sites that allows for a different type of online connection: a professional one. The DocTIS Project page establishes a public image on a global professional level as a reputable and reliable project.

5.4 SOCIAL MEDIA ANALYTICS

5.4.1 TWITTER

Twitter has a 28-day summary and only a total of a 91-day analysis, so we have been compiling the information since the beginning of the project to showcase the performance of Twitter each month since the channel was created.

Table 3 Twitter Analysis is showing the number of impressions, engagement rate, clicks, rt's, likes, replies and new followers since February 2020. The most important data on the table are the impressions and the engagement rate, which show the implication of our audience in the content that we create. As the table shows, some months have had less impressions than others, the same with the engagement, this mostly happens in the months after summer and after Christmas, this data is quite normal. People return to their day-to-day tasks and spend less time in social media, and this is shown in the Table.

Table 3 Twitter Analysis

	Fe20	Ma20	Ap20	Ma20	Ju20	Ju20	Au20	Se20	Oc20	No20	De20	Ja21	Fe21	Ma21	Ap21	Ma21	Ju21	Jul21	Au21	Se21	Oc21	No21	De21
Tweet impressions	3	649	321	160	424	652	233	245	338	262	263	841	512	433	493	405	411	843	713	674	13K	849	584
Mentions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Engagement rate	0.1%	1.1%	2.9%	0%	0.4%	0%	1.1%	0.3%	0%	2.2%	3.5%	2.1%	1.2%	0.3%	0.9%	0.3%	4.8%	0.4%	0.1%	1.6%	2.5%	0.9%	0.4%
Link clicks	-	8	13	-	2	-	-	1	-	2	5	17	1	-	4	1	4	1	-	7	39	3	1
RT's	-	-	-	-	3	-	-	-	-	1	-	2	-	-	1	-	-	-	1	5	7	-	-
Likes	-	-	2	-	-	-	-	-	-	3	-	2	1	-	1	-	4	4	-	8	25	1	1
Replies	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
New followers	1	2	-	-	-	-	-	1	1	1	1	3	-	2	-	7	4	2	1	-	17	5	1

	Ja22	Fe22	Ma22	Ap22	Ma22	Ju22	Ju22	Au22	Sep22	Oc22	No22	De22	Ja23	Fe23
Tweet impressions	228	144	195	156	92	77	25	13	8	17	38	78	513	185
Mentions	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Engagement rate	0.8%	-	0.4%	1.1%	0.6%	0.4%	0.2%	0.1%	0.1%	0.5%	0.1%	1.6%	0.8%	0.1%
Link clicks	1	-	1	1	2	1	1	-	-	1	-	-	16	-
RT's	-	-	-	-	-	1	-	-	-	-	-	-	5	-
Likes	-	-	1	-	-	1	-	-	-	-	-	1	11	-
Replies	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New followers	-	-	-	1	-	-	-	-	-	1	-	2	3	2

5.4.2 LINKEDIN

The following graphs will show the analytics from the 31st of March 2022 until the 30th of March of 2023 which is the period that LinkedIn allows you to check the analytics.

As we can see in Figure 9 the impressions on posts had a peak during January. Figure 10 shows the traits of the visitors in the page. The reader will observe that most of the visitors are researchers and in second place are people who belong to the legal sector.

Figure 11 show the data about the LinkedIn followers and visitors. Shows the progress of the followers during this past year and were do the visitors to the page visits us most -computer or phone. The tool is important to adapt the messages created in the channel.

