MAScIR
Moroccan Foundation for Advanced Science, Innovation and Research

Local Manufacturing of Diagnostics in Africa – the case of MAScIR diagnostic tests

Prof H.Sefrioui and Prof A. Moumen

Missions

Created in 2007

Non-profit Organization

Bord of directors

+ 200 Collaborators

+ 180 Patents

+ 750 Scientific publications

2 (+ 5) Startups

+ 100 Projects

- Promote scientific research and technological development in Morocco.
- Translate research results to innovative products through technology transfer and creation of spin-offs and start-ups.
- Contribute to the emergence of a Moroccan knowledge economy.

3 poles

Microelectronics
Materials
Biotechnology

Technological Plateform

1 750 m²

ISO 9001,
OHSAS 18001
ISO17025

More than 20 prizes and distinctions

Pillars, Strengths, Assets

Human capital

The average workforce of MAScIR Foundation is around 200 people :

- Parity : 41% wowen and 59 % men.
- Young population: majority 25-35 year.
- Employees representing all regions of Morocco.

Human capital made up of laureates from Moroccan universities and engineering schools as well as from the Moroccan diaspora living abroad.

A high standard technological platform

- **Materials and Nanomaterials** high-performance equipment (Liquids/Solids NMR spectrometer, SEM, X-ray Diffraction, chromatography, PVD, etc.)
- **Microelectronics** platform with 2 cleanrooms (Class 1000 and 10000) and an electronics laboratory.
- **Biotechnology** platform:

Green : Agriculture

Medical : Diagnostic tests & recombinant proteins development

A technological platform covering 1,750 m² and multi-technological capacities to solve industrial problems.

Partners & Collaborators

Framework for collaboration :

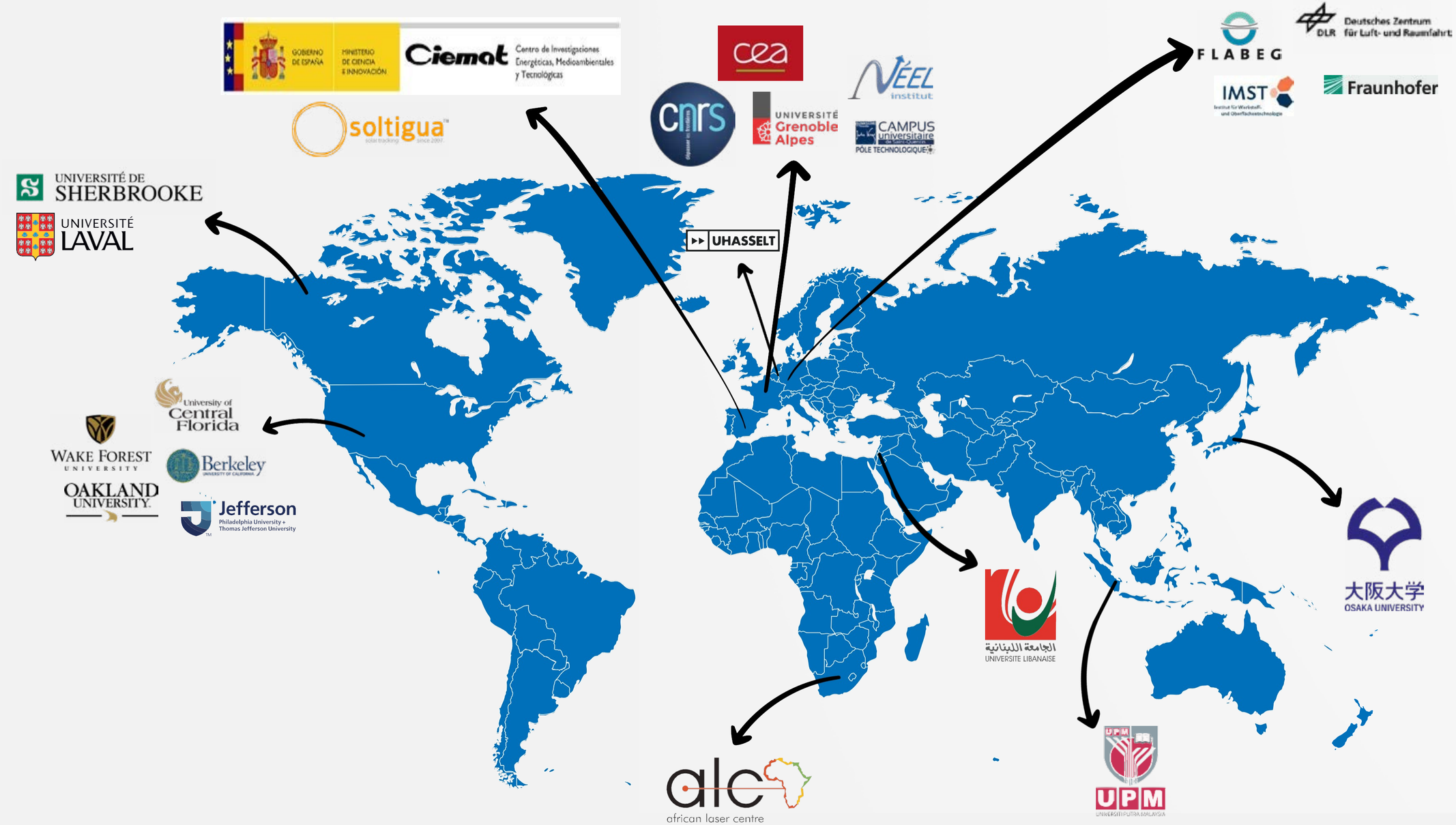
- Service contract/specific contracts.
- R&D contracts.
- Joint development.
- Technology transfer.
- National or international call for projects.

