COVIRNA

A diagnostic test to improve surveillance and care of COVID-19 patients

Grant Agreement Number: 101016072

Horizon 2020 FRAMEWORK PROGRAMME

TOPIC: MEDICAL TECHNOLOGIES, DIGITAL TOOLS AND ARTIFICIAL INTELLIGENCE (AI) ANALYTICS TO IMPROVE SURVEILLANCE AND CARE AT HIGH TECHNOLOGY READINESS LEVELS (TRL)

Topic identifier: **SC1-PHE-CORONAVIRUS-2020-2B**

Type of Action: Innovation Action (IA)

DELIVERABLE D6.3
Deliverable title: Project video

Abstract: The video introduces the project to researchers and clinicians by presenting the problematic, the project objectives, the methodology and the consortium partners.

Due date of deliverable: Month 6
Actual submission date: Month 7
Start date of the project: November 1st, 2020
Duration: 24 months
Organisation name of lead contractor: EHMA
Contributors: UM, LIH
Dissemination level: PU[1]
Revision N°: 0.1

[1] **PU** Public (must be available on the website)

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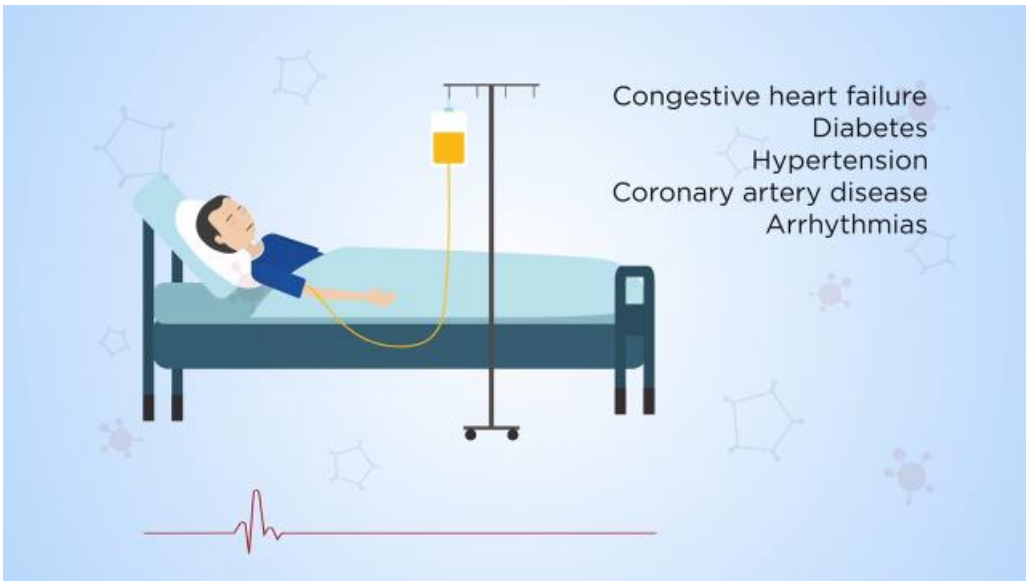
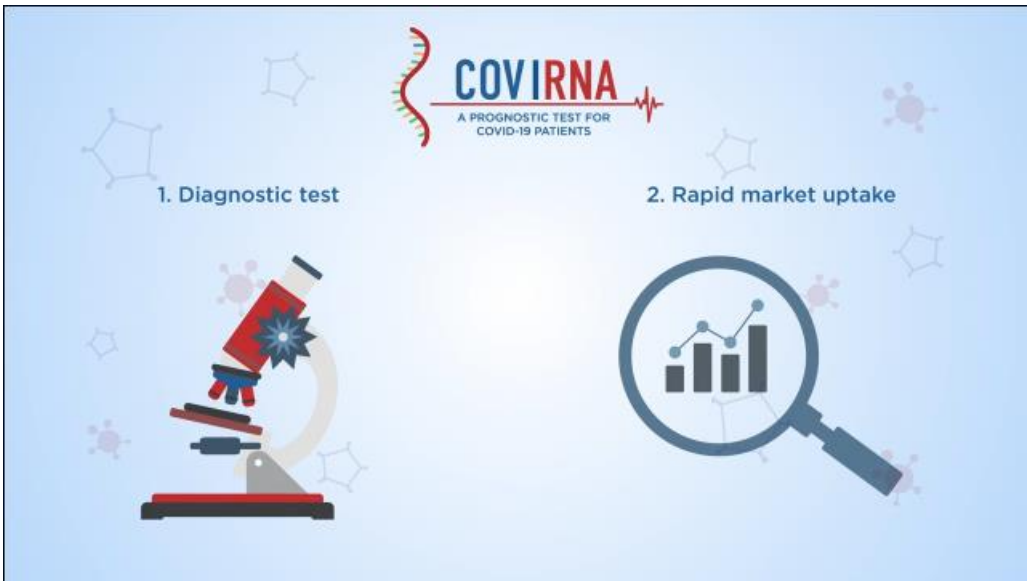
Executive Summary