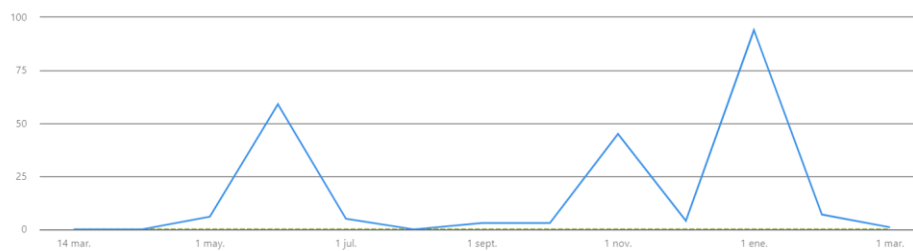


Figure 9 Impressions on LinkedIn

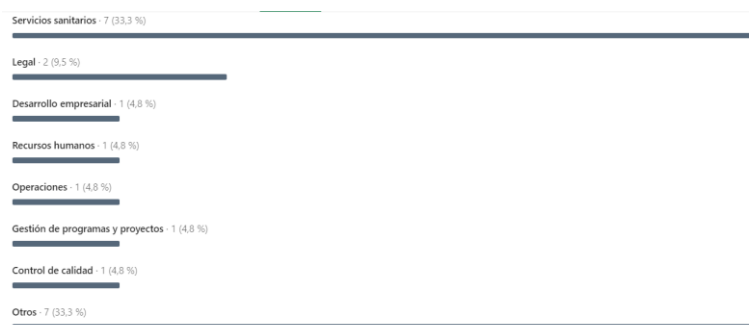


Figure 10 Work of our visitors.

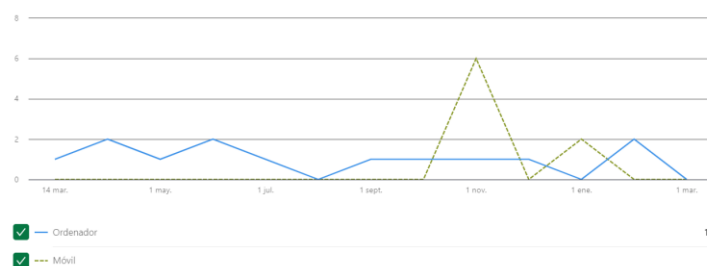


Figure 11 Visitors data

5.5 SUPPORTING COMMUNICATION MATERIALS

The Communication materials package will be developed to present the project in an attractive way. All of them will include the visual identity of the project and are planned to be done during this year of the project.

The materials will support consortium partners during diverse events, conferences, or workshops, where they can distribute the materials and promote the project. When attending an event, partners must inform with

enough time in advance if they need some materials to be created.

Communication materials:

- Rollups
- Flyer of the project.

6 RESULTS REACHED

6.1 IMPACTS AND MONITORING.

The objectives achieved during the reporting period are:

- Establishment of the Dissemination and Communication procedures (internal and external) and involve the partners in the Communication Team
- Development and consolidation of the DocTIS brand with all the Communication and Dissemination tools and channels (website and Social Media channels).

The main results achieved in the first reporting period are:

- We have done, 7 pieces of news published, 1 press release and 7 scientific publications.
- Organization of 1 event with a participation of 60 people in general
- Participation in 1 Conference and 1 Conference Poster
- Project website, the logo, and established the graphical identity and the social media channels.

6.1.1 EVENTS

The strategy of participation of events has been set up at three different levels:

- By the side of each partner participating in the usual events of the sector.
- Joining presentations of the project in previously selected events organized by the EC and other key institutions/organizations.
- Events organized and promoted by DocTIS collaborating with other initiatives and organizations to generate synergies.

6.1.1.1 REPORTING EVENTS

Partners of the consortium will attend relevant events, conferences, workshops, and fairs of the sector. They should be actively involved seeking opportunities to present and showcase the project in their own countries and at both local and European levels. The participation in events must be previously communicated (to make visible activities through communication channels), and after the event every partner must complete the events questionnaire with the reporting about the dissemination activity: sum-up, number of attendees, pictures, publications, presentations, press clipping, etc.

