

# The Advancing Vaccine End-to-end Capabilities in Africa Initiative

## AVEC Africa

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AVAC

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International  
Vaccine  
Institute

# IVI: Who we are -- where we work -- what we do

IVI is an UN-chartered international organization dedicated to accelerating vac R&D for global health

Our mission

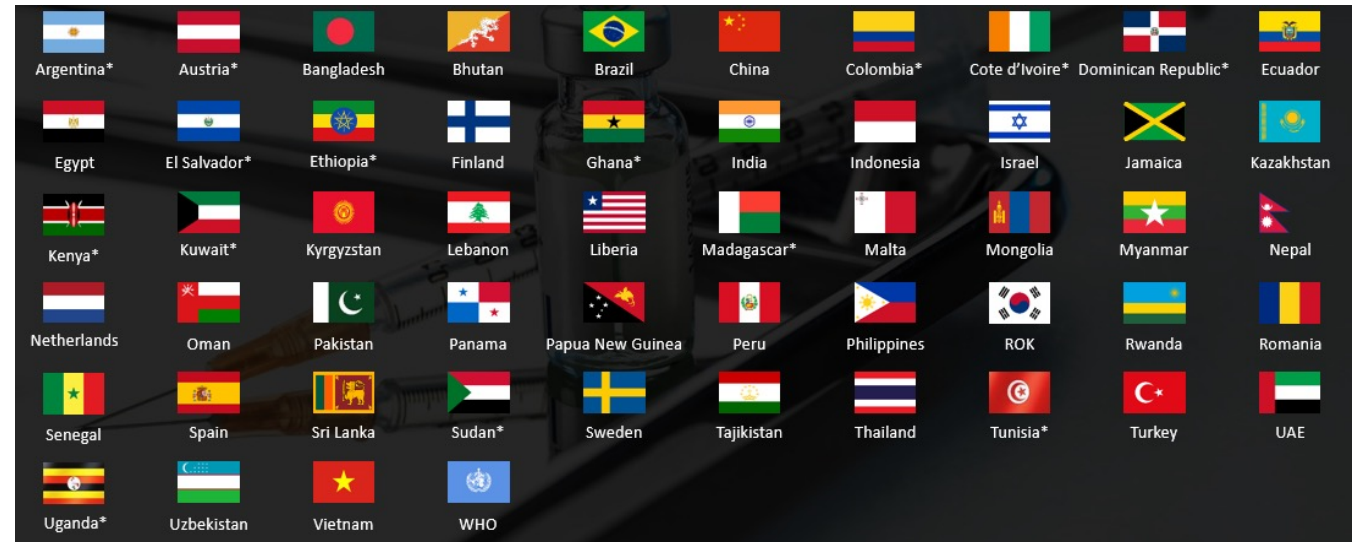
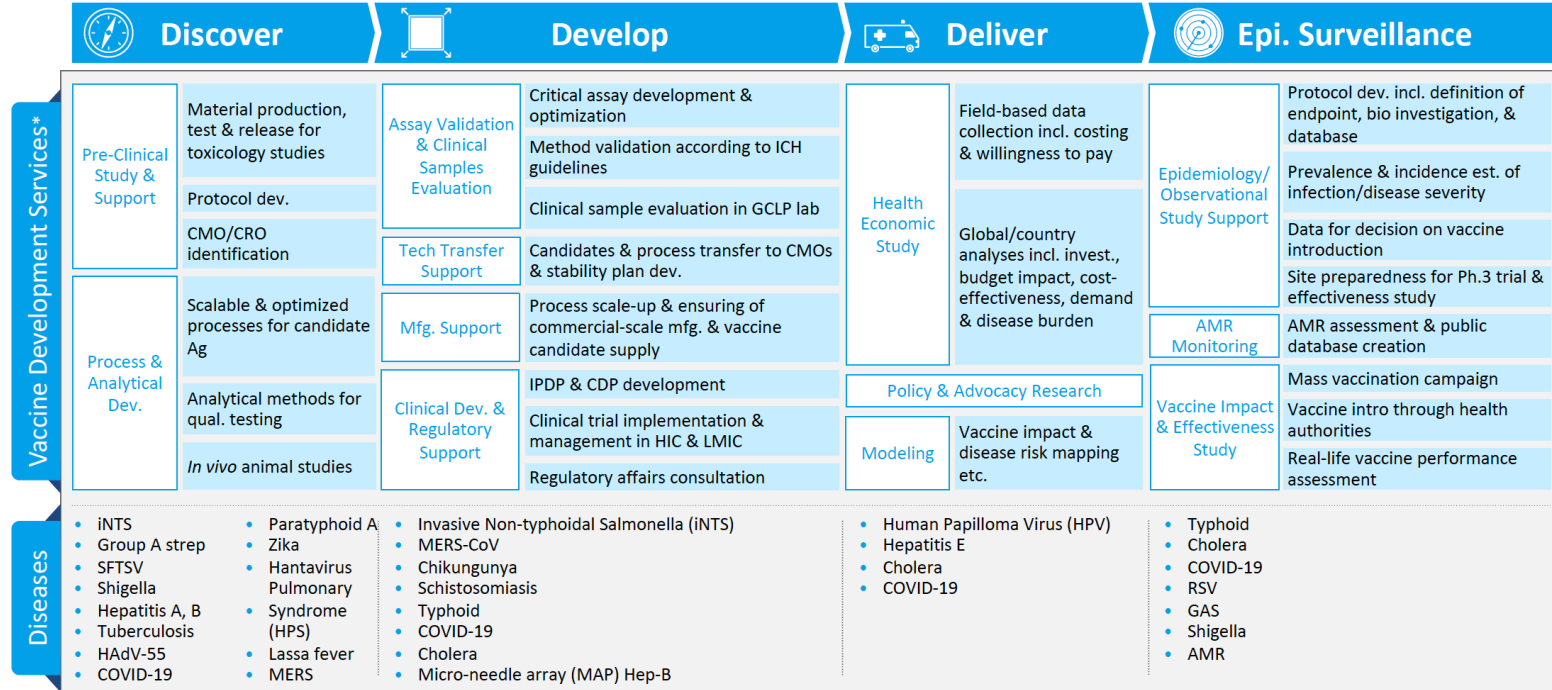
... is to discover, develop and deliver safe, effective and affordable vaccines to enable the world's most vulnerable people to have full, productive lives