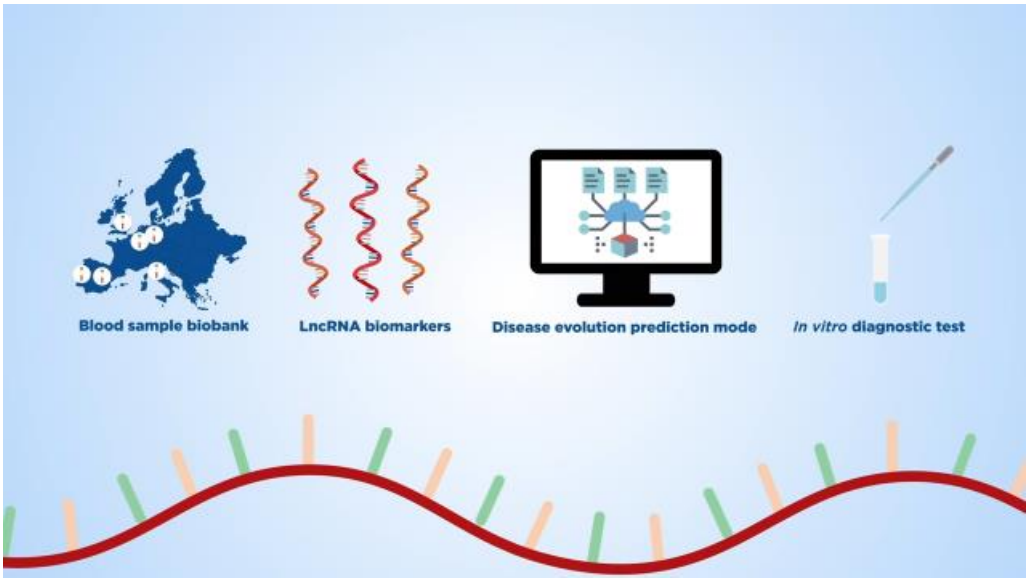
Background	The document presents the project video and provides details on the production process.
Objectives	The objective of deliverable D6.3 is to introduce the project to researchers and clinicians by presenting the problematic, the project objectives, the methodology and the consortium partners. The project video will be made available on the project website and it will be used as well at both project events and international events in order to raise awareness on the project.
Methods	The methods that were used for the creation of the project video are: development of a capture form, development of a production plan with clear production phases, regular reviews and consultations between EHMA, UM and LIH at each production phase.
Results & implications	The result of the work carried out is a project video that presents the problematic, the project objectives, the methodology and the consortium partners.

1. Project video

The project video introduces the project to researchers and clinicians by presenting the problematic, the project objectives, the methodology and the consortium partners. Below there are a few screenshots of the video illustrating these aspects.







The video was developed in collaboration with the project partners UM and LIH and the animation company Sci Ani. The development process included the following steps:

- *Step one*: EHMA and UM filled in an information capture form to provide data to the animation company which included: short summary of the project and useful links that could be used as background information, key points that need to be highlighted in the video, voiceover and background music preference. The information capture form is attached as Annex 1 to this document.

- *Step two*: Based on the information capture form, the animation company Sci Ani developed an animation script (attached as Annex 2 to this document) describing in detail the scenes of the video. The animation script was reviewed by EHMA, UM and LIH.

