This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement № 951768, project MARVEL

H2020-EIC-FETPROACT-2019
EIC Transition to Innovation Activities

Evolving reversible iMmunocapture by membrane sensing peptides: towARds scalable extracellular VEsicLes isolation

Starting date of the project: 01.11.2020
Duration: 30 months

= DELIVERABLE D6.11 =

Final report on communication and dissemination activities

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PU	Public	**x**
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

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Exploitation Manager	Alessandro Gori	27.04.2023
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EXECUTIVE SUMMARY

Timely and effective communication and dissemination of results are an essential part of every research and innovation project. This ensures that the gained knowledge or exploitable outcomes can benefit the whole society, and that any duplication of research and development activities is avoided. This strategy aims to ensure that all possible communication and dissemination routes are identified and used throughout the course of the project.

This document is a final report on implementation of MARVEL dissemination and communication strategies performed for the period M1-M30. In order to monitor the dissemination and communication activities in the MARVEL project, a document to record them was prepared (see Deliverable D6.2). This document helped to revise that the targets established at the beginning of the project are achieved and overall, the goals are fulfilled. The dissemination and communication strategy has changed during the first part of the project given the need to adapt to the global coronavirus pandemic, which has stopped or severely limited all physical dissemination activities. Many of such activities needed to shift to the online format. Nevertheless, since the project was prolonged for 6 months, additional dissemination activities also took place covering these months. This gave the possibility to take part in more conferences and perform more dissemination activities which the report reflects.

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1. INTRODUCTION

Deliverable D6.11 “Final report on communication and dissemination activities” is a part of the task T6.1 “Dissemination and communication”. The task states that partners will define a working document outlining the dissemination strategy (definition of internal procedures, target audience, and timelines) and communication strategy (means, methods and tools used to approach the defined target audience during the life of the project). This was in details described in the dedicated deliverable D6.2 “Project dissemination and communication strategy”. The dissemination activities were periodically updated and monitored in the “MARVEL dissemination recording and plan” Excel file. Information regarding dissemination is included in the internal reports and the periodic reports.

This document is a final report on implementation of MARVEL dissemination and communication strategies performed for the period M1-M30. It outlines the main elements and strategic choices regarding the dissemination and communication activities of the MARVEL project towards the most important stakeholder groups. This document helped the project team to properly plan and implement all required dissemination activities in order to achieve the identified main objectives: implementation of communication activities targeted towards different stakeholders, production of publicity materials for project outputs awareness and involvement of the community throughout all phases of the project. Active participation in conferences, workshops, exhibitions, and courses, as well as fostering relationships with other framework projects and initiatives (clustering activities) were key initiatives during the whole course of the project.

2. MARVEL COMMUNICATION AND DISSEMINATION ACTIVITIES

2.1. Dissemination goals

The main dissemination goals of the MAREL project were the following:

- To design and implement an effective communication strategy for the MARVEL project.
- To disseminate the project outputs at local level, including strengthening end user participation.
- To disseminate the project outputs at national and international levels, exploiting the various scientific and business networks of the project partners.
- To organise the major dissemination events of the project (symposium, workshop).

2.2. Target audience and plan

Various communication tools were used and tailored to the needs of various stakeholders and audiences. The target audiences for MARVEL included research and academia communities, industrial bodies, broad public and media, technology users / customers, standardization & regulation bodies, policy makers and EC. The identified communication and dissemination channels and tools are introduced in following subchapters.

Table 1. MARVEL Dissemination plan and achieved KPIs; Target KPIs are given for the duration of the project.

Target groups	Measure for dissemination	Target KPI	M30 KPI	Impact
Research community / Education	Presentations at international conferences	6	23	Disseminate technical achievements. Setup collaborations for research activities.
	Publications in international journals	6	9	
	Stakeholders participating in the final conference	10	15	
Industries and SMEs	MARVEL final conference	1	1	Direct contacts with customers at booth. Discussing licensing.
	Exhibitions and trade fairs	4	1	
	Interest of industrial customers on Technology Exploitation	8	11	
Broad public and media	Project Website (M4): Number of Visits Public deliverables will be made available: N° of downloads	1000 100	5727	Create awareness about the project, its objectives and impact on the EU community. Enhance multi-stakeholder learning network for knowledge exchange and for strengthening market competitiveness.
	Non-scientific publications (articles, press releases, videos) and posts in social media (*e.g.* Twitter)	10	221	
	Flyers/Poster distributed at conferences, workshops, etc.	800	230	
	MARVEL final conference	1	1	
End-users	Publications in specialised magazines	3	3	Technology replicability and business opportunity
	Presentations at specialized events	5	5	
	Project workshop	1	1	
	Participation in EU commission's consultation & other worldwide regulatory in the field of interest	1	1	
Policy makers and EC	Clustering events	2	2	Interaction with EC authorities
	Final Conference	1	1	

Communication activities were monitored and followed up to maximize their impact. Table 1 includes an indication of dissemination KPIs that have been met. Planned dissemination at in-person trade fairs, conferences, and workshops in 2020 has been highly dependent on the evolution of the Covid-19 emergency and became possible only in the middle of 2021. In the meantime, the consortium pursued dissemination at online events, strictly monitoring the evolution of the crisis.

3. MARVEL COORDINATED IMAGE AND DISSEMINATION MATERIALS

All the materials used for the MARVEL project dissemination activities reflect a common visual identity, which is associated to the project logo, roll-up, flyer, banners, and document templates. During the MARVEL project, several types of dissemination materials were prepared to inform wide and various audiences on the project's development.

All the dissemination materials always followed strict rules according to EC guidelines and have never jeopardized the potential protection of generated intellectual property and further industrial application. To follow these rules, before any dissemination activity (publication, presentation, posts), strict rules of prior notice to all partners were applied. This was done according to the EC guidelines: prior notice of any planned publication should be given to other consortium members at least 45 calendar days before the publication. The Dissemination Manager in cooperation with the Exploitation Manager followed the approval processes and acted as an internal executive approval body for any dissemination action organized by different partners.

3.1. MARVEL logo

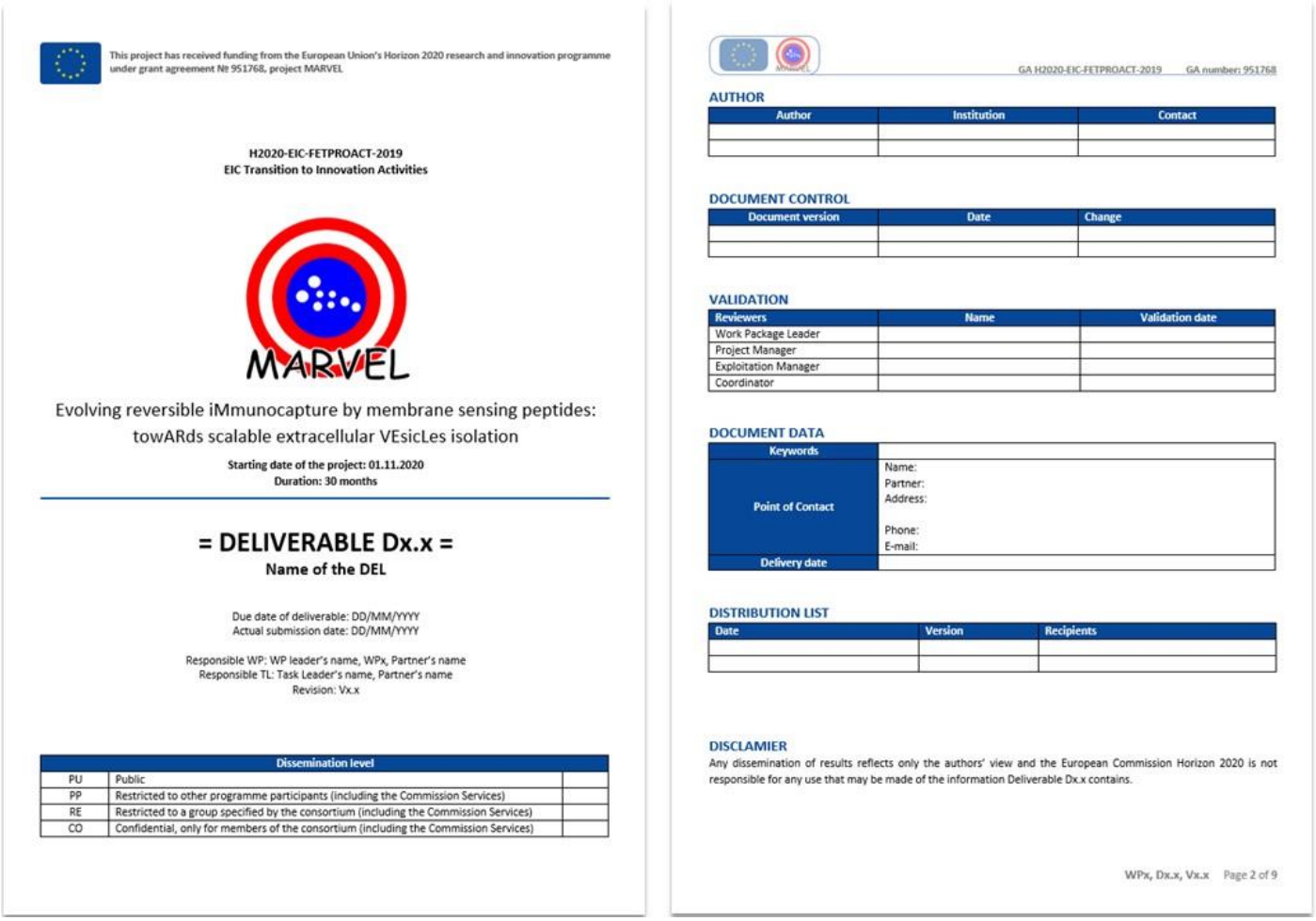
The project logo was prepared by the Project Coordinator (SCITEC-CNR) before the start of the project. It depicts cells communication through extracellular vesicles in the centre of the blue cycle which is surrounded by two red cycles. The logo is supplemented by the acronym of the project which is placed in front of the logo. The official MARVEL logo (Figure 1) was employed in all the project-related dissemination materials including templates, website, leaflets, posters, and brochures.

Figure 1. MARVEL logo

3.2. Official text documents and presentation templates

At the beginning of the project the Microsoft Word templates for the official text documents (deliverables, technical reports, meeting minutes) and Microsoft PowerPoint (project presentation template) were created and used during

the whole course of the project. The examples of the Microsoft Word (Figure 2) and Microsoft PowerPoint (Figure 3) templates are reported below.



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WPx, Dx.x, Vx.x Page 2 of 9

Figure 2. The example of the Microsoft Word text template for the project deliverable document.