Next step

... is to expand our global presence and expand our partnerships and innovative capabilities

Together

... we can achieve our **VISION** of developing countries of suffering from infectious disease



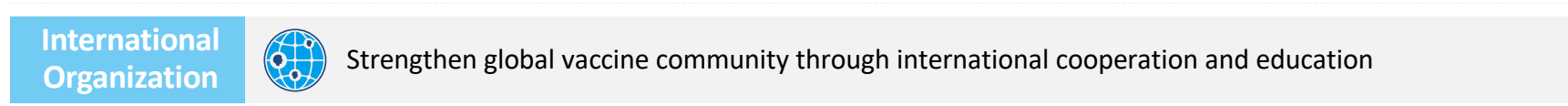
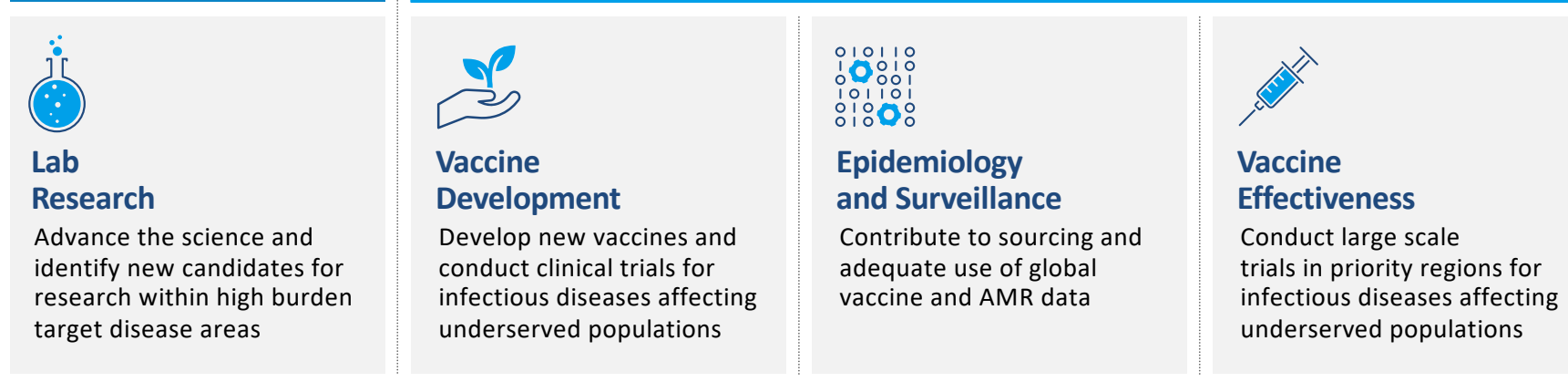
\*in-progress application