- *Step three*: Following the feedback and approval of the animation script by EHMA, UM and LIH, the animation company developed a concise voiceover which has been reviewed as well by EHMA, UM and LIH.

- Step four: Based on the animation script and the voiceover, the animation and project video itself was produced and went thought final reviews made by EHMA, UM and LIH.

The project video is currently available at the following link https://www.dropbox.com/s/83cw13ztv6d9t6q/EmmaRobinson_005.mp4?dl=0 and it will also be made available on the project website and on YouTube.

2. Annexes

Annex 1

Information Capture Form

Target audience – who are you aiming the animation at?	Researchers and clinicians
Any example animation video links that you would like your animation to resemble?	https://www.youtube.com/watch?v=rmWo62lBQOc
Summary of your work (100-150 words max)	COVIRNA project aims to foster the development of a novel diagnostic test to predict COVID-19 outcomes for patients and improve the cooperation between European research institutions to strengthen the response to the pandemic. In particular, the project will complete and deploy a minimally-invasive prognostic system based on cardiovascular biomarkers of COVID-19 clinical outcomes, combined with a predictive model built on digital tools and artificial intelligence analytics. The project boasts a complementary consortium of 15 European partners from healthcare, academia and industry, which pooled their expertise and resources to build a multidisciplinary and multicentre study with the common aim to improve individualised surveillance, care and follow-up of COVID-19 patients in the context of the current pandemic.
Any key points that you want to highlight in the animation **(please bullet point and include any imagery ideas you have)** Or do you already have an outline for the animation? If so, please provide either in this section or in a separate document.	The video should highlight the following: • **The issue:** COVID-19 disease has reached pandemic proportions. A number of recent studies suggested that pre-existing cardiovascular disease seams to predispose COVID-19 infection, while it increases the risk of adverse clinical outcomes in infected patients. Coronary artery disease, diabetes, hypertension, congestive heart failure and arrhythmias greatly contribute to worsening clinical outcome. Patients with pre-existing cardiovascular conditions had the highest morbidity following infection. Being able to identify COVID-19 patients at risk of developing cardiovascular events leading to death would allow improving surveillance and care. Currently, there is no accurate method to predict outcome of COVID-19 patients. • **The objectives of the COVIRNA project:**

	1.Generating a diagnostic test based on cardiovascular RNA biomarkers highly predictive of the clinical outcomes of COVID-19 patients. 2. Enabling the rapid market uptake of the diagnostic test with the aim to improve individualised surveillance, care and follow-up of patients in the context of the current pandemic. • **How the COVIRNA project will achieve these objectives?** **At technological and research level** 1. By building a biobank of 2,000 blood samples from existing cohorts of COVID-19 patients throughout Europe to perform a multicentre international study; 2. By achieving biomarker qualification and select a subset of highly specific IncRNAs predictive of COVID-19 clinical outcome; 3. By building a disease evolution prediction model based on selected IncRNAs and clinical data; 4. By designing a reliable, cost-efficient and easy to use in vitro diagnostic test to predict COVID-19 clinical outcomes. **At socio-economic and regulatory level** 1. By achieving CE marking of the innovative COVIRNA prognostic solution; 2. By establishing a strategic science-policy-business-society consultation to optimize the design of the diagnosis solution complying with end-users' needs, current EU regulation and highest quality standards to enable and accelerate their uptake into clinical practice; 3. By raising stakeholders' awareness of advantages of the diagnostic tool and sharing practical knowledge on it. • **Where to find more information on the project?** The website of the project: https://covirna.eu/ • **The COVIRNA project consortium:** The list of project partners can be found on this link.
Do you have any reference images that we could use as a starting point to create our own imagery? If yes, please can you provide these files.	Reference image no. 1 Reference image no. 2 Reference image no. 3 Reference image no. 4