100+
Contracts

2007

2022

International Scientific Network



MAScIR medical diagnostic tests

RT-qPCR MASCIR TEST
SARS-COV-2 KIT

RT-PCR KITS: BREAST CANCER,
HEPATITIS, LEUKEMIA

MOBILE CARE FOR TUBERCULOSIS
DIAGNOSIS AND SCREENING

In the market

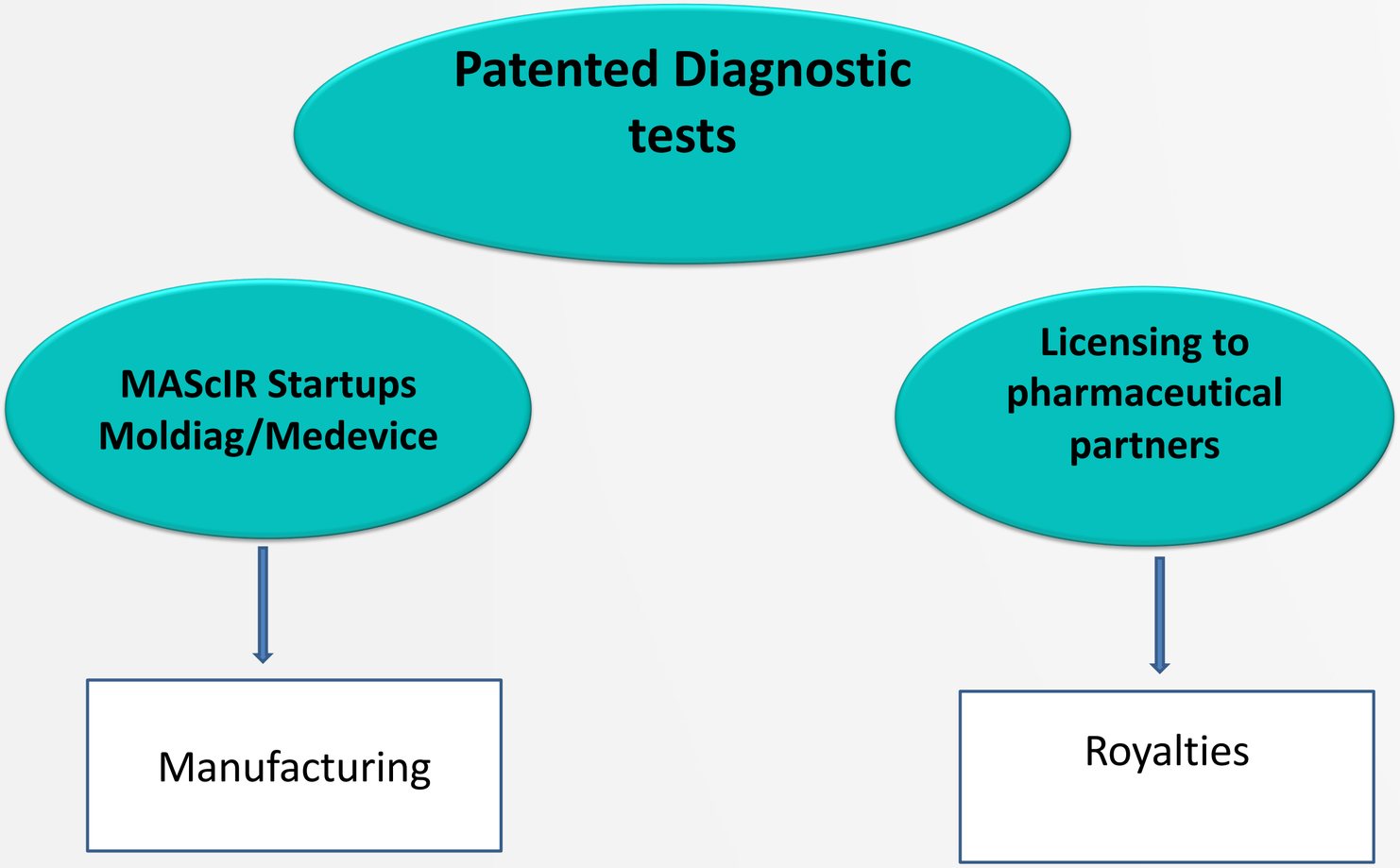
Registered: In the market in 2023

MICROFLUIDIC CHIP

RAPID TESTS

Under validation

MAScIR Business strategy: Diagnostic tests



Challenges – local manufacturing diagnostic tests in Africa

- Lack of investment/financing and enabling environment
- Difficulty to run clinical validation and registration of the tests
- Lack of political will and support to support to invest in tests manufacturing
- Difficulty to access to market
- Unclear regulations
- Preference to imported diagnostic tests
- Lack of innovative technolgy platforms (sequencing, RT-PCR, microfluidic…)
- Lack of technically skilled scientists/technicians/regulatory bodies
- Identifying integration partners
- LMIC Market is not attractive. Local manufacturers can’t compete with multinationals
- Sorcing of raw materials

Policy requirements – local manufacturing diagnostic tests in Africa

- Inclusion of local manufacturing in national government & trade priorities
- Facilitate importation of raw materials necessary for local production
- Funding R&D in diagnostics as an international/national/local policy priority
- Support of local entrepreurial engagment
- Creation of Spin-offs/Spin-out
- Promotion of PPP (public privet partnership) to fund infrastructure and address regulatory challenges as a collaborative ecosystem
- Appropriate & clear regulatory and ethics for animal/human experimentation
- Local regulatory bodies to develop and implement local regulatory policies
- Regulatory need to support local manufacturing to compete with imported products
- Local governments need to recognize the value of diagnostics at a strategic level

