



06/2023 | CARE Biannual Newsletter  **C A R E**
CORONA ACCELERATED R&D IN EUROPE

CARE still cares. The public health emergency may be over, but Europe's largest COVID-19 consortium is still working hard to prepare us for future pandemics

The CARE consortium is a public-private coalition uniting scientists from academia, research centres, SMEs, EFPIA members and IMI Associated Partners in the fight against coronavirus. This multidisciplinary organisation cuts across traditional silos by mixing expertise from 38 different organisations. Having convened earlier this month for the 3rd Annual Meeting in Leuven, Belgium, the consortium re-affirmed its commitment to pandemic preparedness. **Read on to learn about why CARE still matters, find out more about some interesting results and gain insights into the role of one of our SME partner organisations, Ai-biopharma.**

CARE – Committed to the COVID-19 Cause

According to a statement from the World Health Organisation on 5th May 2023, "COVID-19 is now an established and ongoing health issue which no longer constitutes a public health emergency of international concern (PHEIC)". So should we still CARE?

When CARE was initiated, the world was reacting to a rising pandemic which claimed many lives globally, disrupted economies, upset personal lives and so on, due to the pervasive SARS-CoV-2 virus. Over the course of the life of the CARE consortium, we have seen many variants which have challenged our approaches and had varying effects on the severity of the disease, and we have also seen the pandemic peak and thankfully decline through the introduction of vaccines and increasing immunity in the global population. (Cont'd)



CARE – Committed to the COVID-19 Cause (Cont'd)

The decline has now reached a point where the WHO deems COVID-19 to be an “established and ongoing health issue” rather than a public health emergency of international concern. COVID-19 is now expected to manifest as mini-waves rather than seasonal surges, and furthermore, it has left a legacy in the form of Post COVID-19 Condition (Long COVID) which will need to be managed for the many people affected. Availability of more potent antivirals may assist in preventing or mitigating the long term consequences of SARS-CoV-2 infection.

In parallel with this reality, we are starting to see organisations who quickly mobilised resources to help address the COVID-19 challenge in 2020, reprioritise core business efforts. So – does CARE still have something to offer? The key point is that the WHO deems the current position to be an “established and ongoing health issue”. There are also certain populations (such as immunocompromised individuals) for whom there is still an unmet need for COVID-19 prophylaxis and treatment. We also know that the virus continues to mutate, which may alter effectiveness of current approved treatments.

The emergency may be over, but we still need to be prepared. That is why CARE continues to stay true to its commitment to pandemic preparedness and its expert academic and industry teams continue to move forward in their endeavours, generating and applying new knowledge while responding to the everchanging context.

In the remaining two years of the CARE consortium, we anticipate bringing one or more variant agnostic medicines to the clinic, optimise other potential novel treatments that can be used in future pandemics, as well as continuing to share our findings as we progress.

So, **CARE does care**, and continues to strive to make a meaningful contribution to the world’s defences against the SARS-CoV-2 virus, as well as pandemics of the future.



Click image to access the statement



Inserm VRI-led research reveals predictors of severe disease and Post COVID Condition symptoms

The CARE partner Inserm-VRI has recently published two articles pertaining to severe SARS-CoV-2 infected patients from the French COVID-19 cohort. The first article delves into the severity of SARS-CoV2 infection, to identify markers associated with the extent of severity of SARS-CoV2 infection. The second article characterized gene expression and cellular markers related to the persistence of symptoms post a severe infection.



Identifying COVID-19 patients who are at high risk of worse prognosis after severe disease is challenging. Inserm-VRI studied the blood samples of 61 patients who were hospitalized with severe COVID-19 and compared it to that of healthy people. They found that certain immune cells were abnormal, and there were many markers of inflammation. They identified a specific neutrophil activation marker, called CD177, which is present in high levels in the sera of severe COVID-19 patients and could predict which patients might develop severe disease. More importantly, measuring CD177 over time allowed them to identify patients with poor prognosis from those who will recover. These findings suggest that neutrophil activation is a hallmark of severe COVID-19 disease, and CD177 assessment could help identify patients at high risk for severe disease. [Click here](#) for the publication.