Links to papers/articles to use as background information	https://covirna.eu/ https://covirna.eu/wp-content/uploads/2021/03/COVIRNA-FLYER-.pdf https://covirna.eu/tackling-covid-19-the-new-eu-funded-covirna-project/
What funding agency supported this work?	European Union's Horizon 2020 research and innovation programme The logo of the European Union and the following text should appear in the video: "This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement 101016072."
Do you want to include an acknowledgement slide at the end? Do these funders or organisations have logos? If so, please can you provide the logo(s) in ai or eps format? *(original logo files)*	There should be an acknowledgement slide at the end. The list of organisations to be featured on the acknowledgement slide can be found here.
Voiceover preference. *As standard, we use Sophie (showreel here) or John (showreel here). Please let us know which you prefer. If you have different requirements, please let us know e.g. gender, accent etc.*	Sophie
Would you like background music? *(This would be subtle and would not distract from the content)*	Here is a link to some options from our background music catalogue: https://www.dropbox.com/sh/vufrpa61onm9rxg/AAA3LYOUbQIWwMrOYJjketOga?dl=0 **Yes, we opt for background music, something similar to track no. 2.**
Please provide a short profile of yourself or the team behind the work which will go alongside the video when uploaded to our portfolio	A consortium of 15 European partners from healthcare, academia and industry
Social media information to provide	1. Title (max 70 characters to fit YouTube requirements) – ideally please frame the title as a short question. *Note: Call to action videos with questions in their titles perform significantly better than ones that don't.* **COVIRNA project: Strengthening the response to the pandemic** 2. Description – anything you want to describe your animation, lab or yourself (30-75 words). **Bringing together 15 European partners from healthcare, academia and industry, the COVIRNA project aims to generate a diagnostic tool to identify COVID-19 patients at risk of developing fatal cardiovascular complications in the context of the current pandemic, ultimately leading to their improved surveillance and care.** 3. Any websites*, affiliations, social media (FB, Twitter, LinkedIn), you want mentioned in the description.

	We would suggest that you include links and references to your relevant research paper(s).* **The website of the project: https://covirna.eu/ **Twitter: @Covirna_EU** **LinkedIn: Covirna Project_EU** 4. Any specific tags you want used in the video – these tags are used to aid with search queries for the video. Please separate tags with commas. **COVIRNA, COVID-19, pandemic, test, EU project**

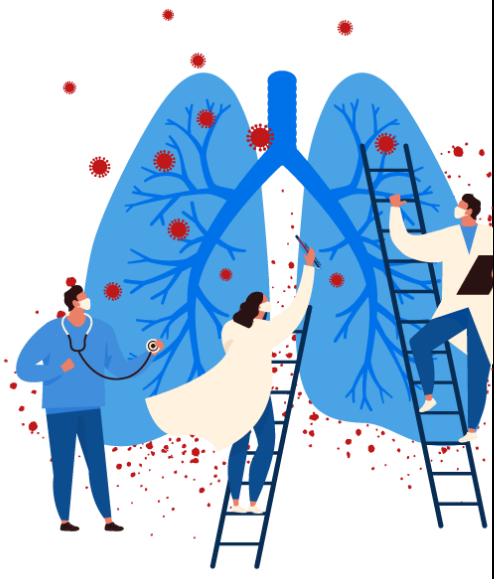
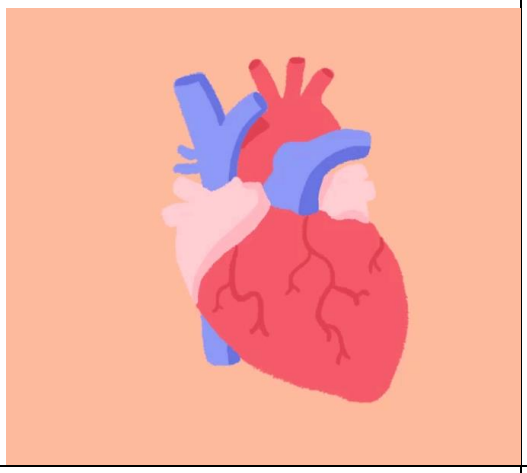
Annex 2