# Framework for IVI's strategic roadmap for 2022-2026

**Our vision and mission**  
Why we exist

**Enablers**  
How we succeed



**Bigger and Better**  
strengths and capabilities



Amplify the Core



Pursue opportunistic actions



**International Expansion**      Scale global footprint



Future-proof governance      **Inclusive and responsive governance**





# WHAT DO WE DO? Enhance vaccine manufacturing capacity (Korea)

2016



## “Vaccine 3.0”

Infrastructure building project for vaccine self sufficiency 2016-2020

2018



- Funded by ROK government, BMGF, Korean manufacturers
- Focuses on global health R&D
- E.g. Cholera Conjugate Vaccine (CCV)

2020



- Partner with Vaccine Innovative Technology Alliance (VITAL), Korea mRNA Vaccine Initiative (KmVAC), and Global Vaccine Leading Technology Center (GVL) to promote R&D for global health
- Promote vaccine sovereignty of Korea and preparedness against EID

2021

## “K-Vaccine Hub”

- Center of Excellence, providing essential support required in establishing K-Bio Hub
- **Global Training Hub – Biomanufacturing**
  - **Vaccine research:** platform technology (mRNA, viral vector), adjuvant
  - **Innovation center:** vaccine evaluation system through standard assays and reagents
  - **Translational hub:** clinical development, regulatory affairs, and quality assurance
  - **Globalization:** provide networking to industry to move to the next level

Vaccine product development partnerships with Korean manufacturers & agencies

**OCV, TCV, HEP B, HEP A, MERS Vaccine**



- Vi-DT TCV
- iNTS



- Hep A



- Euvichol® & Euvichol-Plus® OCV



QuadMedicine

- Hep B microneedle patch



- MERS

**COVID-19 Vaccine<sup>1</sup>**



Genexine



CELLID















SNUH<sup>2</sup>  
SEOUL NATIONAL UNIVERSITY HOSPITAL





# IVI Vaccines Bring *Affordable* Innovation to Global Health

		<u>Cost</u>	<u>Funder</u>	<u>Manufacturer</u>	
	<b>Vaccine #1</b> <b>Oral cholera vaccine</b>	Cost thru PQ: <b>\$28M</b>		 Shanchol PQ 2011	 Euvichol PQ 2016 Euvichol Plus PQ 2018
	<b>Vaccine #2</b> <b>Vi-DT TCV (Typhoid)</b>	Cost thru PQ <sup>1</sup> : <b>\$29M</b>		 KMFDS approved, WHO PQ 2024	 BPOM approved 11/23
	<b>Vaccine #3</b> <b>Non-typhoidal Salmonella Shigella</b>	IVI internal invest. preclinical POC; Wellcome: <b>\$3.2M</b>	 		