MARVEL

Click to add title

Name of the presenter
Name of the Organization
Date of the meeting

Click to add title

Figure 3. The example of the Microsoft PowerPoint template for the project presentation.

3.3. MARVEL factsheet

A 2-page factsheet (Figure 4) was prepared to provide a concise and effective summary of the MARVEL project. The factsheet includes information about the European Union's Horizon 2020 funding programme, Consortium, project concept, the main objectives, the description of work and the expected results.

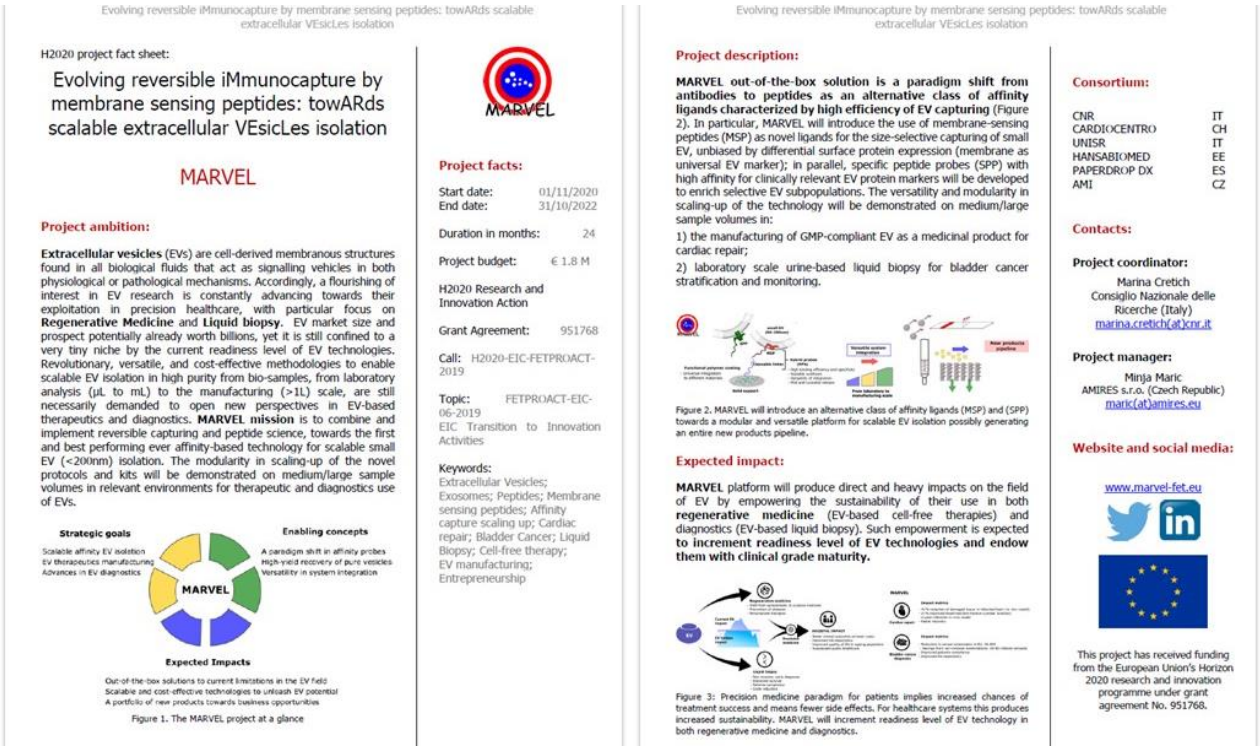


Figure 4. MARVEL Project factsheet

3.4. MARVEL leaflet

A 4-page folded leaflet (Figure 5) was produced to promote the visibility of the project, illustrating the MARVEL project motivations and objectives. The leaflets were used to support the events that were attended by partners.

Figure 5. MARVEL project leaflet

3.5. MARVEL project poster

MARVEL project poster (Figure 6) was created at the beginning of the project to be used by partners during their participation in events. It is prepared in a style of the MARVEL project website and contains basic, non-confidential information about the project, partners involved and acknowledgement of EU funding with EU flag. Further posters displaying scientific content were prepared in a similar style by partners and were presented during scientific symposia and conferences, demonstrating results along with project achievements. These posters were uploaded on the MARVEL project's website (section "Downloads") and are available for a broad public.

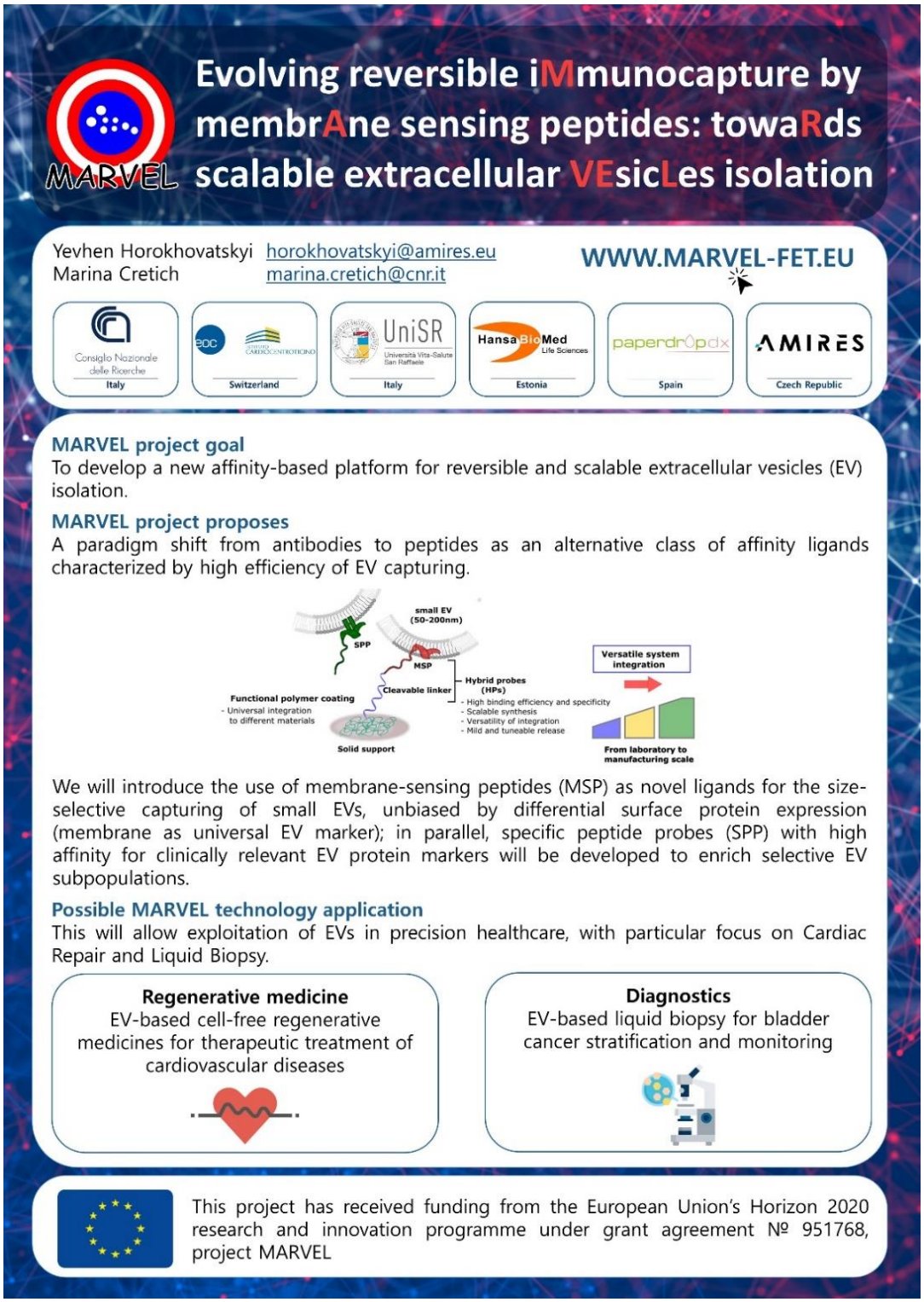


Figure 6. MARVEL project poster

3.6. MARVEL roll-up

The MARVEL project roll-up (Figure 7) was prepared in order to promote the visibility of the project and to attract more attention to the concept of the project during in-person meetings, conferences, and workshops. It includes general information about the project, logos of partners, the EU flag and acknowledgment of EU funding as follows: "The project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement n°951768, project MARVEL".

