

# Progress of Integrated testing approaches and intensive laboratory training as strategy against SARS-COV-2 spread in Brazzaville

## ITAIL-COVID-19

### Grant N° RIA2020EF-2947

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This project is part of the EDCTP2 Programme supported by the European Union



**1. Introduction**

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# 1-Introduction

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- **14 March 2020 : notification of 1<sup>st</sup> COVID-19 case in Republic of Congo.**
- **March 2020 : Ethical approval and administrative authorization of ITAIL-COVID19 project.**
- **From April 2020, FCRM through its Medical Clinic (CCLAM) and Research Centre (CeRMI), support LNSP (National Laboratory of Public Health) in SARS-COV<sub>2</sub> screening in Republic of Congo.**

## 2-1. Partners

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### *Coordinating institution of ITAIL-COVID-19 project Grant N° RIA2020EF-2947*

Fondation Congolaise pour la Recherche Médicale

### *Partner institutions of Grant N° RIA2020EF-2947 :*

- Bernhard Nocht Institute for Tropical Medicine, (BNITM)  
**Deuchland**
- Institut de Recherche pour le Développement (IRD), France
- R-Evolution Worldwide Community Interest Company,  
United Kingdom
- Coris BioConcept, Belgium

***Duration*** : May 2020 - October 2021, 18 months

## 2-2. Objectives

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### **Main objective of Grant N° RIA2020EF-2947**

To better understand the COVID-19 infection epidemiology in Congo-Brazzaville and to strengthen the country's national surveillance system

### **❖ Specific objectives of Grant N° RIA2020EF-2947**

- 1- To determine the Covid-19 spreads through semi-rural and urban communities using standard molecular testing (RT-PCR) and sequencing.**
- 2- To validate an ultrasensitive diagnostic tool (APoH RT-PCR) and point-of-care antigenic rapid diagnostic tests (Ag-RDT)**
- 3- To implement serological tests in Congo Brazzaville to trace the spread of SARS-CoV-2 in community**



### 3. Workpackages of ITAIL-COVID-19

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#### 6 Workpackages:

- 1 - Clinical study preparation, coordination and execution (samples collection); **conducted by FCRM**
- 2 - Compare the RT-PCR method versus the addition of the ultra-sensitive ApoH-sample prep method to identify COVID-19 carriers; **FCRM and IRD involved**
- 3 - Validation of Rapid Diagnostic Test for COVID-19 antigens Ag-RDT; **FCRM and CORIS involved**
- 4 - Sero-epidemiological investigation; **FRCM and BNITM involved**
- 5 - Dissemination, communication and exploitation; **FCRM and R-Evolution involved**
- 6 - Management; **FCRM involved**



## 4.1 Activities/results of the project



**WP1 : Clinical study preparation, coordination and execution (samples collection)**

Activity	Results
SARS-COV-2 detection using conventional RT-PCR test, with oropharyngeal swabs	<p>From March 20 to January 21,</p> <ul style="list-style-type: none"><li>• <b>13735 screened</b> samples in FCRM Health center (CCLAM),</li><li>• <b>1152 SARS-COV-2 positive samples : 8,4%</b></li></ul>

Screening in Congo : Feb 22, 2020 – March 3, 2021 (SITREP N° 133)

104 366 **screened persons**

9 179 **SARS-COV-2 positive : 8.8%**

## 4.2 Activities/results of the project



### **WP1** : Clinical study preparation, coordination and execution (samples collection)

Activity	Results
Sequencing SARS-COV2 Virus circulating in Brazzaville, Congo	<ul style="list-style-type: none"><li>- <b>October 2020 : first (eleven) sequences of the SARS-COV2 virus circulating in the Republic of Congo during the first wave published ; GISAID website</b></li><li>- <b>Dec 2020-Jan 2021: 42 sequences published in GISAID website</b></li></ul>





## 4.3 - Activities/results of the projects

**WP2** : Compare the conventional RT-PCR method versus the addition of the ultra-sensitive ApoH-sample prep method to identify COVID-19 carriers

Activity	Results
ApoH-sample prep method for ultra-sensitive detection of COVID-19 using RT-PCR	<p><b>1<sup>st</sup> webinar, 11 septembre 2020</b></p> <p>1-Protocol of viral capture from swab samples in ITM</p> <p>2-Protocol on viral capture from saliva samples</p>
	<p><b>2<sup>nd</sup> webinar, 14 January 2021</b></p> <p><b>1- Viral Capture with Peps6 CptoVIR kit : protocol application,</b> RNA preparation using QIAGEN commercial kit and RT- PCR detection</p> <p><b>2- Classic RNA</b> preparation using QIAGEN commercial kit and RT- PCR detection</p>
	<p><b>Since February 2021 : Process of Validation of ApoH-sample prep method for ultra-sensitive detection of COVID-19 using RT-PCR</b></p>