1. Estimated

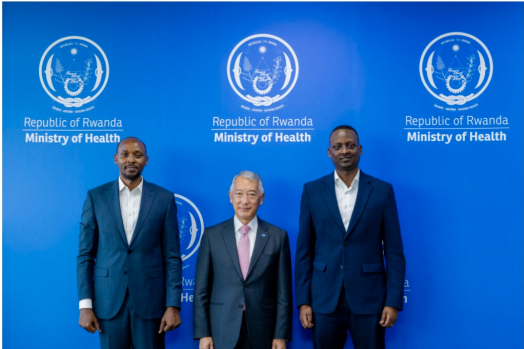


# New Initiatives: IVI Africa Regional Office and IVI's AVEC Africa Project Office

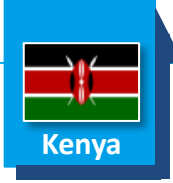


## IVI regional office

- IVI network set up in Africa
- IVI engagement for state parties
- Clinical trial training center, network & monitoring
- Talent development network



(From left to right) Dr. Sabin Nsanzimana, Minister of Health of Rwanda; Dr. Jerome Kim, Director General of IVI; and Dr. Yvan Butera, Minister of State, Ministry of Health of Rwanda at the Headquarters of the Rwandan Ministry of Health on February 23, 2024. Credit: Ministry of Health, Rwanda

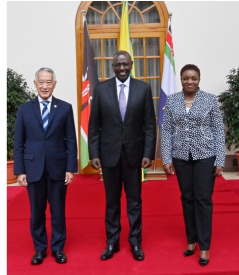


## AVEC Africa office

- Pan-African network that links centers of activity for end-to-end projects
- IVI-Grant application office (could be at Kenya AIST)
- End-to-end Project coordination

## IVI Country office

- Representation of IVI in Kenya
- BIOVAX support
- Kenya –AIST
- KEMRI - Training



Dr. Jerome Kim, Director General of IVI; H.E. Dr. William Ruto, President of the Republic of Kenya; Hon. Nakhumicha S. Wafuta, Cabinet Secretary for Health, Kenya at State House Kenya on June 5, 2023. Credit: State House Kenya

IVI Country Office in Kenya will have responsibility for the AVEC Africa Project, leading IVI's work with partners and stakeholders on end-to-end vaccine R&D projects in support of sustainable manufacturing in Africa



# New Initiative: HKJC Global Health Institute (15 Nov 2023)

## HKJC Global Health Institute

### Objective

to strengthen the global pandemic preparedness system to rapidly identify new pathogens with pandemic potential and develop vaccines within an accelerated timeframe.

### Global Health Institute

A transformational initiative led by HKU/IVI/UCAM leveraging the 5-year consortium formed between IVI\* & CITIID\*

### Funding

From HKJC estimated at \$64M (IVI ~29.4M USD)

## Governance

- **Annual executive board**  
IVI/UCAM/HKU & HKJC for high-level oversight
- **Monthly executive committee meeting**  
IVI/UCAM/HKU
- **Administrative director**  
Operational management of the GHI
- **Functional unit**  
Staff members to work directly with their counterparts in Seoul, Cambridge & HKU



HKU : Hong Kong University

CITIID: Cambridge Institute of Therapeutic Immunology and Infectious Disease at the U Cambridge (UCAM)

