

# **Safety profile of a multigene, multiclade HIV-1 DNA plasmid vaccine boosted with HIV-1 MVA among healthy volunteers in Dar es Salaam, Tanzania**

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# Objectives

- **To assess the safety and immunogenicity of a plasmid DNA-MVA prime boost HIV-1 vaccine candidate**
- **To build expertise and capacity in evaluating HIV vaccine candidates in Tanzania.**

# Inclusion Criteria

- Voluntary Informed Consent
- Age <40 years
- HIV negative by Ag-Ab ELISA
- “Healthy” by Clinical and Laboratory Evaluation

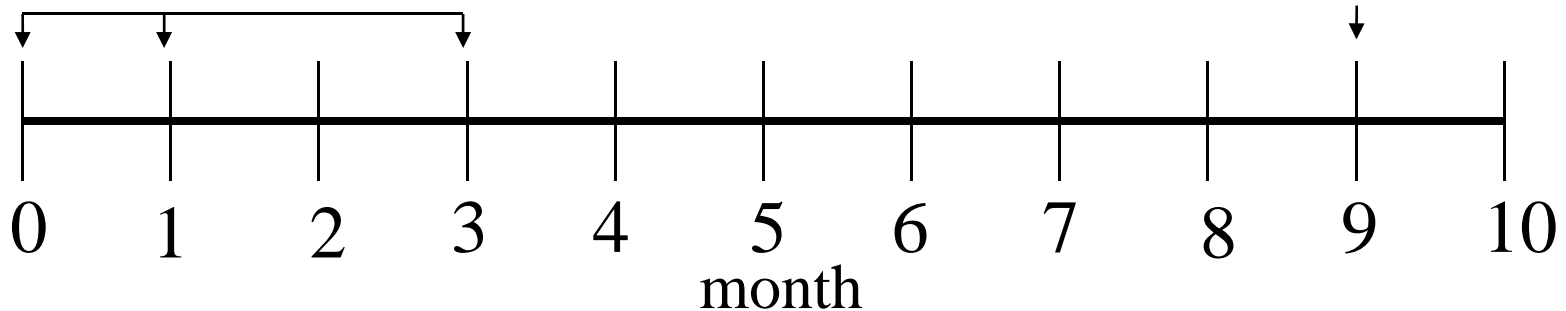
# Study Design

**Randomized, Double Blind, Placebo controlled**

Arm	Number	DNA immunization	MVA boost
I	20	DNA IM by Biojector(3.8 mg)	MVA 10 <sup>8</sup> pfu IM
II	20	DNA ID by Biojector(1.0 mg)	MVA 10 <sup>8</sup> pfu IM
IIIa	10	Saline IM by Biojector	Saline IM
IIIb	10	Saline ID by Biojector	Saline IM

**HIV-1 DNA/placebo**

**HIV-1 MVA/placebo**



# Recruitment and Enrolment

- 162/177 Clinic Attendees were Screened.
- 60 were enrolled; 10 stopped from further vaccination.

<b>Gender</b>	<b>DNA/Placebo Vaccinations</b>			<b>MVA/Placebo Vaccination</b>
	<b>1<sup>st</sup></b>	<b>2<sup>nd</sup></b>	<b>3<sup>rd</sup></b>	<b>1<sup>st</sup></b>
<b>Male</b>	45	45	44	41
<b>Female</b>	15	15	15	9
<b>Total</b>	<b>60</b>	<b>60</b>	<b>59</b>	<b>50</b>

So far, excellent adherence to scheduled visits by the enrolled

# Safety evaluations

- Safety evaluations were done two weeks following each vaccination **as shown** below and **at** additional visits **when** indicated :
  - 4<sup>th</sup> visit ( 2 weeks post 1st DNA/Placebo)
  - 6<sup>th</sup> Visit ( 2 weeks post 2<sup>nd</sup> DNA/Placebo)
  - 9<sup>th</sup> Visit ( 2 weeks post 3<sup>rd</sup> DNA/Placebo)
  - 12<sup>th</sup> Visit (2 weeks post 1<sup>st</sup> MVA/Placebo)
- The breadth of **evaluations**:
  - 30 min post vaccination observation
  - 7 day diary
  - Clinical evaluations
  - Laboratory Assesments ( CBC, Biochemistry)

# Vaccine reactogenicity after 2 weeks of all Vaccinations

- Headache and Local pain were the most commonly reported events.
- Other events- were mostly unrelated to vaccination
- Most events were grade 1 and 2 severity
- A total of 11 Serious adverse events (SAE's) that were all unrelated to vaccination

# Serious AE's

The 11 SAE's were:

- Hypertension 2° to renal disease
- Severe constipation
- Head Injury-Attack by thugs
- Partial seizures disorder
- Soft tissue injury 2° to MTA
- Musculoskeletal chest pain
- Epistaxis
- Fissure in ano
- Motor cycle accident
- Benign Ovarian tumor
- Scalp Laceration and **Fracture** of fore arm

**ALL WERE UNRELATED TO VACCINATION**

# Adverse reactions to DNA

all AE at any post vaccination visits (4,6,9)

	Local	systemic	Other	Total
Vaccine	27	35	28	90
Placebo	6	16	6	28
<b>TOTAL</b>	33	51	34	118

# Adverse reactions to MVA

all AE at visit (12)

	<b>Local</b>	<b>systemic</b>	<b>Other</b>	<b>Total</b>
<b>Vaccine</b>	7	8	3	18
<b>Placebo</b>	0	1	2	3
<b>TOTAL</b>	7	9	5	21

# List of other events after DNA

## Vaccine n=28

- Abdominal discomfort- 5
- Burn Injury-1,  
Numbness of Legs-1
- Cephalgia Cervicitis-1
- Cough-3, haematuria-1
- Flu-2, Gingivitis-1
- Dysmenorrhoea/Menorrhagia-2
- Tinea-3, Tremors-1
- Malaria-3, Worms-1
- Tonsillitis-1, Red Eyes 2

## Placebo n=6

- Abdominal discomfort-1
- Gingivitis-1
- Cough-2
- Dysmenorrhoea-1
- Malaria-1

# List of other events after MVA

## **Vaccine n=3**

- Cough-1
- Malaria-2

## **Placebo n=2**

- Flu -1
- Malaria-1

# Adverse reactions to DNA

Individuals with AE at any visit (4,6,9); probably(1)  
or possibly related(2) to vaccination

GROUP	Local (grade)		Systemic (grade)	
	1	2	1	2
Vaccine N=39	11	0	13	0
Placebo N=20	3	0	2	1

# Adverse reactions to MVA

Individuals with AE at visit 12; **probably** or possibly related to vaccination, **all** grade 1

<b>Group</b>	<b>Local</b>	<b>Systemic</b>
Vaccine N=34	7	3
Placebo N=15	0	1

# Laboratory Safety

There was no noted trend in the Laboratory values abnormalities between the groups ( Placebo Vs Vaccine)

# Conclusions

- The HIVIS DNA-MVA **vaccination** has so far demonstrated good clinical and laboratory safety profiles **compared with saline (placebo) administration**
- Capacity built through HIVIS03 paved the way for EDCTP-funded TaMoVaC Projects aimed at improving new vaccine dosing and deliveries for broader and increased immunogenicity.

# Acknowledgements

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- **Swedish Embassy, Tanzania**
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  - Sweden; at Karolinska Institute, Swedish Institute for Infectious Disease Control, Southern Hospital
  - United States of America; at WRAIR and NIH
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