6.1.1.2 PRESENCE AT KEY EVENTS

The following list is all the events that DOCTIS has participated to during the project:

Table 4 Participation and organization of events

Name of the event	Partner attending	Location	Date	Summary	Target group	Type of event
Combination therapies in common diseases: clinical and translational challenges	All	Online	7/10/2021	Combination therapies in common diseases: clinical and translational challenges	Researchers, scientists, and doctors	Organization of a Conference

XVI CRG PhD Symposium	CNAG	Barcelona, Spain	25 - 25 Nov. 2022	Talk about "FixNCut: Single-cell genomics through reversible tissue fixation and dissociation", with results from DocTIS.	Researchers, scientists, and doctors	Conference Participation
X Bioinformatics and Genomics Conference	CNAG	Burjassot, Spain	15-16 Dec. 2022	Presentation of poster "FixNCut: Single-cell genomics through reversible tissue fixation and dissociation", with results from DocTIS.	Researchers, scientists, and doctors	Conference Poster

6.2 MEDIA RELATIONS

This task will be accomplished at European, national, and regional levels on the following way:

- DocTIS will prepare the press releases regarding the milestones and other detected opportunities to communicate in English and Spanish.
- Once the press release is approved by the Communication Team, every partner will translate the press release into the local language and will send it to their contacts through its Communication Department.
- The press release will be included on their own websites and shared in their Social Media channels.
- Impacts will be monitored and included in the press-clipping and in the Report on Dissemination and Communication Activities

6.3 SCIENTIFIC PUBLICATIONS

The publication will be made freely and openly available via online repository with open access. Prior to publishing any scientific publication, the DocTIS Partner involved will contact the whole consortium for revision and validation of the publication 30 days in advance. The publications funded by the project will be uploaded to specific bibliographic social networks such as ResearchGate no later than 6 months after its original date of publication.

DOCTIS project partners will have to provide Open Access to all peer-reviewed scientific publications relating to its results according to *Article 29.2. of the Grant Agreement*.

Each DocTIS project partner will ensure Open Access (via the repository) to the bibliographic metadata that identify the deposited publication. The bibliographic metadata will be in a standard format and will include all items as it is indicated in the Article 29.2. of the Grant Agreement.

The website will include all the scientific publications.

Table 5 Publications

Type	Title	Authors	Summary	DOI/ Link	Date
Article in a journal	Sampling time-dependent artifacts in single-cell genomics studies	Ramon Massoni-Badosa, Giovanni Iacono, Catia Moutinho, Marta Kulis, Núria Palau, Domenica Marchese, Javier Rodríguez-Ubreva, Esteban Ballestar, Gustavo Rodríguez-	Robust protocols and automation now enable large-scale single-cell RNA and ATAC sequencing experiments and their application on biobank and clinical cohorts.	https://doi.org/10.1186/s13059-020-02032-0	11/05/2020