After recovering from severe COVID-19, some people may still experience prolonged symptoms. The CARE partner Inserm-VRI investigated the immune system dysfunction that causes these long-lasting symptoms. They analyzed the blood of severe COVID-19 patients at 1, 3 and 6 months after leaving the hospital and found abnormalities that persisted up to 6 months after discharge. These included high levels of markers of inflammation, changes in certain types of immune cells, a decrease in antibodies against the virus, and changes in gene expression related to blood clotting. They also identified a set of genes associated with thrombotic events in the acute phase of infection. The fact that these abnormalities persisted for up to six months, even in patients who were no longer experiencing symptoms, suggests that continued monitoring and preventive measures may be necessary. [Click here](#) for the publication.





Introducing Ai-biopharma – a CARE SME organisation



Ai-biopharma was set up in 2018 by **Dr Cyril B. Dousson**. It is a Biopharma company which specializes in research into medicinal chemistry of preclinical drug candidates, based in France.

Ai-biopharma is an early-stage small molecule drug discovery company advancing its antiviral programmes based on a proprietary Chemoinformatic and Artificial Intelligence platform. To support the design and accelerate the discovery effort of new preclinical candidate drugs, the company has developed in-silico solutions of chemoinformatics, molecular modelling, docking, data analysis, Structure Activity Relationship (SAR), proprietary database software and also an artificial intelligence platform.



Dr Cyril B. Dousson
(CEO and Director Medicinal Chemistry)
co-founded Ai-biopharma to address a critical need of more effective, safer antiviral treatments

The company is developing, in its laboratories, innovative drug candidates for certain viral diseases, including Hepatitis B and SARS-CoV-2.

Why did Ai-biopharma choose to get involved in CARE?

Ai-biopharma decided to get involved with CARE based on its founding team's extensive antiviral expertise. They believed that direct acting antivirals such as polymerase inhibitors would be the best answer to SARS-CoV-2 viral replication and variants coverage.

What has Ai-biopharma delivered for CARE?

Ai-biopharma's achievements in CARE include the screening of a selected Direct Antivirals library (Work Package 1), the in-silico screening against NSP12 of large in-house virtual libraries designed for polymerase inhibition (Work Package 2), selection of potential hits from the screening (Work Package 2) and confirmation of four hit series of polymerase-like inhibitors. These series are currently advancing to move to the potential selection of a lead candidate (Work Package 3).





Introducing Ai-biopharma (Cont'd)

In addition to Dr. Dousson, the Ai-biopharma team includes



Dr Thierry Convard
(Ass. Director AI and Chemoinformatics)



Dr. Claire Pierra Rouviere
(Ass. Director Medicinal Chemistry)



Dr. Thifanie Christine
(Research Chemist)

What benefits has Ai-biopharma enjoyed through participating in CARE?

Besides enabling access to unique testing capabilities, Dr. Dousson commented, “we continue to enjoy the opportunity to connect and collaborate with high profile scientists from around the world, from both industry and academic institutes working in the antiviral field at large”.

Annual CARE Meeting

CARE work package leaders and scientists met for the 3rd time for intense exchange and discussions about achievements and next steps on 6 and 7 June in Leuven, Belgium

The densely packed two-day agenda encompassed presentations from academic and industrial partners across all work packages. It reflected the unique set-up of the CARE consortium, which spans the whole drug discovery value chain reaching from phenotypic and target based small molecule discovery and lead optimization, via antibody discovery to efforts to better understand the disease pathology, pre-clinical and clinical testing. All this managed by a work-package to establish processes to bring together such a vast and diverse group into one streamlined drug discovery engine. (Cont'd)



Annual CARE Meeting (Cont'd)

Good progress has been made over the past 12 months across all work packages yielding a number of candidate molecules moving towards the clinic, new technologies developed and implemented as well as foundational work pertaining to the ethical, legal and societal issues on broad spectrum anti-viral therapeutics.



The participants discussed the prioritization of CARE's candidate molecules and the acceleration of key assets. Another focus was on how CARE can contribute with its results as well as with its experience in bringing together a highly diverse group of leading academic and industry organizations to improving pandemic preparedness for the future.

It was a highly successful meeting under the auspices of KU Leuven, as also reflected by CARE's Scientific and Ethics Advisory Board. Next year's meeting will be hosted by the Leiden University Medical Centre in Leiden in the Netherlands.