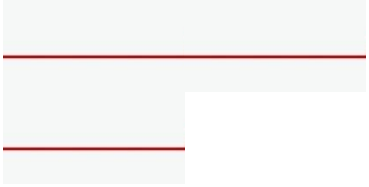
Animation Script

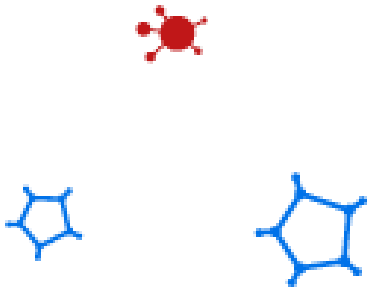
Client Name	**Dr Emma Louise Robinson**
Title (70 characters max and ideally phrased as a question)	COVIRNA: Can RNAs aid in predicting cardiovascular outcomes of COVID-19?
Description (30-75 word description which summarises the key message – will go alongside the video on YouTube)	**Bringing together 15 European partners from healthcare, academia and industry, the COVIRNA project aims to generate a diagnostic tool to identify COVID-19 patients at risk of developing fatal cardiovascular complications in the context of the current pandemic, ultimately leading to their improved surveillance and care.**
Word Count	**255**
Maximum Word Count	**260**
Format	**2D**
Length	**2 minutes**
Soundtrack	**Track 2 – Uplifting.mp3 https://www.dropbox.com/sh/vufrpa61onm9rxg/AAA3LYOUbQIWwMrOYJjketOga?dl=0**
Note to animators	

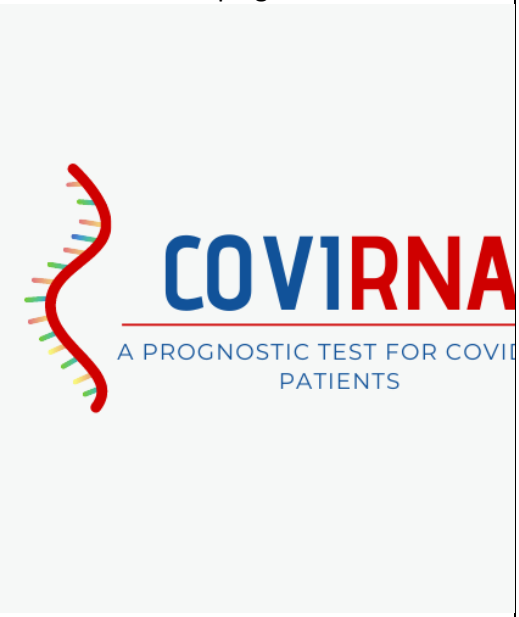
Scene number	Text	Scene description	Queries/Comments
1.	As the global COVID-19 pandemic struck, scientists have strived to understand what makes people more susceptible to this severe disease.	Opening scene: A group of spiky red balls (sars-COV2 virus) circle around a large blue Earth against a blue background. (not in 3D though)  When the VO says "scientists have strived", cut to a series of scientists all	

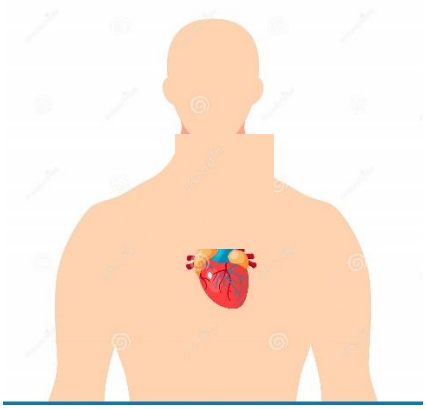
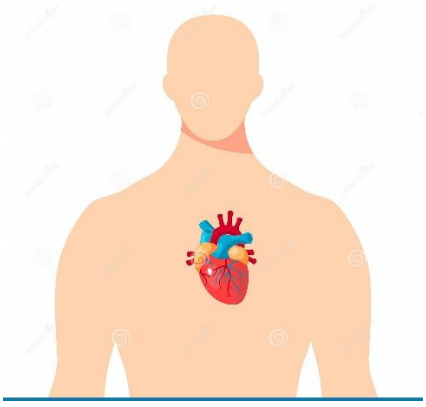
		studying oversized scientific equipment: test tubes, beakers, shapes and writing on whiteboards and computer screens. The scene pans slowly along from left to right. The following words appear spread out on the white boards and computer screens: **COVID-19** **Cardiovascular** **RNA** **Risk factors** Reference image: https://covirna.eu/wp-content/uploads/2021/01/lab-1.png  The scientists are made up of multiple genders, races and ages, all wearing white coats and masks over their mouth and nose. In the background, blue and red shapes bob up and down.	
2.	Recent studies suggest the heart may play a crucial role.	[Continuing from previous scene] The series of scientists continues until it reaches a group of three studying a large red heart, which beats by expanding and contracting with a regular rhythm. Two scientists stand on ladders to examine the heart, one holding a clip board. Another scientist stands on the ground holding a stethoscope to it. Reference image (show a heart instead of lungs, reversing the red and blue colour	