		Esteban, Sara Marsal, Marta Aymerich, Dolors Colomer, Elias Campo, Antonio Julià, José Ignacio Martín-Subero, and Holger Heyn			
Article in a journal	HLA-Cw6 and other HLA-C alleles, as well as MICB-DT, DDX58, and TYK2 genetic variants associate with optimal response to anti-IL-17A treatment in patients with psoriasis	Martina Morelli, Marco Galluzzo, Stefania Madonna, Claudia Scarponi, Giovanni Luca Scaglione, Tiziana Galluccio, Marco Andreani, Sabatino Pallotta, Giampiero Girolomoni, Luca Bianchi, Marina Talamonti, Cristina Albanesia	Our pharmacogenomic study evaluated the influence of the presence/absence of genetic variants of psoriasis-risk loci on the clinical response to secukinumab. Differences in the single-nucleotide polymorphism (SNP) pattern characterizing HLA-Cw6+ or HLA-Cw6- patient subpopulations, showing high or low responses to secukinumab, were also analyzed.	https://doi.org/10.1080/14712598.2021.1862082	28/12/2020
Article in a journal	Targeting of the CD80/86 proinflammatory axis as a therapeutic strategy to prevent severe COVID-19	Antonio Julià, Irene Bonafonte-Pardàs, Antonio Gómez, María López-Lasanta, Mireia López-Corbeto, Sergio H Martínez-Mateu, Jordi Lladós, Iván Rodríguez-Núñez, Richard M Myers, Sara Marsal	An excessive immune response known as cytokine storm is the hallmark of severe COVID-19. The cause of this cytokine rampage is yet not known. Based on recent epidemiological evidence, we hypothesized that CD80/86 signaling is essential for this hyperinflammation, and that blocking this proinflammatory axis could be an effective therapeutic approach to protect against severe COVID-19	https://doi.org/10.1038/s41598-021-90797-0	01/06/2021
Article in a journal	A dynamic single cell-based framework for digital twins to prioritize disease genes and drug targets	Xinxu Li, Eun Jung Lee, Sandra Lilja, Joseph Loscalzo, Samuel Schäfer, Martin Smelik, Maria Regina Strobl, Oleg Sysoev, Hui Wang, Huan Zhang, Yelin Zhao, Danuta R. Gawel, Barbara Bohle & Mikael Benson	Medical digital twins are computational disease models for drug discovery and treatment. Unresolved problems include how to organize and prioritize between disease-associated changes in digital twins, on cellulome- and genome-wide scales. We present a dynamic framework that can be used to model such changes and thereby prioritize upstream regulators (URs) for biomarker- and drug discovery.	https://doi.org/10.1186/s13073-022-01048-4	06/05/2022
Article in a journal	Allelic Variants of HLA-C Upstream Region, PSORS1C3, MICA, TNFA and Genes Involved in Epidermal Homeostasis and Barrier Function Influence the Clinical Response to Anti-IL-12/IL-23 Treatment of Patients with Psoriasis	Martina Morelli, Marco Galluzzo, Claudia Scarponi, Stefania Madonna, Giovanni Luca Scaglione, Giampiero Girolomoni, Marina Talamonti, Luca Bianchi, Cristina Albanesi	Several biologic therapies have been developed to treat moderate-to-severe psoriasis, with patients exhibiting different clinical benefits, possibly due to the heterogeneity of pathogenic processes underlying their conditions. Ustekinumab targets the IL-12/IL-23-p40 subunit and inhibits type-1 and type-17 T-cell responses. Although ustekinumab is effective as both short- and long-term treatment, therapeutic response varies considerably among patients.	https://doi.org/10.3390/vaccines10111977	21/11/2022
Article in a journal	Digital Twins for Predictive, Preventive	Mikael Benson	Digital twins are computational models of complex systems, which aim to understand and optimize those systems	https://doi.org/10.1161/ATVBAHA.122.318331	26/01/2023

	Personalized, and Participatory Treatment of Immune-Mediated Diseases		more effectively than would be possible in real life. Ideally, digital twins can be translated to individual patients, to characterize and computationally treat their diseases with thousands of drugs, to select the drug or drugs that cure the patients.		
Article in a journal	Characteristics of Patients Experiencing a Flare of Generalized Pustular Psoriasis: A Multicenter Observational Study	Francesco Bellinato, Paolo Gisondi, Angelo Marzano, Stefano Piaserico, Clara De Simone, Giovanni Damiani, Giuseppe Argenziano, Marina Venturini, Paolo Dapavo, Antonio Costanzo, Matteo Megna, Francesca Prignano, Martina Burlando, Francesca Satolli, Andrea Carugno, Elena Pezzolo, Marco Romanelli, Aldo Cuccia, Giampiero Girolomoni	Generalized pustular psoriasis (GPP) is a rare, severe inflammatory skin disease characterized by recurrent episodes of flares. Characteristics of patients experiencing a flare are hardly described in a real-life setting. The aim of the study is to investigate the clinical characteristics of patients experiencing a flare of GPP.	https://doi.org/10.3390/vaccines11040740	27/03/2023

6.4 IMPACT ANALYSIS

The COVID-19 pandemic significantly impacted the dissemination efforts of the DocTIS project. Restrictions on travel, social distancing measures, and the shift to virtual formats for scientific events limited opportunities for direct engagement with stakeholders, such as the scientific community. The cancellation or postponement of in-person conferences and workshops hindered the ability to share project results, collaborate with partners, and build visibility for the project. Additionally, the uncertainty surrounding timelines and ongoing health concerns diverted attention from long-term initiatives like DocTIS, further slowing the dissemination process. These challenges have resulted in a delayed and reduced impact on the project's outreach and awareness.