## 4.4 Activities/results of the project

### WP 3: Validation of Rapid Diagnostic Test for COVID-19 antigens (Ag-RDT)

Activity	Results
Validation of Rapid Diagnostic Test for COVID-19 antigens (Ag-RDT) on RT-PCR positive samples	<p><i>First step</i> : 438 Swab RT-PCR positive samples preserved in Universal Transport Medium (UTM) were tested on COVID-19 Ag Respi-Strip RDT.</p> <p>From these 438 samples, only 31 (7.1%) samples were positive on Ag-RDT.</p> <p><b>This data indicates a low sensibility of the test.</b></p>

## 4.5 Activities/results of the project



### WP4 : Sero-epidemiological investigation

Activities	Results
Using serological rapid diagnostic test (RDT) to determine herd-immunity in Congo-Brazzaville population	<p>2<sup>nd</sup> Communication of ITAIL-COVID-19 Consortium to this webinar presented by Dr AL. BATCHI at this webinar</p> <p><i>Title : Seroprevalence in Brazzaville using serological Rapid Diagnostic Test (RDT) from March to July 2020</i></p>
Performing serological ELISA on serum samples collected from asymptomatic subjects	<p><b>1070 samples from asymptomatic persons living in Brazzaville were performed by ELISA Assay of IgG and IgM to Spike protein SARS-CoV-2:</b></p> <p><b>1- While the prevalence of SARS-CoV-2 RT-qPCR positive is 3.7% in these asymptomatic persons,</b></p> <p><b>2- The seroprevalence of IgG, 26.7%, in asymptomatic persons living in Brazzaville</b></p>

## **4.6 - Activities/results of the project**

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### **WP 5 : Dissemination, communication and exploitation**

**1 - 4 – 5 August, 25<sup>e</sup> session of Carrefour Forum : covid-19, Healthcare and vaccine (Pr NTOUMI, Chair of session)**

**Pr F Ntoumi presentation : RDT serological data**

**2 - Memo preparation and diffusion to Congolese stakeholders : September 2020: Seroprevalence pilot study against SARS-COV2 within the population of Brazzaville**

**3 - ITAIL-COVID-19 first press release, September 2020**

## 4.7 - Activities/results of the project

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### WP 5 : Dissemination, communication and exploitation

4 - **Batchi-Bouyou AL**, Lobaloba L, Ndounga M, Vouvoungui JC, et al, High SARS-COV2 IgG/IGM seroprevalence in asymptomatic Congolese in Brazzaville, the Republic of Congo, *International Journal of Infectious Diseases*(2020), doi:<https://doi.org/10.1016 /j.ijid.2020.12.065>

5- **Batchi-Bouyou AL**. Enquête séro-épidémiologique sur l'infection par le coronavirus 2019 (COVID-19) Brazzaville, Avril - Juillet 2020. *Congrès International de Brazzaville sur la COVID, 26-28 Janvier 2021*

## 4.8 Activities/results of the projects

### **WP 5 : Dissemination, communication and exploitation**

**6 - Line Lobaloba Ingoba**, *Etude de la séroprévalence des anticorps contre la protéine Spike de SARS-COV2 dans la population Congolaise*; **WEBINAIRE Contribution des femmes scientifiques d'Afrique centrale dans la lutte contre la COVID-19, 11 Février 2021, Journée Internationale des Filles et Femmes de Sciences**

**7- F Ntoumi**, *Mythes et réalités sur les variants de SARS-CO2. Moyens disponibles pour traquer les variants dans la sous-région ?* **Webinaire Contribution des femmes scientifiques d'Afrique centrale dans la lutte contre la COVID-19, 11 Février 2021, Journée Internationale des Filles et Femmes de Sciences**

**8- ITAIL-COVID-19 second press release**, February 19, 2021

# 4.9 Activities/results of the projects

## WP 6 : project management

### 1. Project team meetings (webinar)

- First meeting : 22 June 2020
- 2<sup>nd</sup> meeting : 24 September 2020
- 3<sup>st</sup> meeting : 2 October 2020

### 2. Project Activities follow up

- 28 July 2020 : Preparation and diffusion of Activities Monitoring Sheet- EDCTP-RIA2020EF-2947
- August 2020 : Diffusion of May – July Activities Monitoring Sheet- EDCTP-RIA2020EF-2947-
- January 2021 : Diffusion of Sept – Dec Activities Monitoring Sheet- EDCTP-RIA2020EF-2947

# 5. Challenges

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**WP1** : To continue genomic surveillance of SARS-COV2 variants circulating in RoC

**WP2** : To finalize the validation of ApoH-sample prep method for ultra-sensitive detection of COVID-19 using RT-PCR

**WP3** : To continue the validation of Rapid Diagnostic Test for COVID-19 antigens (Ag-RDT) on RT-PCR negative and positive samples SARS-COV-2

**WP4** : To follow up RT-PCR positive patients post infection to evaluate immune responses over the time

**WP5** : To intensify the exploitation, dissemination and the communication of results



# ITAIL-COVID-19

*Integrated Testing Approaches & Intensive Laboratory training against COVID-19*



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## Thank you for your attention