Resources & Enablers- local manufacturing diagnostic tests in Africa

- Governments to create pathway for access to market to purchase local products
- Attract scientists with expertises to develop & manufacture specific diagnostic tests
- Attract other funding VC…
- Political will to include local manufacturers in the national budget
- Country specific regulatory process with increase capacity for handling approvals
- Mandatory WHO prequalification of diagnostic tests for infectious diseases
- Raw material availability
- Training for health profesional/ ISO certification
- Support of IP, tech transfert, licensing
- Creation of Start-up incubators
- Need of political and economic stability of the countries

Road of success for Local manufacturing diagnostic tests in Africa

We need to establish a roadmap to explore, manage and communicate the linkages between technology, research, and product development to commercial objectives and market opportunities through a structured visual framework

Awards


the green AIB.
The Green Africa Innovation Boost


SIAM
شهادة استحقاق
Fondation Mascir


WIR MACHEN ME
VDI
Deutsc
Erfinde


For Women in Science


1776


alc
african laser centre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MASciR

Medical Biotechnology

From the bench to the market

MASciR
Moroccan Foundation for Advanced Science, Innovation and Research

Molecular diagnostic kits and medical devices centre
Pr Abdeladim Moumen

From the bench to the market

Molecular diagnostic kits and devices centre

From the bench to the market

Molecular diagnostic tests allow

- Identification
- Quantifcation
- monitoring
- Treatment orientation

Molecular diagnostic kits and devices centre

From the bench to the market

PROBLEM

SOLUTION

All molecular tests are imported

Very expensive

Development and production of 100 % made in Morocco tests

PROBLEM

SOLUTION

Molecular diagnostic kits and devices centre

From the bench to the market

Indeed

We design, develop and clinically validate 100% Moroccan molecular diagnostic kits

Made in Morocco

Molecular diagnostic kits and devices centre

From the bench to the market

Our developed, validated and authorised kits

- Chronic Myeloid Leukaemia Diagnostic Kit

- Her2 type breast cancer diagnostic kit

- Hepatitis C diagnostic kit

- Tuberculosis diagnostic kit

- SARS-COV2 Detection Kit V1.0
- SARS-COV2 Detection Kit V2.0

Our kits

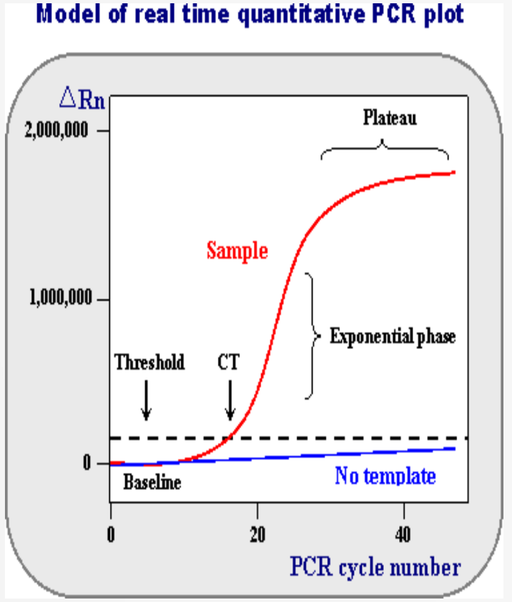
Molecular diagnostic kits and devices centre

From the bench to the market

Our main method

Real time RT-quantitative PCR

extraction → RNA **RT** → cDNA **qPCR** →



RTqPCR

Molecular diagnostic kits and devices centre

From the bench to the market

Our kits are

- Meeting international standards
- Specific
- Sensitive
- Efficient

&

- Very cost-effective

Clinically validated and patented

Molecular diagnostic kits and devices centre

From the bench to the market

Our kits are Also …

Open system

Molecular diagnostic kits and devices centre

From the bench to the market

Moldiag

From the bench to the market

The spin-off

4 millions test sold in Morocco and some African countries

Moldiag the MAScIR Spin-off

Molecular diagnostic kits and devices centre

From the bench to the market

From the bench to the market

Therefore

Moldiag

Making access to diagnostic easy and cost-effective for Moroccan

The spin-off

Moldiag the MAScIR Spin-off

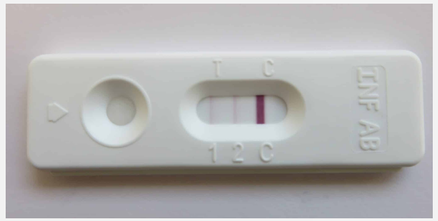
Molecular diagnostic kits and devices centre