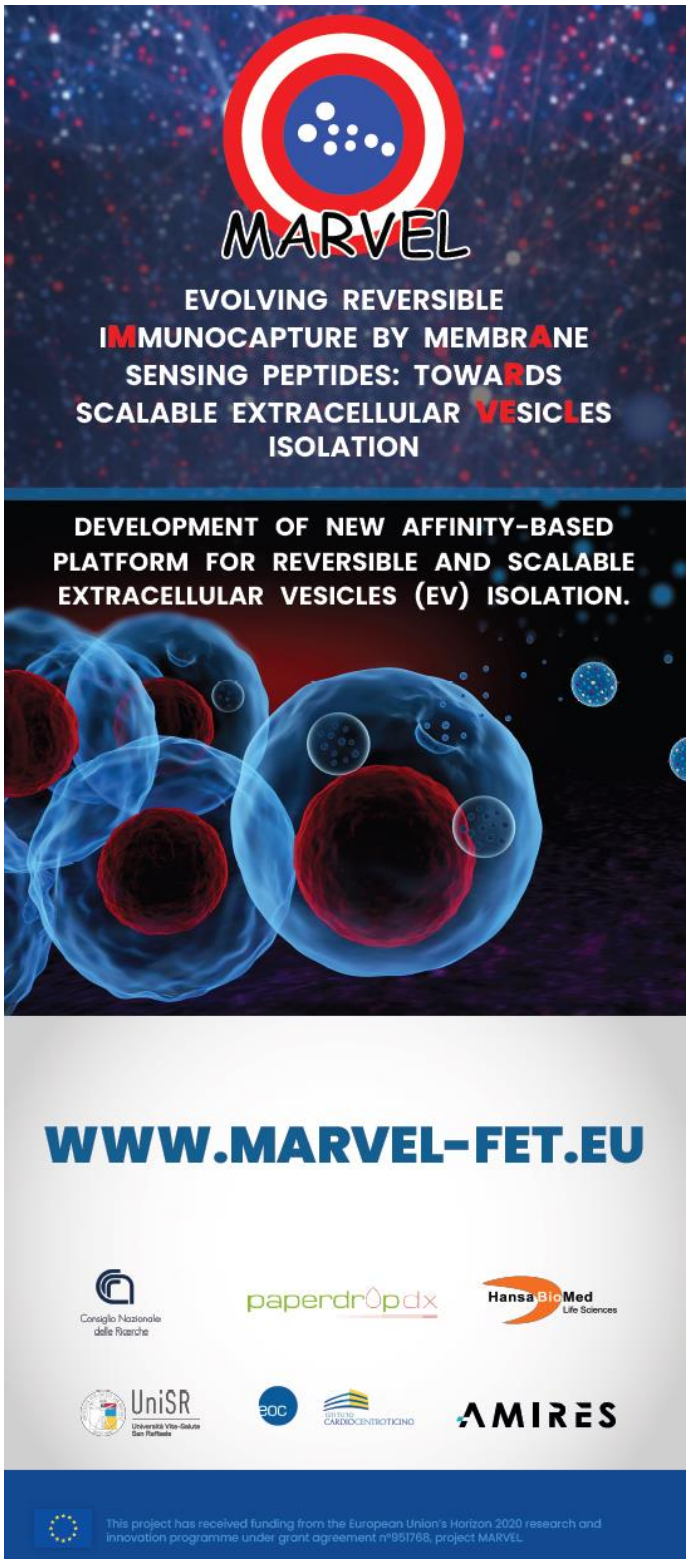


Figure 7. MARVEL project roll-up

3.7. MARVEL project video

MARVEL project promotion video (Figure 8) was made at the beginning of the project by the Coordinator. It was distributed through the project's communication channels and was broadcasted during the Future Tech Week 2020 (https://futuretechweek.fetfx.eu). The video was targeted to broad public and contained information about individual partners, their role, plans, and upcoming results within the MARVEL project. The link to the video is available here.

Figure 8. MARVEL project promotional video.

4. COMMUNICATION AND DISSEMINATION: ADDITIONAL ACTIONS TO SPREAD OUT

To increase MARVEL project visibility and to contribute to the progress of science in general, several dissemination action were implemented and used by the Dissemination manager. These actions were focused on a more appealing

way of sharing project research progress with a broad public, which included peers in the research field, potential users, industry, and other commercial players.

4.1. Flyer message

The MARVEL Flyer Message (FM) action was implemented to provide a regular update on MARVEL project and its achievements to a broad public. The FM usually included short statement about MARVEL achievement or results, graphics showing this achievement, project's and partners' logos, and acknowledgement of EU funding with EU flag (Figure 9). The FM was usually supplemented by the extended version of the result description (Figure 10) either directly on the post or through the link to the post on the MARVEL website.

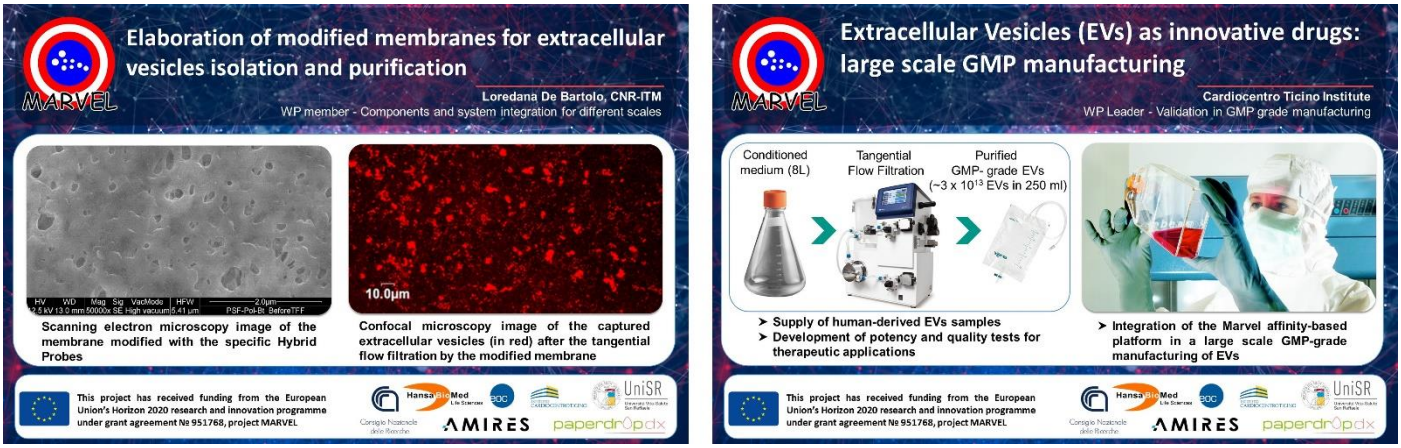


Figure 9. Examples of the MARVEL Flyer message

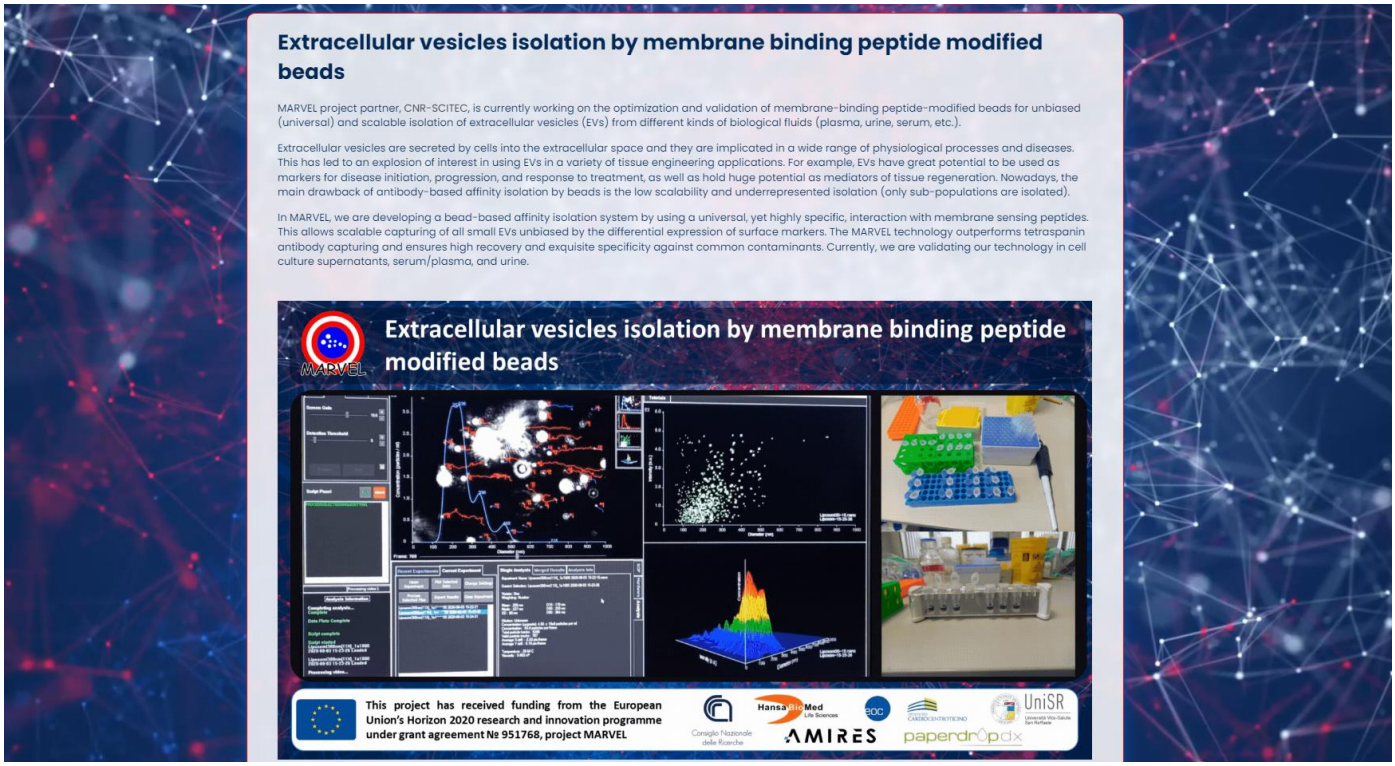


Figure 10. Example of the MARVEL Flyer message with the extended version of the result description

For the dissemination or the FM, MARVEL website, LinkedIn, and Twitter were used. Additionally, the links of the posted posts were shared with the Consortium for the repost on their social media channels. The FM was prepared by the Dissemination manager from AMIRES based on files and information requested from partners. To avoid

dissemination of confidential information, the final version of the FM was always approved by the Project Coordinator and owners of the materials and then by the MARVEL Consortium.

4.2. Video message

The MARVEL video message action was focused on representation of the industrial partners in the consortium and their role in the project (Figure 11). The duration of video interview was from 2 to 6 minutes, and it was structured around the following questions:

- Partner and company introduction.
- Role of their organization in the MARVEL project.
- What spurred this study or research questions?
- What is the possible real-world application of this technology/method?
- What are the challenges still facing you?

The video message was created for two partners (Paperdrop Diagnostics video link, HansaBioMed Life Sciences video link) and uploaded on the YouTube channel, following further dissemination through the social media channels and websites.

Figure 11. Examples of video messages.

4.3. Events calendar

The main idea of the MARVEL events calendar was to announce a MARVEL partner's presentation during planned event (1st post) and to sum up the results and communication activities after the event (2nd post). Such an approach

helped to attracted attention of other event visitors (researchers, potential users, industry, commercial players) to the MARVEL partners' presentation, booth, or poster and to set up a communication for the future collaboration.