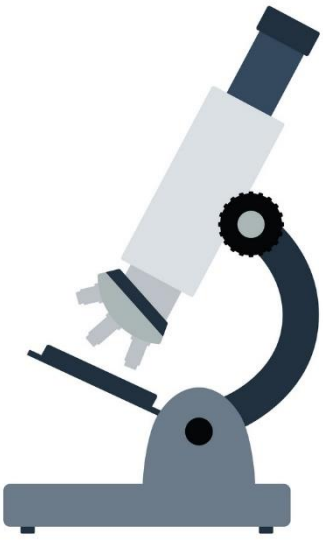
		scheme so that the heart is mostly red and background shapes are blue): https://covirna.eu/wp-content/uploads/2021/01/Lungs-1.png  	
3.	Pre-existing cardiovascular disease appears to predispose COVID-19 patients to infection, while also increasing the risk of adverse outcomes, including death.	[New scene] Against a plain background, a middle-aged man with neutral-toned skin and dark hair lies in a hospital bed, facing side-on. He is wearing a dark blue top and covered by a pale blue sheet. In front of the bed is a drip: a fluid-filled bag on a stand, attached to the man by a tube leading to his arm. Reference image:	

		 Above the man, a straight red line with a periodic zig zag moves continuously across the screen. Reference image: https://twitter.com/Covirna_EU/header_photo  Throughout the VO, the following pieces of text appear onscreen (each line appears one-by-one), spaced evenly around the man: **Coronary artery disease** **Diabetes** **Hypertension** **Congestive heart failure** **Arrhythmias** When the VO says "death", the man closes his eyes and the red line across the top of the screen becomes a continuous straight line, without the zig zag: 	

4.	There is currently no accurate method to predict clinical outcomes of COVID-19.	[New scene] A pale blue background with many small blue and red molecule shapes floating and bobbing slightly up and down. https://covirna.eu/wp-content/uploads/2021/01/lab-1.png  A large circle with a dark blue outline develops in a wipe with a clockwise motion. Inside the circle, the following icon then appears, with the blue line developing gradually from right to left: 	
5.	COVIRNA is a patient-centred Innovation Action, bringing together 15 European partners to develop a tool to identify COVID-19 patients at risk of fatal cardiovascular complications.	[Continuing from previous scene]	

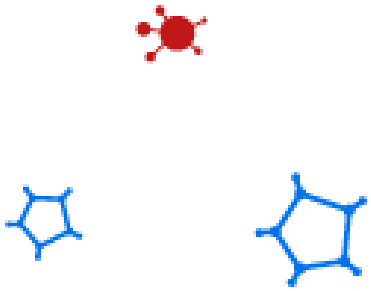
		The circle flips around, revealing the following icon on the other side:  As the circle flips, around the central circle, 15 other, smaller blue circles, each containing the logo of one of the COVIRNA consortium partners, appear: https://covirna.eu/consortium/ Straight blue lines between each of the 15 circles, connecting each of the COVIRNA partner logos, develop. The COVIRNA icon then expands to grow outside of the circle, in the centre of the screen and developing into:  	

		The red line develops gradually from left to right. When the VO says "identifies COVID-19 patients at risk of fatal cardiovascular complications", the blue text in a smaller font appears: **A prognostic test for COVID-19 patients** At the same time, the partner logos fade away. Inside the circles, they are each replaced with an icon of a human.  Four of the icons have a visible heart over their chest, indicating that these individuals are at risk of cardiovascular complications:  The circles surrounding these icons with a visible heart turn red. Hi-res logos are here: https://www.dropbox.com/sh/rcxkh7rr8ykau94/AADM4I8r14zjHZfUJAmbDWJna?dl=0	
6.	The project has two main goals.	[Continuing from previous scene]	