Also, relevant findings have not yet been finalized during this period. Without concrete results to share, it has been challenging to effectively communicate the project's impact to stakeholders and the wider community through scientific papers or relevant events. Dissemination efforts typically rely on having robust, validated data to support messaging and demonstrate the project's value, and the absence of such results has limited the scope of outreach and engagement. Consequently, most of the project's dissemination activities have been delayed until these key findings become available.

Towards the end of the project, the DocTIS consortium expects to have interesting results to share with the research community, particularly from the following research efforts:

1. The identification of combination therapy (and clinical trials in RA and PsA).
2. An immune atlas of drug response in IMiDs.

To address this low performance in dissemination, the DocTIS consortium is preparing an ambitious and comprehensive list of planned actions towards the end of the project, which is detailed in the 'Future Plans' section.

7 KPI's and monitoring

The partners must provide all the relevant information and feedback as well to complete the Communication Reports on a regular basis since the start of the project. These are some of the main indicators we are

monitoring to measure the Return of the Investment (ROI) in communications.

Table 6 KPI's Table

Actions	KPI
Website	763 visits
Social Media Channels	Twitter: 117 tweets, 55 followers, 1,3K impressions
	LinkedIn: 94 posts, 12 followers
Joint events, workshops, round tables & networking	55 people
Public Relations with Media	-
Newsletter	-
General Communication Materials	-

8 HORIZON2020 REQUEST AND COORDINATION WITH THE EC

According to the EC Grant Agreement participants agree to:

- Promote the action and its results, by providing targeted information to multiple audiences (including the media and the public), in a strategic and effective manner and possibly engaging in a two-way Exchange (Article 38 of the Model Grant Agreement).
- Disseminate results — as soon as possible — through appropriate means, including in scientific publications (Article 29 of the Model Grant Agreement).
- Ensure Open Access (free of charge, online access for any user) to all peer-reviewed scientific publications relating to its results. (Article 29 of the Model Grant Agreement)
- Take measures aiming to ensure 'exploitation' of the results — up to four years after the end of the project – by using them in further Research activities; developing, creating, or marketing a product or process; creating and providing a service, or using them in standardisation activities (Article 28 of the Model Grant Agreement)
- Acknowledge EU funding in all communication, dissemination, and exploitation activities (including IPR protection and standards) as well as on all equipment, infrastructure and major results financed by the action by using the wording and criteria specified in the Grant Agreement (Articles 27, 28, 29, 38).
- Additionally, DocTIS project will establish close links to the communication team of the European Commission to make the results of the project visible in the EC Media Outlet, and interaction on the Social Media channels.

8.1 SUPPORT OF THE EUROPEAN UNION

The support to the DocTIS project by the European Commission must be recognised article in all the dissemination and communication tools and materials including this disclaimer: This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement 848028.

For more information, please refer to article 29 of the Grant Agreement, which includes these and other considerations regarding the dissemination of the project and the Open Access.

All the beneficiaries of the project are committed to follow the guidelines about the use of the EU emblem using it in their communication to acknowledge the support received under EU programmes.

Scientific and research publications must include this paragraph:

"The dissemination of results herein reflects only the author's view, and the European Commission is not responsible for any use that may be made of the information it contains".

DocTIS project partners will have to provide open access to all peer-reviewed scientific publications relating to its results according to Article 29.2. of the Grant Agreement and H2020 Guidelines on Open Access to Scientific Publications (European Commission, 2017).

9 FUTURE PLANS: CONTINGENCY PLAN

The DocTIS project is focused on gaining followers and increasing the impact on social media channels by creating interesting content that will help spread the word about DocTIS. There is also a focus on organizing and attending more events in the coming months.

The events to attend in the future have been identified, allowing preparation of news pieces and content to spread the word about them. The goal is also to improve the amount of time people spend on the DocTIS website to enhance the rebound percentage of time.

An analysis of the call for the project, along with other initiatives and European projects with similarities, has been conducted. A plan has been established to engage with these projects and create synergies by organizing networking events and interactions among the main participants.

Now that the pandemic is over (and face-to-face activities are gradually resuming), and the molecular data-generating stage of the project is nearing completion, this new strategy to maximize dissemination results is being implemented. Communication materials for patients will also begin to be created.