From the bench to the market

Pipeline

Molecular,

- Prostate Cancer.
- Hepatitis B
- Covid/influenza



Quick Tests,

- COVID19
- Hepatitis C
- HP

Pipeline

Molecular diagnostic kits and devices centre

From the bench to the market

Pipeline

Human health	Forensic Science	Animal Health	Food industry	Phytopathologies
Screening Diagnostic Traitement follow-up Pronostic Predisposition	Identification of material evidence.	Diagnosis of diseases with high zoonotic potential	Detection of pathogens upstream and downstream of the production chain	Detection of plant diseases

Other fields

The team

Pr Abdeladim Moumen
Director

The team, the scientistes

Dr Hicham ELhadi

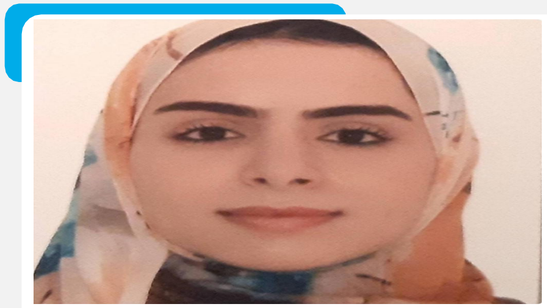
Dr Imane Abdellaoui

Dr Meriem Chadli

The team, Scientists

Dr Hicham ELhadi

The team, Bioengineers & technical support



Mrs Oumaim Lachiri

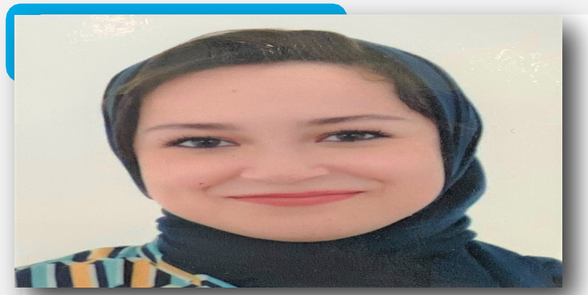
Mr Sliman Farid

Mrs Rabab.Lakhmi

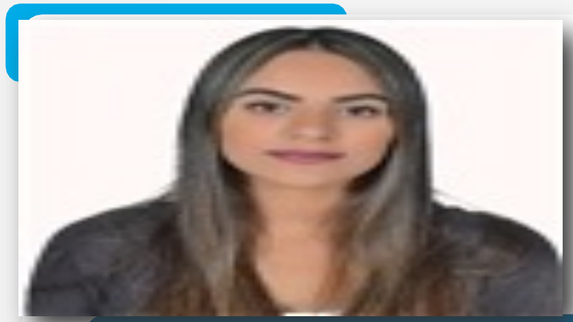
Mrs N.OUAHJOUJOU

Mr Ahmed Bagayo

The team, PhD students



Mrs Basma Elbanyahyati



Mrs Oumaima Mazour

Mr Abdenacer Bencherifa

MAScIR
Moroccan Foundation for Advanced Science, Innovation and Research

INNOVATE TO BUILD OUR FUTUR

Rabat Design Center
Mohamed Al Jazouli Street
Madinat Al Irfane
Rabat 10 100 Morocco

Office : +212 (0) 5 30 27 98 75
Fax : +212 (0) 5 30 27 9828
www.mascir.com

/MAScIRMaroc

MAScIR Communication

/mascir

/FondationMascir