IVI: International Vaccine Institute





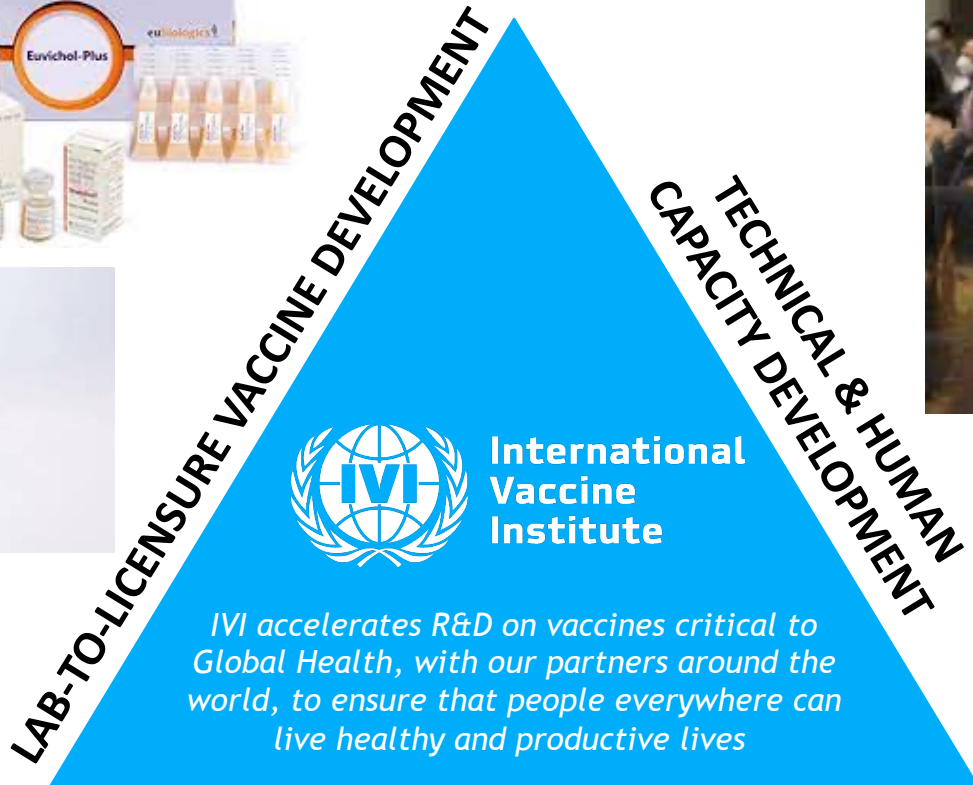
# How we do it: end-to-end development ▶ from innovation to impact



SchistoShield® (Sm-p80 + GLA-SE)  
Schistosomiasis Vaccine

TEXAS TECH UNIVERSITY HEALTH SCIENCES CENTER PAI Life Sciences International Vaccine Institute

First Human Injection May 23, 2022



13 TT of 6 vaccines to DCVMs



[1/2] The logo of South African vaccine manufacturing and storage company Biovac is seen outside the company's offices in Cape Town, South Africa, March 18, 2021. REUTERS/Mike Hutchings [Acquire Licensing Rights](#)

CAPE TOWN, Nov 23 (Reuters) - South Africa's Biovac Institute has signed a licensing and technology transfer deal with the International Vaccine Institute (IVI) to develop and make oral cholera vaccine for African and global markets, the companies said on Wednesday. **Reuters Nov 23 2022**