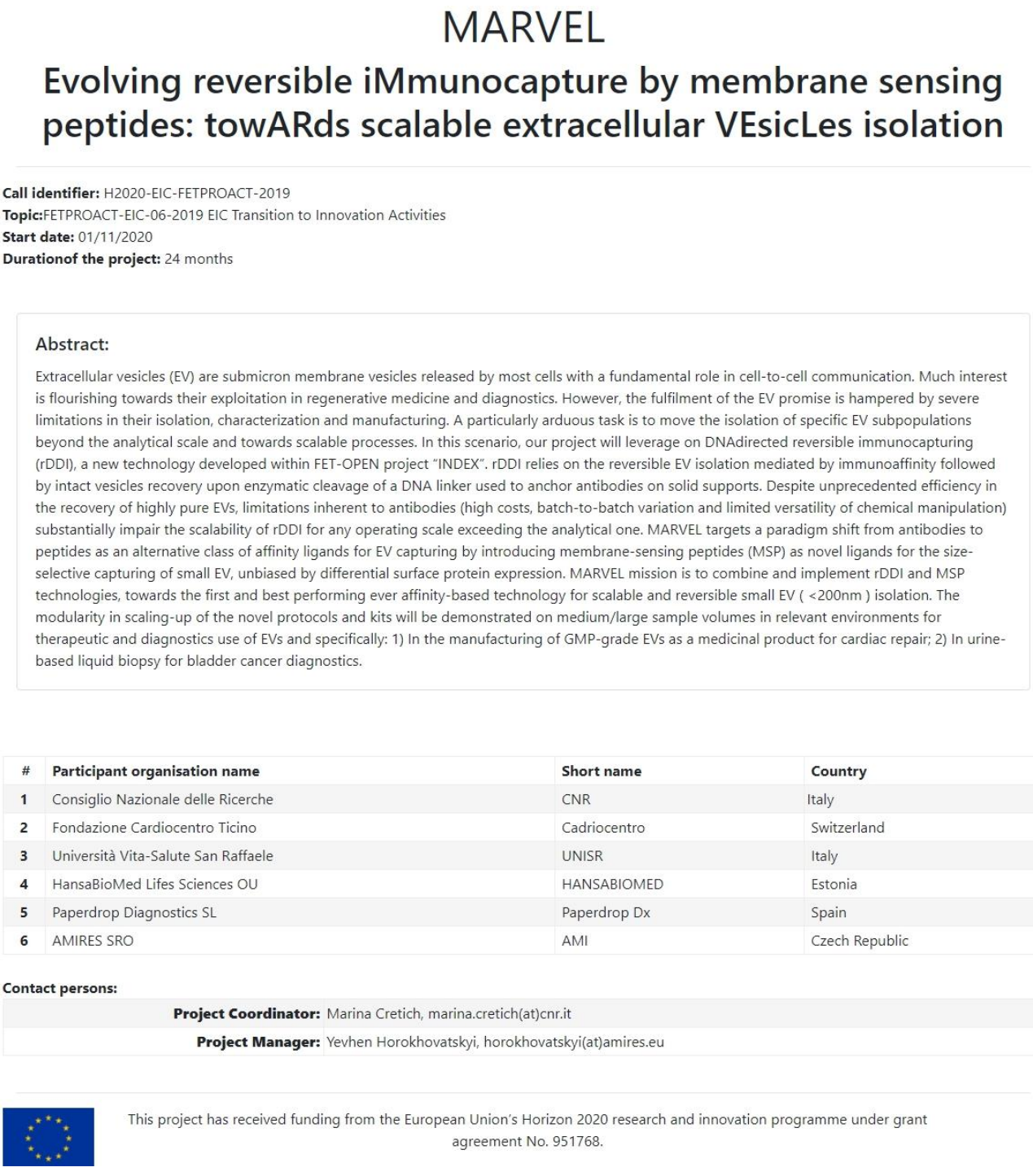
Date	Event name	URL	Place	Participating partner	Will you present any materials? If yes, write the topic of your presentation/poster	Visibility (Local, National, International)
13 April	MARVEL Workshop		Lugano-CH	ALL	Poster/oral	International
29-01, April-May	Frontiers in CardioVascular Biomedicine 2022	Frontiers in CardioVascular Biomedicine (escardio.org)	Budapest - Hungary	Cardiocentro	WP4 progress for ICCT Poster/oral Cardioprotective role of Exosomes from cardiac progenitor cells	International
25-29, May	ISEV 2022 Annual meeting	https://www.isev.org/isev-annual-meeting	Lyon-France	Cardiocentro	Poster/oral Cardioprotective role of Exosomes from cardiac progenitor cells	International
25-29, May	ISEV 2022 Annual meeting	https://www.isev.org/isev-annual-meeting	Lyon, France	Paperdrop Dx	Maybe poster/oral presentation; to evaluate	International
25-29, May	ISEV 2022 Annual meeting	https://www.isev.org/isev-annual-meeting	Lyon, France	CNR-SCITEC	Maybe poster/oral presentation; to evaluate	International
23 September	Researcher's night		Rende	CNR-ITM	yes	National
20-24, November	Euromembrane 2022	http://www.euromembrane2022.eu/	Sorrento (Naples)	CNR-ITM	yes	International

Figure 12. Example of the Events calendar and its strategy.

5. DISSEMINATION AND COMMUNICATION TOOLS

5.1. MARVEL webpage

MARVEL project website (https://marvel-fet.eu) has been set up to increase public awareness of EIC Pathfinder Pilot Transition to Innovation Activities. The MARVEL website has been operational since November 2020 in a provisional version (Figure 13) and since February 2021 in a full version (Figure 14). The website has been constantly maintained and updated to communicate summary of the MARVEL project in terms of concept, objectives, a description of the Consortium, the project results (i.e., deliverables, publications), a list of the main events organized/attended as well as a collection of media and project presentations.



MARVEL

Evolving reversible iMmunocapture by membrane sensing peptides: towARds scalable extracellular VEsicLes isolation

Call identifier: H2020-EIC-FETPROACT-2019
Topic:FETPROACT-EIC-06-2019 EIC Transition to Innovation Activities
Start date: 01/11/2020
Durationof the project: 24 months

Abstract:

Extracellular vesicles (EV) are submicron membrane vesicles released by most cells with a fundamental role in cell-to-cell communication. Much interest is flourishing towards their exploitation in regenerative medicine and diagnostics. However, the fulfilment of the EV promise is hampered by severe limitations in their isolation, characterization and manufacturing. A particularly arduous task is to move the isolation of specific EV subpopulations beyond the analytical scale and towards scalable processes. In this scenario, our project will leverage on DNAdirected reversible immunocapturing (rDDI), a new technology developed within FET-OPEN project "INDEX". rDDI relies on the reversible EV isolation mediated by immunoaffinity followed by intact vesicles recovery upon enzymatic cleavage of a DNA linker used to anchor antibodies on solid supports. Despite unprecedented efficiency in the recovery of highly pure EVs, limitations inherent to antibodies (high costs, batch-to-batch variation and limited versatility of chemical manipulation) substantially impair the scalability of rDDI for any operating scale exceeding the analytical one. MARVEL targets a paradigm shift from antibodies to peptides as an alternative class of affinity ligands for EV capturing by introducing membrane-sensing peptides (MSP) as novel ligands for the size-selective capturing of small EV, unbiased by differential surface protein expression. MARVEL mission is to combine and implement rDDI and MSP technologies, towards the first and best performing ever affinity-based technology for scalable and reversible small EV (<200nm) isolation. The modularity in scaling-up of the novel protocols and kits will be demonstrated on medium/large sample volumes in relevant environments for therapeutic and diagnostics use of EVs and specifically: 1) In the manufacturing of GMP-grade EVs as a medicinal product for cardiac repair; 2) In urine-based liquid biopsy for bladder cancer diagnostics.

#	Participant organisation name	Short name	Country
1	Consiglio Nazionale delle Ricerche	CNR	Italy
2	Fondazione Cardiocentro Ticino	Cadriocentro	Switzerland
3	Università Vita-Salute San Raffaele	UNISR	Italy
4	HansaBioMed Lifes Sciences OU	HANSABIOMED	Estonia
5	Paperdrop Diagnostics SL	Paperdrop Dx	Spain
6	AMIRES SRO	AMI	Czech Republic

Contact persons:

Project Coordinator:	Marina Cretich, marina.cretich(at)cnr.it
Project Manager:	Yevhen Horokhovatskyi, horokhovatskyi(at)amires.eu

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 951768.

Figure 13. MARVEL webpage (preliminary version)

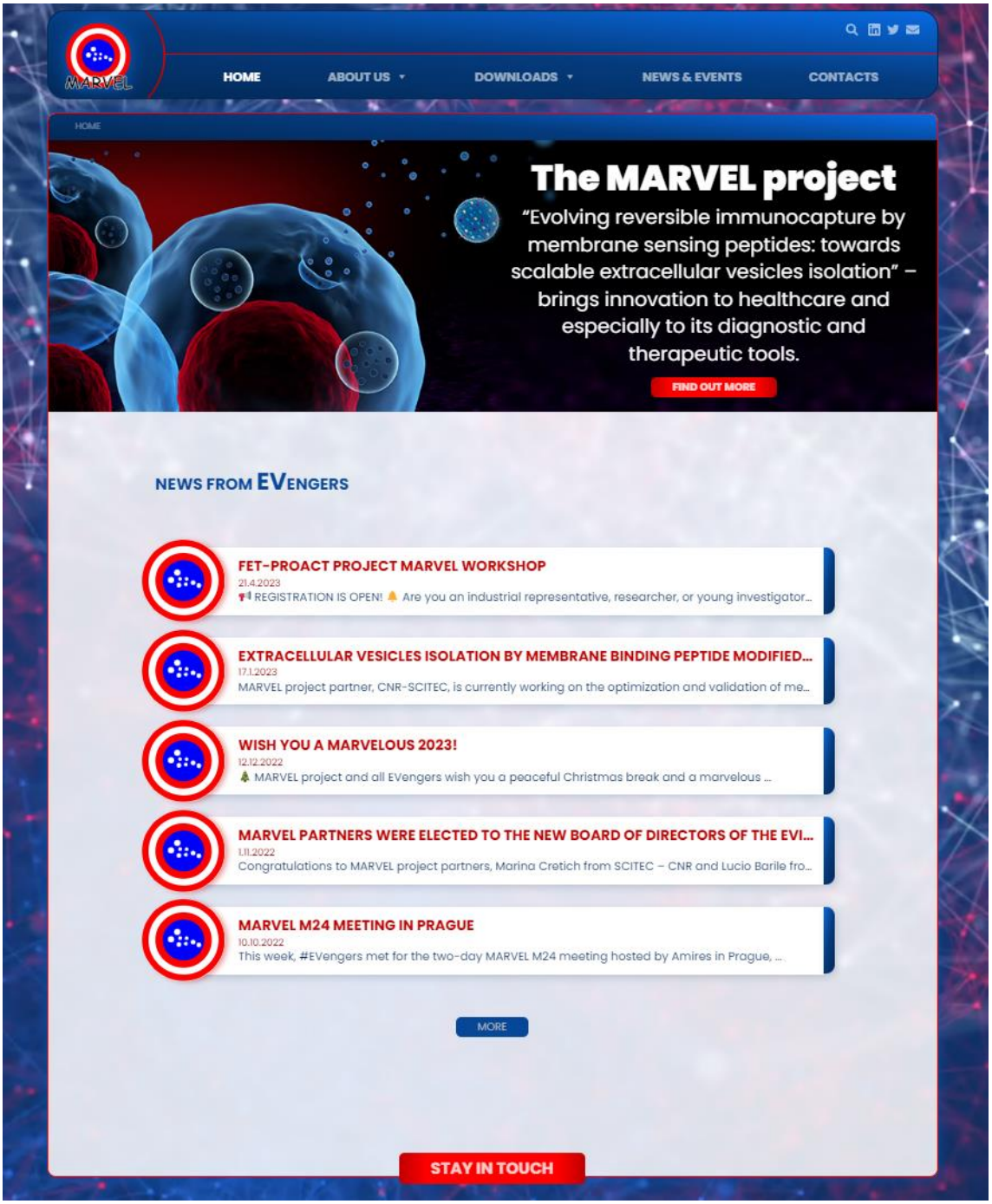


Figure 14. MARVEL website (homepage)

The website has been created in Open-Source software called WordPress. WordPress started as a blogging system but has evolved to be used as full content management system, that is completely customisable and can be used for almost anything within the field of web design. It allows fast and reliable customisation and has a user-friendly back-office environment which is a key for the website updates and file uploads.