A reminder has been sent to all consortium partners regarding the application of Article 29 of the Grant Agreement, which requires them to include in all scientific papers that support for the DocTIS project by the European Commission must be recognized in all dissemination and communication tools and materials, including this disclaimer: This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement 848028.

The DocTIS Consortium has worked on, or is already working on, several scientific articles to be published in open-access journals, allowing results to be presented to different stakeholders, including the scientific community. These articles include the following:

Table 7 Scientific articles under preparation

TITLE	PARTNERS INVOLVED
Macrophage and neutrophil heterogeneity at single-cell spatial resolution in human inflammatory bowel disease *	CNAG, IDIBAPS
scDrugPrio: a framework for the analysis of single-cell transcriptomics to address multiple problems in precision medicine in immune-mediated inflammatory diseases *	CNAG, Linköping University
FixNCut: single-cell genomics through reversible tissue fixation and dissociation *	CNAG
Managing the Patient with Psoriasis and Metabolic Comorbidities *	University of Verona
An interactive atlas of genomic, proteomic, and metabolomic biomarkers promotes the potential of proteins to predict complex diseases *	Linköping University, Karolinska Institutet

* The Asterisk indicates articles already published by December 5th, 2024.

Other publications that are expected to be produced until the end of the project are:

- "Network analyses of single cell-based digital twins for personalised treatment of inflammatory diseases" - Under revision by "Genome Medicine"
- IMID Combinatorial (Ongoing): Manuscript presenting the findings of the top candidate combinatorial therapy (led by VHIR)
- IMID Drug Response Atlas (Ongoing): Manuscript presenting the single cell data for all the 11 drug x IMID combinations (led by VHIR)
- "Major contributions of genetic background and chronic inflammatory disease type on the outcome of combinatorial drug therapy" - In preparation (Idibaps)

The DocTIS consortium has developed a comprehensive plan to enhance dissemination by participating in numerous events targeting scientific audiences, where it aims to present the results achieved so far and share insights on future outcomes.

Table 8 Upcoming events to present DocTIS and its results

Event	Date	Location	Participants	Audience	Description
Innovations in Single Cell Omics (ISCO'23) *	15, 16 May 2023	Berlin, Germany	CNAG	Scientific	Talk about "FixNCut: Single-cell genomics through reversible tissue fixation and dissociation"
3TR 4th Annual Meeting *	4-5 Oct. 2023	Stockholm, Sweden	CNAG	Scientific	Presentation of poster "FixNCut: Single-cell genomics through reversible tissue fixation and dissociation".
Single-Cell Sequencing Interest Group *	26 Oct. 2023	Online	CNAG	Scientific	Talk about "FixNCut: Single-cell genomics through reversible tissue fixation and dissociation".
12th Symposium on Genome Research *	12 Dec. 2023	Barcelona, Spain	CNAG	Scientific	Talk "Interpretable Inflammation Landscape of Circulating Immune Cells", with single cell data generated in the DocTIS project.
Computational Seminar Series *	11 Mar. 2024	Online	CNAG	Scientific	Talk: "Interpretable Inflammation Landscape of Circulating Immune Cells"
21st International Vasculitis Workshop *	7-10 Apr. 2024	Barcelona, Spain	CNAG	Scientific / Medical	Lecture including data from the DocTIS project publication "Interpretable Inflammation Landscape of Circulating Immune Cells".
Medical session at Gastrointestinal Department *	25 Apr. 2024	Barcelona, Spain	CNAG	Scientific / Medical	Talk: "Interpretable Inflammation Landscape of Circulating Immune Cells".
50th National Congress of the Spanish Society of Rheumatology *	7-10 May 2024	Maspalomas, Canary Islands, Spain	VHIR	Scientific / Medical	"Single cell characterization of circulating immune cells in Sjögren's Syndrome: comparison to Systemic Lupus Erythematosus and Rheumatoid Arthritis" and "Application of Omics technologies to Psoriatic Arthritis and Systemic Lupus Erythematosus"
Medical Genomics Data Club (CRG-PRBB seminar series) *	08 May 2024	Barcelona, Spain	CNAG	Scientific	Talk: "Interpretable Inflammation Landscape of Circulating Immune Cells".
Master Class at Master of Systemic	18 May 2024	Madrid, Spain	VHIR	Students	Master Class for students. The lecture will be centered on targeted therapies in the future, a subject directly