## BURDEN & IMPACT ASSESSMENT



# The 'Advancing Vaccine End-to-end Capabilities in Africa' initiative

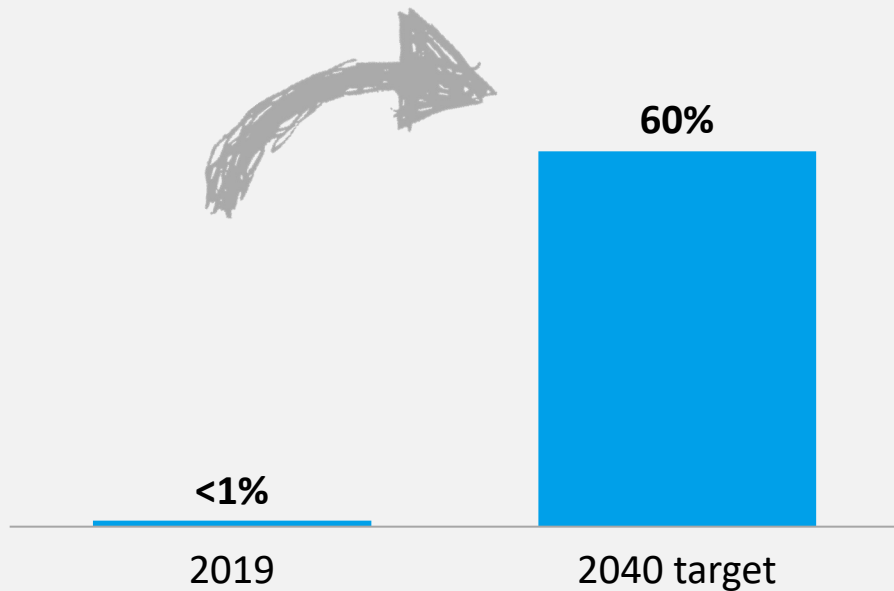
**AVEC Africa**



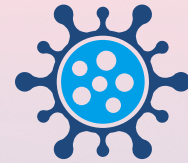


# Ambitious objectives set for the continent by the Africa CDC / PHAHM<sup>1</sup>

Share of African vaccine demand produced on the continent



## Strengthening of the African R&D and manufacturing system is required to:



**Strengthen pandemic preparedness**

Ensure Africa is ready to tackle the next pandemic, with appropriate clinical development and manufacturing capabilities and capacity



**Tackle endemic diseases**

Develop & produce vaccines for local / regional and outbreak diseases that currently do not receive sufficient attention from global players



**Improve supply security**

Establish a thriving vaccine manufacturing industry and reduce dependence to external supply for priority vaccines



# The 'Advancing Vaccine End-to-end Capabilities in Africa' initiative (AVEC Africa) would build capacity and sustainability of the vaccine ecosystem

Vision

Accelerate the development of the African vaccine R&D ecosystem to make it the powerhouse of continental manufacturing via a sustainable pan-African alliance executing on the ground

Mission

  
Contribute to sourcing and adequate use of disease & vaccine data in Africa via **epidemiology, surveillance and effectiveness studies**

  
Support local laboratory **research and discovery** for African endemic and neglected infectious diseases


  
Foster **development** of new vaccines and conduct **clinical trials** for infectious diseases affecting African population

  
Empower African vaccine manufacturers through **technology transfers** and **regulatory support**

  
Strengthen African capabilities through vaccinology and biomanufacturing **training programs**

  
Help with **demand generation**, by securing recommendations for use and procurement agreements

Enablers

  
**On-the-ground activities** to strengthen the ecosystem through end-to-end vaccine development

  
**Pan-African footprint**, with local offices, local team and local activities

  
**Network of partners** at national, regional and continental level

  
**Self-sustained funding** to ensure durable R&D activities

  
Leveraging **global capabilities**, expertise and relationships





# Through projects, AVEC Africa will operationally support the implementation of 4 of the 8 programs identified in the Africa CDC - PHAHM Framework For Action

## AFRICA CDC – PHAHM<sup>1</sup> Framework For Action

	<b>Program 1:</b> Creating an African vaccines procurement pooling mechanism	-
	<b>Program 2:</b> Establishing a vaccine manufacturing deal preparation and financing facility	-
	<b>Program 3:</b> Strengthening NRAs and RCOREs <sup>2</sup> to build vaccine regulatory excellence	✓
	<b>Program 4:</b> Supporting technology transfer through an intellectual property enablement unit	✓
	<b>Program 5:</b> Creating Regional Capability and Capacity Centres	✓
	<b>Program 6:</b> Putting in place vaccine R&D centers and an R&D coordinating unit	✓
	<b>Program 7:</b> Undertaking advocacy for enabling trade policies for vaccines	-
	<b>Program 8:</b> Ensuring effective continental strategy delivery and oversight	-

## AVEC Africa

(Advancing Vaccine End-to-end Capabilities in Africa)

- **AVEC Africa** will **execute end-to-end vaccine development projects** identified in the Africa CDC/PHAHM Framework for Action to enable an R&D ecosystem that will support sustainable manufacturing
- Constant **coordination and collaboration** between Africa CDC/PHAHM and '**AVEC Africa**' (progress update, information sharing, linking with stakeholders, etc.)