CARE in Social Media



More information about CARE can be found through its [LinkedIn](#) and [Twitter](#) pages. Or search for **#CAREvsCOVID**. To support us we invite you to take three simple steps



- Follow and connect to [CARE LinkedIn](#) account and [CARE Twitter](#) account
- Like, comment or repost CARE posts
- Invite your network to follow, connect, like, comment and repost CARE posts



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Inserm



VACCINE RESEARCH INSTITUTE

Johnson & Johnson



innovative medicines initiative





All about CARE

CARE is one of [8 IMI EC funded consortia](#) playing a role in supporting efforts targeting coronavirus. It was launched in April 2020 and is Europe's largest scientific research initiative committed to tackling COVID-19.



Its dual goals were to find solutions to address the arising emergency; and also for future pandemic preparedness, exploring small molecule and antibody options.

CARE comprises 38 highly respected partners from around the globe, bringing together the relevant academic and industry expertise, with a budget of 76 million euro split between contributing EFPIA partners and matched by the European Commission. It is led by Marnix Van Loock of Johnson & Johnson, with Professor Yves Lévy of VRI-Inserm as the project co-ordinator. Kumar Singh Saikatendu (Takeda, project co-lead) stepped down this month.



Project Coordinator: Professor Yves Lévy, Professor of Clinical Immunology and Executive Director, VRI-Inserm

Project Lead: Marnix Van Loock, Senior Scientific Director and R&D Lead of Emerging Pathogens, Global Public Health, J&J



The consortium comprises three research pillars, addressed by eight work packages working independently and collaboratively towards our goals.

		Emergency response	Long-term strategy	
		Pillar 1 Drug repurposing	Pillar 2 Small molecule drug discovery	Pillar 3 Virus-neutralising antibody discovery
Early discovery	WP1: Anti-coronavirus drug discovery in phenotypic virus cell-based assays			
			WP2: Target-based drug discovery and design	
Late discovery			WP3: Hits to leads	
				WP4: Antibody-based immunotherapies
Clinical development			WP5: System biology	
			WP6: From lead to pre-clinical candidate and proof of concept in animal models	
		WP7: Clinical evaluation of repurposed or novel SARS-CoV-2 antivirals or antibodies		
		WP8: Management, governance, communication, dissemination and exploitation		





Initial efforts in the emergency space did not yield results, but progress has steadily been made in the preparedness space in both small molecules and antibodies, with teams continually taking account of the evolving context as the virus yields new variants.

The consortium is steadily building a pipeline of potential small molecule assets to move forward, with promising signs of differentiation from current standard of care. On the antibody front, two very promising candidates were developed with good breadth and potency across all currently known variants, which are now being developed in the clinic, outside of CARE.

CARE’s ultimate objective is to run two phase 1 and one phase 2 clinical trials; with a bespoke clinical trial platform in readiness for this. The consortium will report on these trials before the project concludes in March 2025. In addition to our own “home grown” pipeline of assets, the consortium is now considering a number of assets from beyond the consortium.

CARE is committed to serve society through science and collaboration. Its partners are dedicated to undertaking efforts to make potential new treatments accessible for broad populations including in low and lower-middle income countries at an affordable price. Naturally, the consortium is keen to focus its remaining resources towards the most promising candidates that will bring new benefit to patients.

More information: Go to the care website for more information about

The CARE project overview	The CARE consortium partners	The CARE Clinical Trial Platform
CARE news	CARE publications	CARE resources



About this Newsletter

Having passed the project half way point, with many new discoveries and achievements under our belt, we will be sharing our progress each June and December via the newsletter; as well as more frequent posts being shared on LinkedIn and now also Twitter.

All CARE partners will automatically receive a link to this newsletter. If you would like to be added to the distribution list please email the [CARE Project Management Office](#).

Reminders

This project has received funding from the Innovative Medicines Initiative 2 Joint Undertaking (JU) under grant agreement No 101005077. The JU receives support from the European Union's Horizon 2020 research and innovation programme, EFPIA, BILL & MELINDA GATES FOUNDATION, GLOBAL HEALTH DRUG DISCOVERY INSTITUTE and UNIVERSITY OF DUNDEE.

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