The website is available for public access and was actively maintained during the whole course of the project. It provides acknowledgement of EU funding as follows: "The project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement n°951768, project MARVEL". The detailed description is available in the dedicated deliverable D6.1 "Project website". The link for the project website was always promoted through MARVEL social media channels (LinkedIn, Twitter), websites of MARVEL partners (e.g. News sections, projects sections etc.), and in the social media channels of the partners.

To measure the performance of the MARVEL website, a regular website analytics procedure was performed. During this procedure such parameters as a number of new and returning visitors, page views, average time on page etc. were measured. The total website analytics for the M4-M30 5s presented in the Figure 15.

	Country	Users	% Users
1.	Italy	378	17.92%
2.	United States	312	14.79%
3.	Switzerland	233	11.05%
4.	Netherlands	217	10.29%
5.	Finland	176	8.35%
6.	Spain	101	4.79%
7.	Austria	96	4.55%
8.	China	93	4.41%
9.	Czechia	76	3.60%
10.	France	71	3.37%

Figure 15. MARVEL website analytics M4-M30

5.2. Social media

Besides the official website, a set of social extensions have been set up on LinkedIn (Figure 16) and Twitter (Figure 17), which facilitate the communication of the project-related activities to a wide external audience and promote the

visibility of the project on the most widely used social channels. This also enabled a collection of a feedback in form of reactions from various audiences.

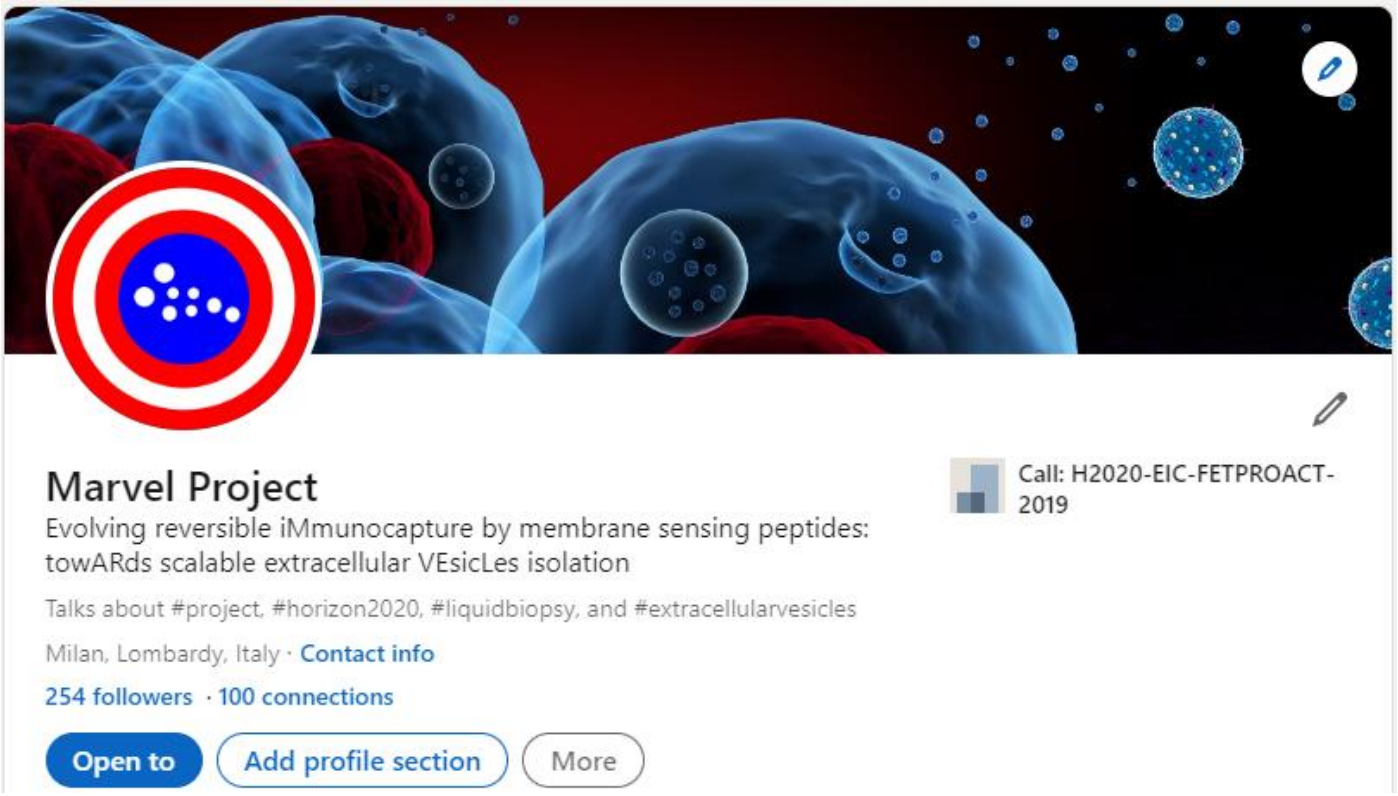


Figure 16. MARVEL project LinkedIn profile

The target of the LinkedIn group were professionals and researchers working in the wider area of interest related to the project, from regenerative medicine field to specifically extracellular vesicles topic. At the same time, the project's Twitter account also targeted to engage a wider audience, but with the focus on a younger generation. Both channels interlink shared materials allowing access to a different target group and a different modality of social interaction and propagation.

For both social media channels, news about the MARVEL project and its development were prepared and shared especially during events, conferences, and symposiums. Social media also used as a communication channel to disseminate potential clustering activities. For the 30 months of the project duration there were 51 posts published with the 31 634 post views on the LinkedIn profile while 121 posts with 120441 post views were achieved on Twitter profile (Table 2).

Table 2. MARVEL project social media analytics M1-M30

Social media	Number of posts	Likes	Reposts	Post views
LinkedIn	51	694	137	31 634
Twitter	121	2145	971	120 441

It is also worth emphasizing that each post is usually reposted on Amires or partners' social media channels increasing visibility of posted materials to a much broader public. The posts on LinkedIn usually included full version of the post and the link to the MARVEL website, where more information about the project is available. Some posts on Twitter profile also include a link to the project's website, however, due to charters limit the posts are usually shorter and include only basic information about the post. In this case, the MARVEL website link where the full version of the post is available was available in the post.

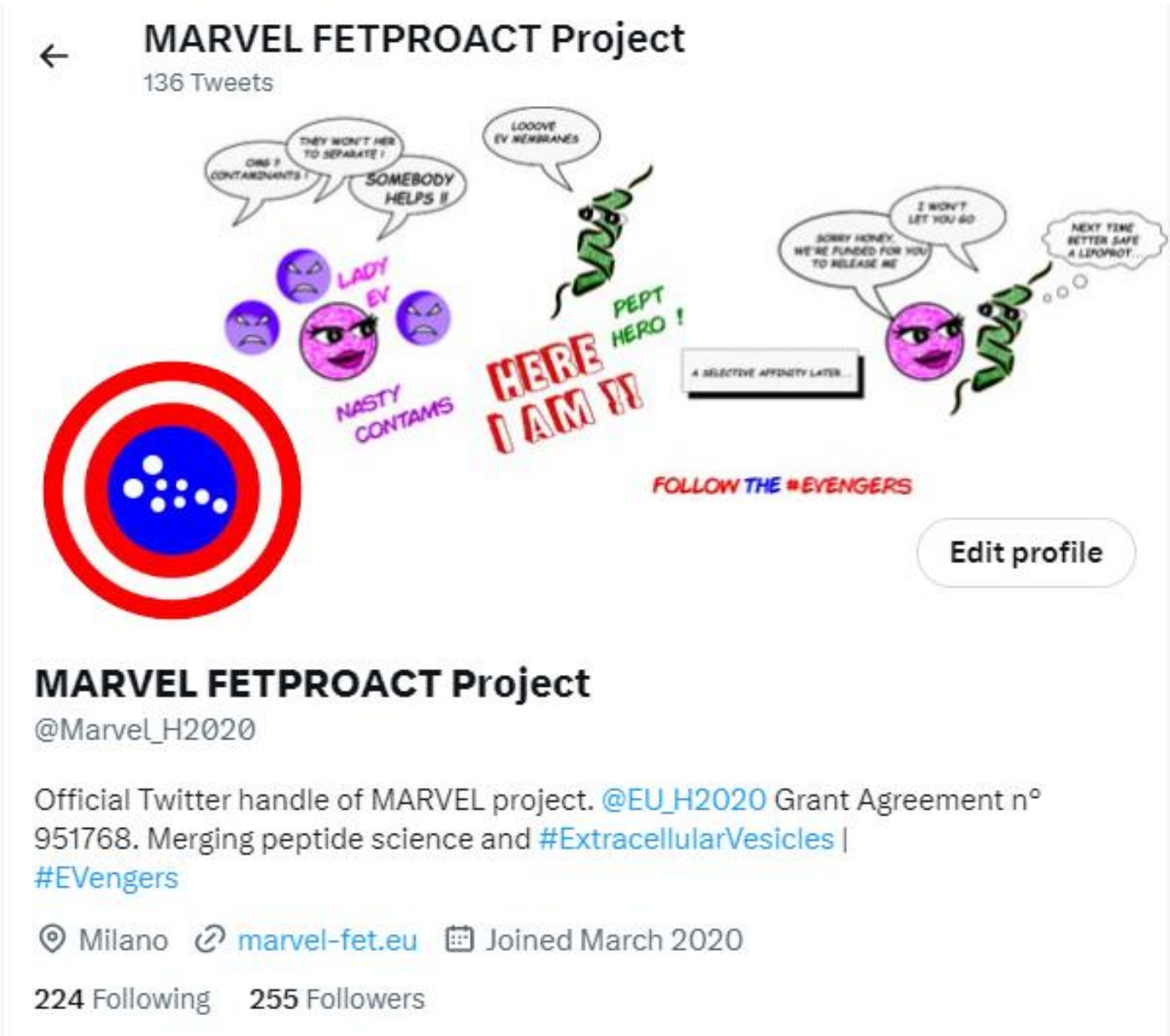


Figure 17. MARVEL project Twitter profile

5.3. Press release

The aim of the press releases was to attract favourable media attention and provide publicity for the project and its events. The first press release where MARVEL project was mentioned (Figure 18) was published in the big Italian newspaper Il Sole 24 Ore (https://www.ilsole24ore.com/). The Consortium as a whole and the partners individually advertised the project kick-off (Figure 19) as well as the participation to major events by issuing press releases.