		The COVIRNA logo shrinks slightly and moves upwards to the top centre of the screen.	
7.	Firstly, to generate a diagnostic test based on cardiovascular RNA biomarkers to predict clinical outcomes.	[Continuing from previous scene] The following text and icon (in COVIRNA branding colour scheme) below it appears onscreen, slightly left of centre: **1. Diagnostic test**  Zoom in on the microscope slide, where the lens is focused:  Then cut to a close up of the microscope slide, several showing pieces of RNA (long lines with several multi-coloured shorter lines coming off at 90 degrees) wiggling around:	

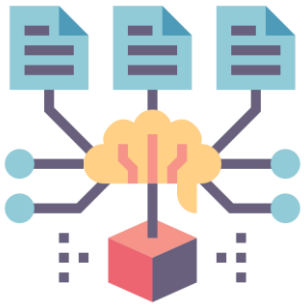
			
8.	Secondly, to enable rapid market uptake of the test to improve individualised surveillance, care and follow-up of patients.	[Continuing from previous scene] Zoom back out to show the microscope and text at the left of the screen. The following text and icon below it appears onscreen, slightly right of centre: **2. Rapid market uptake**  The magnifying glass swings downward to cover the graph:	

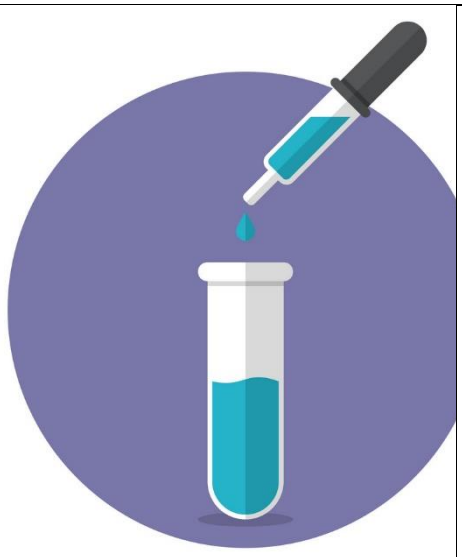
		 Zoom into one of the blue points on the graph inside the magnifying glass. Then cut to a black female nurse standing over an older female patient in a hospital bed:  Zoom back out to show the microscope icon, graph and magnifying glass icons, and text on screen with the COVIRNA logo.	
9.	So how will COVIRNA achieve these objectives?	[New scene] The same pale blue background with many small blue and red molecule shapes floating and bobbing slightly up and down. https://covirna.eu/wp-content/uploads/2021/01/lab-1.png	

		 A large, pale red question mark appears in the centre of the screen, followed by the following text in a dark blue font over the top of it: **HOW** 	
10.	Using 2,000 blood samples from existing Covid-19 patient cohorts, COVIRNA builds a biobank to perform a multicentre international study.	[New scene] Before the VO begins, the following text appears on screen in a large font in the centre: **On a technology and research level** When the VO begins ("Using"), the text disappears. Cut to map of Europe, with land masses in dark blue against a pale background. Reference: https://covirna.eu/wp-content/uploads/2021/03/COVIRNA-FLYER-.pdf	

		 One-by-one, seven blood sample vials pop up across the map:  They appear in Luxembourg, the UK, Germany, Italy, Spain, and Portugal. The following text appears below the map: **Blood sample biobank** Then zoom out of the map and blood sample vials. Along the bottom of the screen a slightly wavy line, with multi-coloured shorter lines coming upwards off it at regular intervals, develops: 	
11.	After achieving biomarker qualification, COVIRNA will identify a subset of highly specific long non-coding RNAs that are predictive of COVID-19 clinical outcome.	[Continuing from previous scene] The map moves with the text to the left of the screen. The wavy line remains continuous, but also moves from right to left like a conveyor belt.	