# Through the on-going establishment of its project/country office in Kenya and its regional Office in Rwanda, IVI will accelerate its global health support in Africa

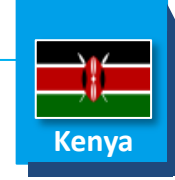


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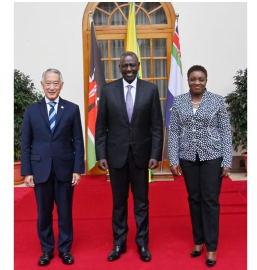
## IVI AVEC project & Country office

### AVEC scope

- Pan-African network that links centers of activity for end-to-end projects
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### Country scope

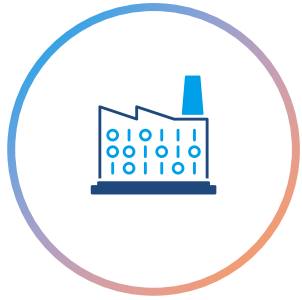
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# IVI has developed a solid pipeline of projects and funding opportunities including partner-led collaboration in Africa



## Manufacturer support

Select examples:

	<b>Institut Pasteur of Dakar:</b> - MR vaccine clinical development - Biomanufacturing training (Senegal)	★
	<b>Afrigen</b> support for developing mRNA capabilities (South Africa)	
	<b>Biovac</b> OCV-S tech transfer and clinical trial (South Africa)	★
	<b>DEK</b> for support of OCV-S tech transfer (Ghana)	★



## Vaccine development / Clinical Trials




Select examples:

Advancing research capacity in West Africa (ARC-WA) starting with <b>Lassa fever</b>	★
mRNA <b>Rift Valley Fever</b> vaccine development with Afrigen (proposal in due diligence)	★
Phase 2b study for <b>Hepatitis E</b> vaccine in South Africa	
Real-world Effectiveness of Oral <b>Cholera</b> Vaccines in Preventing Cholera in Mozambique (REOP).	★
<b>Typhoid</b> surveillance and effectiveness (Ghana, RD Congo, Mozambique, Madagascar)	
Vaccine Against <b>Schistosomiasis</b> in Africa (VASA) (Burkina Faso, Madagascar)	



## Training programs

Select examples:

	Global training hub – biomanufacturing (GTH-B)
	IVI Vaccinology course (including <b>Rwanda</b> )
	<b>Kenya-AIST</b> - Academic Programs



# Example of end-to-end R&D project: The new Oral Cholera Vaccine-Simplified (OCV-S) has a lower cost, an increased yield, AND is easier to technology transfer

**IVI's tailored support for partner R&D strengthening:** Oral Cholera Vaccine-Simplified (OCV-S)  
**Funder:** BMGF & Wellcome Trust; **Development Partner:** EuBiologics; **Tech transfer:** to Biovac (S. Africa)



## Through end-to-end R&D project

<b>OCV-S</b>	Disease surveillance in Africa (multiple)	Toxicology studies depending on NRA requirements	Technology transfers & scale up <sup>1</sup>	Technical support for WHO prequalification & local registration	Support for scale up to commercial scale	National cholera control plan
	Evidence generation and advocacy		Clinical trials execution			
<b>End-to-end development</b>			Project management, data management			

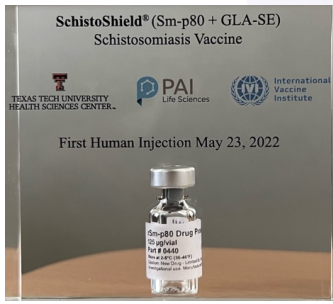


1. Prior to any technology transfer, source of IP and capacity of Sending and Receiving Unit must be assessed

**A response to the global shortage of cholera vaccine, OCV-S, allows greater production at a lower cost and makes technology transfer more accessible**



# AVEC Africa: strengthening end-to-end vaccine development capability for sustainable manufacturing and vaccine security



**LAB-TO-LICENSE VACCINE DEVELOPMENT**

**TECHNICAL & HUMAN CAPACITY DEVELOPMENT**

**International Vaccine Institute**

*IVI accelerates R&D on vaccines critical to Global Health, with our partners around the world, to ensure that people everywhere can live healthy and productive lives*



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## BURDEN & IMPACT ASSESSMENT







**International  
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VACCINES FOR A HEALTHIER FUTURE

**Thank You**