Nevertheless, due to the digitalization of many journals, many publications were published in online newsletter format (Figure 20).

Nuove frontiere in terapia e diagnostica

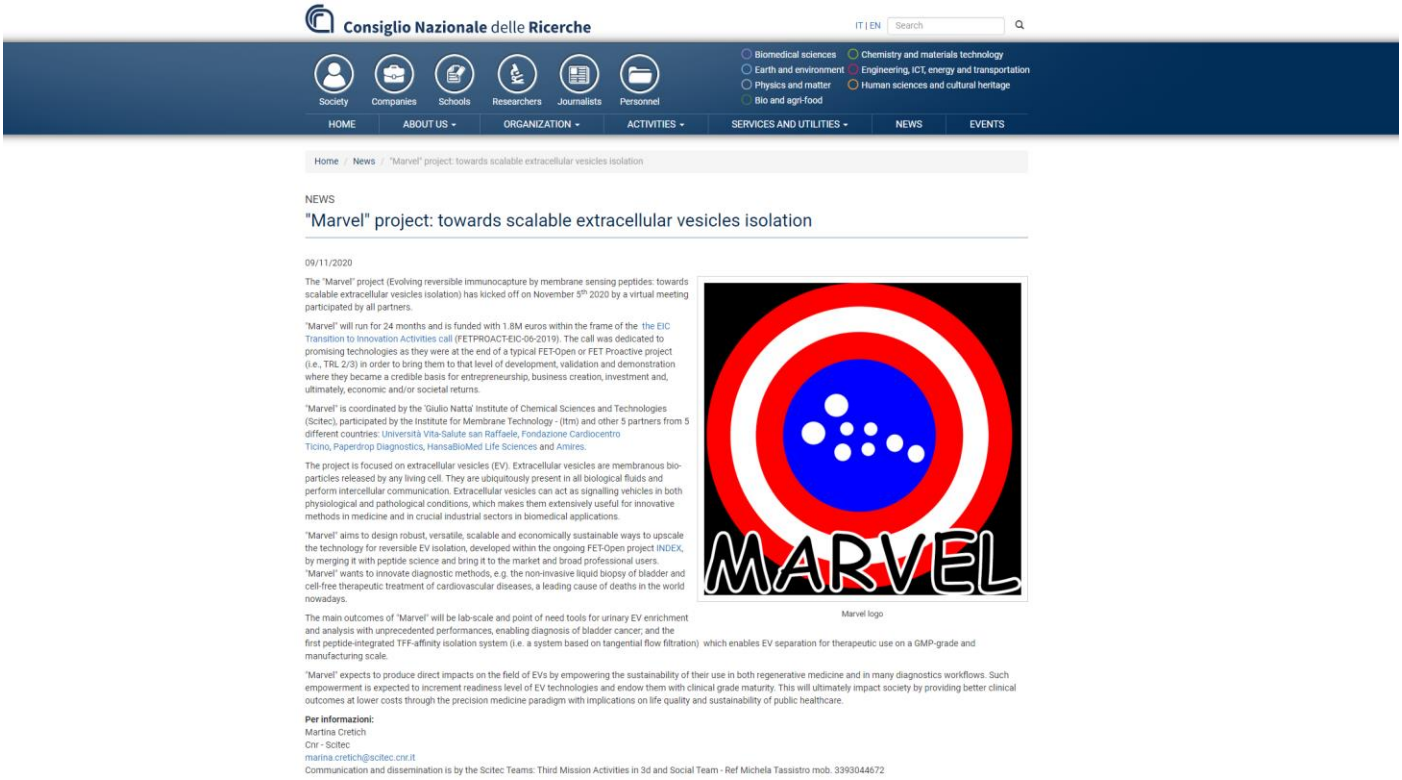
Innovazione e tecnologie chimiche al servizio della Salute al CNR di Milano

L'eccellenza è di casa a Milano, stavolta nel campo delle vescicole extracellulari - nanoparticelle biologiche fino a poco fa considerate materiali di scarto cellulare ed ora al centro di un vero e proprio boom di interesse nella comunità scientifica e clinica. A testimoniarlo quasi 5.5 milioni di euro di finanziamenti raccolti negli ultimi 3 anni su altrettanti progetti di ricerca (alias INDEX, MARVEL e HYDROGEX), tutti a guida del gruppo Chemistry and Technology for Bioscience *(www.ctbio.eu)* dell'istituto SCITEC di Milano, e in collaborazione con importanti partner clinici (San Raffaele di Milano e Cardiocentro di Lugano) e industriali (Exosomics SpA). Tecnologie chimiche al servizio di progetti traslazionali di respiro internazionale

Da sinistra, Marcella Chiari (CNR, progetto INDEX), Marina Cretich (CNR, progetto MARVEL), Natasa Zarovni (Exosomics SpA) e Alessandro Gori (CNR, progetto HYDROGEX)

votati a realizzare l'ampio potenziale di queste affascinanti "nanosferette", che spazia dalle biopsie liquide nel cancro a nuovi approcci terapeutici e vaccinali, come già si indaga per il COVID-19. "Le ricadute cliniche ed economiche sono ormai a portata, investire in questo ambito è una scommessa strategica", commenta Natasa Zarovni di Exosomics. "Stiamo lavorando a tecnologie abilitanti per la diagnostica e terapia di precisione", le fa eco Marcella Chiari del CNR e membro del board di EVITA, la società scientifica italiana di riferimento *(www.evitasociety.org)*. E prosegue, "il posizionamento italiano in questo campo è di assoluto livello, si prospetta un'occasione unica per supportare lo sviluppo di realtà già attive sul territorio e consolidare network di eccellenza con partecipazione pubblica e privata". Non fermiamoci sul più bello.

Figure 18. Press release in Il Sole 24 Ore.



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NEWS

"Marvel" project: towards scalable extracellular vesicles isolation

09/11/2020

The "Marvel" project (Evolving reversible immunocapture by membrane sensing peptides: towards scalable extracellular vesicles isolation) has kicked off on November 5th 2020 by a virtual meeting participated by all partners.

"Marvel" will run for 24 months and is funded with 1.8M euros within the frame of the the EIC Transition to Innovation Activities call (FETPROACT-EIC-06-2019). The call was dedicated to promising technologies as they were at the end of a typical FET-Open or FET Proactive project (i.e., TRL 2/3) in order to bring them to that level of development, validation and demonstration where they became a credible basis for entrepreneurship, business creation, investment and, ultimately, economic and/or societal returns.

"Marvel" is coordinated by the 'Giulio Natta' Institute of Chemical Sciences and Technologies (Scitec), participated by the Institute for Membrane Technology - (Itm) and other 5 partners from 5 different countries: Università Vita-Salute san Raffaele, Fondazione Cardiocentro Ticino, Paperdrop Diagnostics, HansaBioMed Life Sciences and Amires.

The project is focused on extracellular vesicles (EV). Extracellular vesicles are membranous bio-particles released by any living cell. They are ubiquitously present in all biological fluids and perform intercellular communication. Extracellular vesicles can act as signalling vehicles in both physiological and pathological conditions, which makes them extensively useful for innovative methods in medicine and in crucial industrial sectors in biomedical applications.

"Marvel" aims to design robust, versatile, scalable and economically sustainable ways to upscale the technology for reversible EV isolation, developed within the ongoing FET-Open project INDEX, by merging it with peptide science and bring it to the market and broad professional users. "Marvel" wants to innovate diagnostic methods, e.g. the non-invasive liquid biopsy of bladder and cell-free therapeutic treatment of cardiovascular diseases, a leading cause of deaths in the world nowadays.

Marvel logo

The main outcomes of "Marvel" will be lab-scale and point of need tools for urinary EV enrichment and analysis with unprecedented performances, enabling diagnosis of bladder cancer; and the first peptide-integrated TFF-affinity isolation system (i.e. a system based on tangential flow filtration) which enables EV separation for therapeutic use on a GMP-grade and manufacturing scale.

"Marvel" expects to produce direct impacts on the field of EVs by empowering the sustainability of their use in both regenerative medicine and in many diagnostics workflows. Such empowerment is expected to increment readiness level of EV technologies and endow them with clinical grade maturity. This will ultimately impact society by providing better clinical outcomes at lower costs through the precision medicine paradigm with implications on life quality and sustainability of public healthcare.

Per informazioni:
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Communication and dissemination is by the Scitec Teams: Third Mission Activities in 3d and Social Team - Ref Michela Tassistro mob. 3393044672

Figure 19. News about MARVEL project kick-off

ITM NEWSLETTER
Institute on Membrane Technology
December 2022
PROJECTS AND UPDATES

IntelWATT

The CNR-ITM, in collaboration with NCSR-Demokritos, organized jointly the **24-month technical meeting** of the H2020 project" intelWATT - intelligent water treatment technologies for water preservation combined with simultaneous energy production and material recovery in energy intensive industries" (Grant agreement n. 958454) on **24** and **25 November 2022** in Sorrento (Italy).
Most partners were present, and other participants connected remotely through an audio video.
The discussion focused on the main achievements presented by partners, the submitted deliverables, and the scheduled tasks for the coming months.

Dr. Enrica Fontananova, scientific responsible for the IntelWATT project at CNR-ITM, described the project's ongoing activity in Case study 2. She informed on the valorization of the brine streams from mining activities to recover energy and water, exploiting renewable energy resources in an integrated pilot unit comprised of Reverse Electrodialysis (RED) and solar-assisted membrane distillation (MD). The research CNR-ITM team attending the meeting was composed of Dr. Gianluca Di Profio and Dr. Elvira Pantuso.