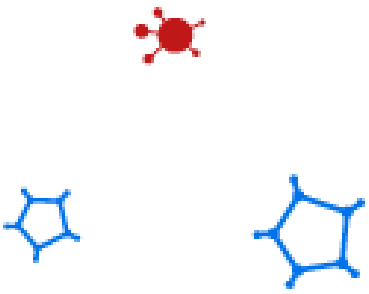
		As the conveyor belt moves, a collection of RNA icons arrives from the right edge of the screen and then pauses in the middle. Zoom into the icons. The RNA icons are based on the following reference icon, and of varying lengths with varying combinations of colours in the COVIRNA branding colour scheme:  The following text appears below them: **lncRNA biomarkers**	
12.	Using the lncRNAs and clinical data collected, they can build a disease evolution prediction model.	[Continuing from previous scene] Zoom out from the icons, which move with the text to the left of the screen. The wavy line remains continuous, but also moves from right to left like a conveyor belt. As the conveyor belt moves, a computer screen showing a model arrives from the right edge of the screen and then pauses in the middle. Zoom into the computer screen. Model reference:	

		 Computer screen reference:  The following text appears below them: **Disease evolution prediction model**	
13.	Finally, they will design a reliable, cost-efficient, and straightforward *in-vitro* diagnostic test to predict COVID-19 clinical outcomes.	[Continuing from previous scene] Zoom out from the computer screen, which moves with the text to the left of the screen. The wavy line remains continuous, but also moves to from right to left like a conveyor belt. As the conveyor belt moves, an image of a pipette dripping blue liquid into a test tube arrives from the right edge of the screen and then pauses in the middle. Zoom into the pipette and test tube:	

		 The following text appears below them: ***In vitro* diagnostic test** Zoom out of the pipette and test tube to show all four images and corresponding text along the RNA line: 	
14.	COVIRNA will establish a multidisciplinary consultation to optimise the diagnostic solution's design, meeting the highest quality standards and achieving CE marking.	[New scene] Before the VO begins, the following text appears on screen in a large font in the centre: **On a socio-economic and regulatory level** When the VO begins ("COVIRNA"), the text disappears. Cut to a diagram of one central circle, surrounded by lines leading to six other, smaller circles, which appear one-by-one:	

		 In the middle circle is the following text: **COVIRNA strategic consultation** "COVIRNA" is in the font of the logo: COVIRNA Hi-res logos are here: https://www.dropbox.com/sh/rcxkh7rr8ykau94/AADM4I8r14zjHZfUJAmbDWJna?dl=0 In the surrounding circles are the following pieces of text (each line of text is in a different circle): **Research institutions** **Industry** **Policymakers** **Healthcare providers** **Patients** **Society** When the VO says "CE marking", a large CE symbol appears in the centre of the screen, as if stamped on:	

			
15.	The project will raise stakeholders' awareness of the novel diagnostic solution as a tool for healthcare professionals and encourage sharing of practical knowledge to achieve the best health outcomes.	[Continuing from previous scene] The CE marking symbol disappears. A small blue circle travels from one surrounding outer circle, along the line connecting it to the middle circle. It then travels out from the middle circle to a different outer circle.   	

		This repeats throughout the VO. When the VO says "achieve the best health outcomes", cut to a diverse group of COVID-19 patients, all wearing masks. The patients turn to each other and acknowledge each other. Reference: https://covirna.eu/wp-content/uploads/2020/12/people.png 	
16.		[New scene] A pale blue background with many small blue and red molecule shapes floating and bobbing slightly up and down.  The following text and corresponding icons appear on screen: **Discover how RNAs aid in predicting cardiovascular outcomes of COVID-19. Visit covirna.eu.**	

		@COVIRNA_EU **Covirna Project_EU**	
17.		[Ending shot] The following logo and text appear on screen:  **This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement 101016072.** The EU logo and text disappear. This is then followed by a screen with the following logos: https://covirna.eu/consortium/ LUXEMBOURG INSTITUTE OF HEALTH RESEARCH DEDICATED TO LIFE FIRALIS BRIDGING SCIENCE TO CLINICS uni.lu | LCSB	

		Imperial College London Maastricht University EHMA European Health Management Association hhu Heinrich Heine Universität Düsseldorf THE UNIVERSITY of EDINBURGH IUS INTERNATIONAL UNIVERSITY OF SARAJEVO I.R.C.C.S. Policlinico San Donato Gruppo San Donato	

		     Hi-res logos are here: https://www.dropbox.com/sh/rcxkh7rr8ykau94/AADM4I8r14zjHZfUJAmbDWJna?dl=0	