Autoimmune Diseases *					influenced by the findings of the DocTIS project.
Single Cell Omics conference (ISCO'24) *	27-28 May 2024	Barcelona, Spain	CNAG	Scientific	Talk and Poster: "Interpretable Inflammation Landscape of Circulating Immune Cells".
European Congress of Rheumatology 2024 *	12-15 Jun. 2024	Vienna, Austria	VHIR	Scientific / Medical	Poster titled "Single Cell RNA-Seq Characterization of Circulating Immune Cells in Sjögren's Syndrome: Comparison to SLE and Rheumatoid Arthritis", highlighting single-cell data from patients with Rheumatoid Arthritis (RA) and Systemic Lupus Erythematosus (SLE), collected through the DocTIS project.
Single Cell Day *	19 Jul. 2024	Hannover, Germany	CNAG	Students	Talk about "FixNCut: Single-cell genomics through reversible tissue fixation and dissociation".
ACR Convergence 2024 (American College of Rheumatology) *	November 14-19, 2024	Washington DC, USA	CARDIFF	Scientific / Medical	Poster: "Transcriptome Analysis of Drug Response in a Large Cohort of Immune-Mediated Inflammatory Disease Patients Supports Advanced Combination Therapy in Rheumatoid Arthritis"
Patient-Doctor seminar	March 2025		Charité	Scientific / Medical	General presentation of the DocTIS project
HudsonAlpha Seminar	Q1 2025	TBA	HudsonAlpha & Others	Scientific	TBA
2025 AAD Annual Meeting (American Academy of Dermatology)	7 – 11 March 2025	Orlando, USA	University of Verona	Scientific / Medical	TBA (Results from DocTIS' research)
British Society for Rheumatology Annual Conference 2025	28 - 30 April 2025	Manchester, UK	VHIR	Scientific / Medical	TBA
Immunology 2025 (American Association of Immunologists)	3 - 7 May 2025	Hawaii, USA	VHIR	Scientific / Medical	TBA
51 SER National Congress (Sociedad Española de Reumatología)	13 - 16 May 2025	Madrid, Spain	VHIR	Scientific / Medical	TBA
EULAR 2025 / European Alliance of Associations for Rheumatology)	11 - 14 June 2025	Barcelona, Spain	VHIR	Scientific / Medical	TBA
XIV International Congress of Dermatology (ICD 2025)	18 - 21 June 2025	Rome, Italy	University of Verona	Scientific / Medical	TBA (Results from DocTIS' research)
EADV Congress 2025 (European Academy of Dermatology & Venereology)	17 - 20 September 2025	Paris, France	University of Verona	Scientific / Medical	TBA (Results from DocTIS' research)
UEG Week (United European Gastroenterology)	4 – 7 October 2025	Berlin, Germany (and online)	Charité	Scientific	TBA
ACR Convergence 2025 (American College of Rheumatology)	24 – 29 October 2025	Chicago, USA	VHIR	Scientific / Medical	TBA

* The Asterisk indicate events already completed by December 5th, 2024.

Through 2025, dissemination of the DocTIS project and its results will be carried out to patients through the EULAR PARE Community (<https://www.eular.org/the-eular-pare-community>). EULAR PARE (European Alliance

of Associations for Rheumatology People with Arthritis/Rheumatism in Europe) is a branch of the European Alliance of Associations for Rheumatology (EULAR) that amplifies the voice of people with rheumatic and musculoskeletal diseases (RMDs) across Europe. It focuses on advocacy, awareness, and patient engagement, ensuring that patient perspectives shape healthcare policies, research, and education.

Work done by CNAG for the DocTIS project will also be part of the Doctoral Thesis "Towards a large-scale human inflammation atlas at single-cell resolution", that will be defended by young researcher and PhD Student Laura Jiménez Gracia in December 2024.