For more information contact e.fontananova@itm.cnr.it

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ITM NEWSLETTER
Institute on Membrane Technology
December 2022
PROJECTS AND UPDATES

Evolving reversible iMmunocapture by membrane sensing peptides: towARds scalable extracellular VEscicles isolation

MARVEL is a two years FETPROACT-EIC Project funded European Union's HORIZON 2020 Research &Innovation Action (G.A: N. 951768) started from 1 November 2020. The Consortium led by Dr. Marina Cretich of CNR-Institute of Chemical Sciences and Technologies CNR-SCITEC is composed by CNR with two Institutes SCITEC and ITM, Vita-Salute San Raffaele University (Italy), Fondazione Cardiocentro Ticino (Switzerland), Paperdrop Diagnostics (Spain), Hansa BioMed Life Sciences (Estonia) and Amires (Czech Republic). MARVEL mission is to combine and implement reversible capturing and peptide science, towards the first and best performing ever affinity-based technology for scalable small Extracellular Vescicle (EVs) isolation.

The **MARVEL M24 meeting** of the project was hosted by AMIRES in Prague, Czech Republic on **October 10-11, 2022**, summing up the last 24 months of the project and noticing that the achieved results are perfectly aligned with the planned objectives.
The research CNR-ITM team involved in the project is composed by Dr. Loredana De Bartolo (scientific responsible), Dr. Simona Salerno, Dr. Sabrina Morelli, Dr. Antonella Piscioneri.

M24 MEETING
Prague, Czech Republic
10 - 11 October 2022

For more information contact marina.cretich@cnr.it and l.debartolo@itm.cnr.it
Follow the project on Linkedin https://www.linkedin.com/in/marvel-project-9b50771b1/
Twitter https://twitter.com/Marvel_H2020, dedicated websitewww.marvell-fet.eu

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Figure 20. ITM Newsletter December 2022

5.4. MARVEL symposium

MARVEL symposium entitled "Extracellular Vesicles as next-generation clinical biomarkers and therapeutic agents" was organised by Istituto Cardiocentro Ticino - EOC Ente Ospedaliero Cantonale and AMIRES in the frame of the MARVEL EU-funded project and this event was a part of the 2nd Lugano ExoDay sponsored by Swiss National Science Foundation (Figure 21). The goal of this event was to highlight and capture the new developments in the area of extracellular vesicles (EVs). As it clearly seen from the title, the workshop was focused on two main topics:

1) "EVs application as next-generation clinical biomarkers" - this session will be dedicated to discussion of different methods for the isolation and characterization of EV from biofluids
2) "EVs as therapeutic agents" – this session will focus more on scale-up processes and specification for applying EV-based product in therapeutic context.

The symposium was attended by more than 90 experts and young investigators (Figure 22) working in the expansive field of Extracellular Vesicles. The whole day program (Figure 23) was structured around keynote presentations from selected speakers (Edit Buzás, Michele De Palma, Marina Cretich, Benedetta Bussolati), flash presentations, and posters from young investigators, the symposium facilitated the exchange of views on the current and future technology solutions in the expansive field of Extracellular vesicles and their applications in the healthcare sector.

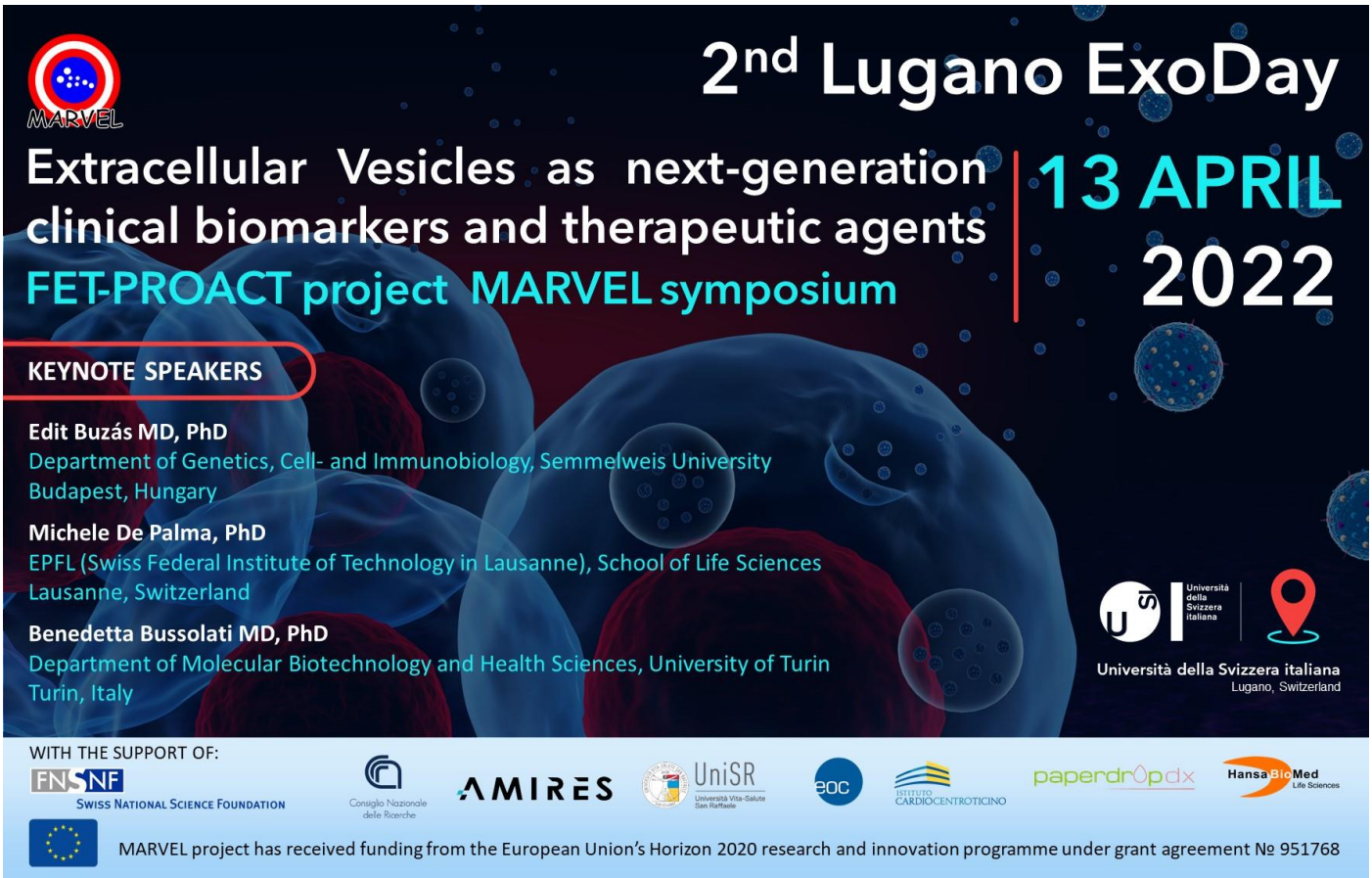

Figure 21. MARVEL symposium flyer

Figure 22. Participants of the symposium

Figure 23. Symposium program

The MARVEL symposium culminated with the Award Ceremony designed to encourage excellence in research and presentation skills in young investigators. Awardees received certificates and a cash award of 250 dollars for the best poster and oral presentations. Vera Tscherrig, from the University of Bern, was awarded for the best oral presentation

entitled “MicroRNAs in small extracellular vesicles (EVs) from Wharton's jelly mesenchymal stromal cells and their potential neuro regenerative role”. The best poster presentation entitled “Development of breakthrough liquid biopsy diagnostic via novel exosomal biomarkers for patient stratification in prostate cancer” was presented by Alekhya Mazumdar from the University Hospital of Zürich. The Ceremony was sponsored by the Journal of Extracellular Vesicles and Circulating Nucleic Acid (evcna.com) and all abstracts and the meeting report were published in the special Issue of this journal. A short video summary of the symposiums was prepared by Amires and is available here.

We would like to express our cordial thanks to all who attended the symposium and helped make this event a success. We have much pleasure in thanking our keynote speakers, MARVEL partners and several organizations, in particular: SNSF Swiss National Science Foundation, USI Università della Svizzera italiana, Ente Ospedaliero Cantonale (EOC), CNR SCITEC 'Giulio Natta', CNR-ITM, Libera Università Vita-Salute San Raffaele, HansaBioMed Life Sciences Ltd and Paperdrop Diagnostics for their support and the very efficient help during the symposium. The organizers gladly acknowledge also many other local people from Università della Svizzera italiana, where the event took place, who helped with the organization and ensured that in all instances the formal steps went smoothly.

5.5. MARVEL final workshop

The MARVEL final workshop (Figure 24) entitled “Extracellular Vesicles: from research to medical applications and market readiness” was organised by SCITEC - Istituto di scienze e tecnologie chimiche "Giulio Natta" and AMIRES in the frame of the MARVEL EU-funded project. The workshop was held on 21 April 2023 at the SCITEC - Istituto di scienze e tecnologie chimiche "Giulio Natta in Milan, Italy.

Figure 24. MARVEL final workshop banner

The workshop program (Figure 25) included keynote lectures from the invited speakers (Figure 26) and a round-table discussion (Figure 27) with industrial representatives and leading researchers in this field. This helped to facilitate the exchange of views on the current and future technology solutions, clinical and market needs in the expansive field of Extracellular vesicles and their applications in the healthcare sector.

Figure 25. MARVEL final workshop program

This event was attended by 48 experts and young investigators working in the field of Extacellular Vesicles. The workshop initiative aimed to bring together experts and young investigators from different countries working in the field of extracellular vesicles.

We would like to express our cordial thanks to all who attended the workshop and helped make this event a success. We have much pleasure in thanking our keynote speakers, MARVEL partners and several organizations, in particular: CNR SCITEC 'Giulio Natta', CNR-ITM, Libera Università Vita-Salute San Raffaele, USI Università della Svizzera italiana, Ente Ospedaliero Cantonale (EOC), HansaBioMed Life Sciences Ltd, Paperdrop Diagnostics and Amires for their support and the very efficient help during the symposium. The organizers gladly acknowledge also many other local people from CNR SCITEC 'Giulio Natta' where the event took place, scientific organizing committee (Marina Cretich and Alessandro Gori), local organizing committee (Paola Gagni, Greta Bergamaschi, Roberto Frigerio) and communication and dissemination manager (Yevhen Horokhovatskyi), who helped with the organization and ensured that in all instances the formal steps went smoothly.

Figure 26. MARVEL workshop attendees.

Figure 27. MARVEL workshop round table discussion with panellists.

5.6. Presentation at conferences, symposia, meetings

Planned dissemination at in-person trade fairs, conferences, and workshops has been highly dependent on the evolution of the Covid-19 emergency and became possible only from the summer 2021. A set of conferences on extracellular vesicles were selected and articles, papers and posters were prepared for them. To create a list of upcoming events where partners plan dissemination of the MARVEL project, an Events Calendar was created (see section 4.3. Events calendar). This calendar includes all planned events in the consortium, and it helps to disseminate information about partners' participation as before the event as well as after the event. For this purpose, MARVEL's website, LinkedIn, Twitter, and partners' websites and social media channels are used. During these events the representatives of the project have the possibility to communicate the project's scope and possible interaction and exchange with initiatives and projects in related fields. The list of the key events in 2021-2022 where MARVEL partners disseminated project is presented in Table 3.

Table 3. List of the key events attended by MARVEL partners.

Event	Description	Type of the presentation
EVITA 2nd symposium	Annual meeting of the Italian Society of Extracellular Vesicles (EVIta)	3 poster presentations MARVEL showcase
European Researchers' Night 2021	Annual Europe-wide public event, which displays the diversity of science and its impact on citizens' daily lives in fun, inspiring ways	Poster presentation
2021 ISEV Workshop: massivEVs - an ISEV workshop on massive production of EVs	Annual meeting of the International Society for Extracellular Vesicles	Oral presentation Poster presentation
XXIII CONGRESSO SIRC 2021	National Congress of Italian Society of Cardiovascular Research SIRC	Oral presentation
Cardiovascular Grand Rounds in Maastricht	Yearly CARIM Symposium and irregular organised meetings and lectures are means to update the knowledge of our graduate students, our researchers and other external people with interest in the field of cardiovascular research.	Oral presentation
ISEV 2022 Annual meeting	The ISEV Annual Meeting is the premier scientific conference in the field of extracellular vesicles.	3 poster presentations Oral presentation
Naples Workshop on Bioactive peptides 2022	The 2022 Naples Workshop on Bioactive Peptides once again brings together leading scientists from academia and pharma and biotech industries to present most advanced studies in peptide science.	Oral presentation
INTERNATIONAL PATHOLOGY CONFERENCE OF THE „VICTOR BABEȘ" INSTITUTE BUCHAREST	Cellular and molecular pathology; cardiac pathology; histopathology; nephropathology; neuropathology; omics in pathology; digital pathology	Oral presentation
Researchers' Night 2022 SuperScienceMe Research is your Re-Source	Annual Europe-wide public event, which displays the diversity of science and its impact on citizens' daily lives in fun, inspiring ways	Poster presentations
Euromembrane 2022	The overall goal of the event was to promote education and communication among membrane scientists and technologists at the European and International level.	Oral presentation
Small New World: Joint Meeting of ASEV & GSEV	Exciting topics such as nanovesicles as drug delivery vehicle, cellular sources, EV diagnostics and biomarkers as well as clinical application and regulatory compliance will be covered.	Poster presentations

5.7. Publication of MARVEL results

Publication of MARVEL results to relevant scientific and industrial periodicals, journals and key conferences in Europe was assured at highest scientific standards throughout the whole project lifetime. Joint publications from different partners were encouraged. Following the EC rules, the publications were submitted to the Open Access Issues of these Journals.

The publication of scientific results typically involves long time-to-publish periods. The MARVEL project publications aimed at substantial, matured, and verified project results, and thus, it was expected to appear at the project end. Nevertheless, several scientific papers we published already in the middle of the project. The list of the published, submitted, and upcoming publications is presented in the Table 4. Published and planned publications related to the MARVEL project are reported in Table 4.

Table 4. Published and planned publications related to the MARVEL project.

Partner	Year	Publication	Status
SCITEC-CNR	March 2021	**Extracellular Vesicles Analysis in the COVID-19 Era: Insights on Serum Inactivation Protocols towards Downstream Isolation and Analysis.** Roberto Frigerio, Angelo Musicò, Marco Brucale, Andrea Ridolfi, Silvia Galbiati, Riccardo Vago, Greta Bergamaschi, Anna Maria Ferretti, Marcella Chiari, Francesco Valle, Alessandro Gori, and Marina Cretich https://doi.org/10.3390/cells10030544 Cells	Published
	July 2022	**Compositional profiling of EV-lipoprotein mixtures by AFM nanomechanical imaging** Andrea Ridolfi, Laura Conti, Marco Brucale, Roberto Frigerio, Jacopo Cardellini, Angelo Musicò, Miriam Romano, Andrea Zendrini, Laura Polito, Greta Bergamaschi, Alessandro Gori, Costanza Montis, Lucio Barile, Debora Berti, Annalisa Radeghieri, Paolo Bergese, Marina Cretich, Francesco Valle bioRxiv: The preprint server for biology https://doi.org/10.1101/2022.07.19.500441	Preprint
	August 2022	**Comparing digital detection platforms in high sensitivity immune-phenotyping of extracellular vesicles** Roberto Frigerio, Angelo Musicò, Alessandro Strada, Greta Bergamaschi, Stefano Panella, Cristina Grange, Marcello Marelli, Anna M. Ferretti, Gabriella Andriolo, Benedetta Bussolati, Lucio Barile, Marcella Chiari, Alessandro Gori, Marina Cretich https://doi.org/10.1002/jex2.53 Journal of Extracellular Biology	Published
ITM-CNR	October 2022	**Multifunctional membranes for lipidic nanovesicle capture** Simona Salerno, Sabrina Morelli, Antonella Piscioneri, Mariangela Frangipane, Alessandro Mussida, Laura Sola, Roberto Frigerio, Alessandro Strada, Greta Bergamaschi, Alessandro Gori, Marina Cretich, Marcella Chiari, Loredana De Bartolo https://doi.org/10.1016/j.seppur.2022.121561 Separation and Purification Technology	Published
		Selective separation and enrichment of extracellular vesicles by functionalized hollow fiber membrane module	Planned
UNISR	October 2022	**Urine stabilization and normalization strategies favor unbiased analysis of urinary EV content** Riccardo Vago, Giorgia Radano, Davide Zocco, Natasa Zarovni https://doi.org/10.1038/s41598-022-22577-3 Nature	

	December 2022	**The cell type dependent sorting of CD9- and CD81 to extracellular vesicles can be exploited to convey tumor sensitive cargo to target cells** Stefania Zuppone, Natasa Zarovni, Riccardo Vago https://doi.org/10.1080/10717544.2022.2162161 Drug Delivery	Published
Cardiocentro	July 2022	**Meeting report of the 2nd Lugano ExoDay: extracellular vesicles as next-generation clinical biomarkers and therapeutic agents** Carolina Balbi, Marina Cretich, Lucio Barile https://doi.org/10.20517/evcna.2022.17 Extracell Vesicles Circ Nucleic Acids	Published
	August 2022	**Risk stratification of patients with SARS-CoV-2 by tissue factor expression in circulating extracellular vesicles** Jacopo Burrello, Elena Caporali, Lorenzo Grazioli Gauthier, Enea Pianezzi, Carolina Balbi, Elia Rigamonti, Sara Bolis, Edoardo Lazzarini, Vanessa Biemmi, Alessio Burrello, Roberto Frigerio, Gladys Martinetti, Tanja Fusi-Schmidhauser, Giuseppe Vassalli, Enrico Ferrari, Tiziano Moccetti, Alessandro Gori, Marina Cretich, Giorgia Melli, Silvia Monticone, Lucio Barile, https://doi.org/10.1016/j.vph.2022.106999 Vascular Pharmacology	Published

6. EAB cooperation

The MARVEL External Advisory Board was created not only to support the consortium during the technical specification phase at the start of the project, validation of results and flawless results exploitation but also to increase the Pan-European concept of this project and provide desirable feedback from other closely related European or national activities in this topic. The communication with EAB members was ensured through regular meetings (in person or through teleconferences).

The list of EAB members includes the following representatives:

Edoardo Marchisio, Sales and Marketing Director, Dia.Pro Diagnostic Bioprobes s.r.l.
Peter Ferdinandy, Founder and CEO, Pharmahungary 2000 Ltd
George G. Daaboul, Co-Founder and CSO, NanoView Biosciences
Carolina Egea, Business develp manager, Agarose Bead Technology

7. CONCLUSIONS

This document represents the Deliverable D6.11 “Final report on communication and dissemination activities”. The deliverable summarizes the dissemination and communication strategies which were implemented for the whole project duration, 30 months.

The target audience were defined in the document as well as the corresponding dissemination routes that were followed along the whole project:

- project website, dissemination materials and social media were addressed to a broad public.
- scientific publications and participation to conferences were addressed to the scientific community.
- workshops, events, press releases were addressed to potential technology users, policy makers, media.

MARVEL dissemination materials created awareness and informed the wide and various target audiences about the MARVEL project and its development through the project website and social media channels. In order to create attractive content for these channels, Flyer messages were created and showed the project achievements in an appealing way. It focuses mainly on the presenting of the technical progress withing the project while general posts cover the rest of the information for the dissemination. On the other hand, Events calendar helped to disseminate news about events where MARVEL partners took part in disseminating the project. The promotional materials such as MARVEL, poster and roll-up were used by MARVEL partners whenever they present at such events which include conferences, attend exhibitions, workshops or establishment of contacts with media.

For the whole course of the MARVEL project 4 videos have been made and distributed through the project’s communication channels. All videos were targeted to broad public and contained information about individual partners, their role, plans, and upcoming results within the MARVEL project.

Two key events MARVEL symposium entitled “Extracellular Vesicles as next-generation clinical biomarkers and therapeutic agents” and MARVEL final workshop entitled “Extracellular Vesicles: from research to medical applications and market readiness” were organised in the frame of the MARVEL project. Overall, both events were attended by more than 140 experts and young investigators working in the expansive field of Extracellular Vesicles. This gave high visibility to the MARVEL project and its results as well as helped to build a collaboration network and strong community in social media.

List of Open Access journals where MARVEL publications were published and key meetings where MARVEL project was disseminated was presented in this document. It was the role of the main author to propose fair and equal distribution of co-authorships and determine the order. Each partner was free to choose any national or international event or conference, which may be interesting for showing results from the MARVEL project.

When disseminating the results of the MARVEL project, the following acknowledgment of the EU funding was always included: “The project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement n°951768, project MARVEL”. The dissemination of the project’s achievements should never jeopardize the potential protection of generated intellectual property and further industrial application. Therefore, before any dissemination activity (publication, presentation, posts) strict rules of prior notice to all partners were applied, according to EC guidelines: prior notice of any planned publication should be given to other consortium members at least 45 calendar days before the publication. The Dissemination Manager in cooperation with the Exploitation Manager followed the approval processes and acted as an internal executive approval body for any dissemination action organized by different partners.

8. DEGREE OF PROGRESS

This deliverable D6.11 is 100% complete and represents the final version report on the activities performed in the task T6.1 “Dissemination and communication”.

9. DISSEMINATION LEVEL

The Deliverable D6.11 is public and therefore it will be available to download on the project’s website.