RESEARCH | Scientists in US university have been carrying out study

Experts inch closer

to new HIV vaccine

**BY AGGREY MUTAMBO**

amutambo@ke.nationmedia.com

Scientists have inched closer

to designing a universal

HIV vaccine that could

fight off the virus even after it

evolves into a new form.

In a study published in the

*Nature Journal* on Wednesday,

researchers at the US Duke

University School of Medicine

in Durham, North Carolina

tracked the evolution of immune

molecules in a patient as

the virus mutated.

The patient was from an undisclosed

African country and had

been infected with the HIV-1 for

136 weeks (more than two and

a half years).

In the report titled ‘Co-evolution

of a broadly neutralising

HIV-1 antibody and founder

virus’, scientists led by Dr Barton

Haynes of the Duke School

of Medicine observed that

these ever-changing immune

molecules in the patient, called

antibodies, evolved into new

forms every time the population

of the virus diversified.

“The mature antibody, CH103,

neutralised approximately 55 per

cent of HIV-1 isolates, and its cocrystal

structure with the HIV-1

envelope protein revealed a new

loop-based mechanism of CD4-

binding-site recognition,” the

scientists wrote in the journal.

Antibodies are protein molecules

produced by body cells

to fight or neutralise foreign

particles such as bacteria and

virus in the body.

These findings could be appropriate

for African countries, such

as Kenya, which are grappling

with the increasing numbers of

HIV-infected people.

**Study takes time**

But researchers at the Kenya

Medical Research Institute

(Kemri) cautioned that it will

take years before such a vaccine

is available.

“That type of vaccine may not

be ready in the near future,” Dr

Patrick Orege, an HIV scientist

at the institute told the *Nation*

last evening. “This is because the

virus keeps mutating and one

form in a particular person or

even region differs from another

making it very difficult to design

a universal vaccine,” he said.

Kemri has been doing trials on

HIV vaccine for some time now,

but Dr Orege wants focus to shift

towards prevention.

The report is based on the

virus isolated and studied from

a patient from the time of infection

but the researchers believe

this finding could contribute to

the designing of a broad vaccine

that would help people to evolve

their antibodies to match the mutating

virus, and thereby prevent

infection and development of the

virus into Aids.

Prior to this study, scientists

had only suspected that

antibodies in infected patient

could evolve to suit the changing

viral forms, but there had been

no observation yet. This HIV-

1, the *Nature* journal reported,

mutates frequently, making it

difficult to create vaccines that

recognise the mutants.

But the researchers would

have to work more on the subject

to understand what makes the

antibodies to evolve because this

would be key in eliciting similar

behaviour in other patients.

In fact, the type of antibody

these scientists studied is less

complicated and recognises

fewer viruses than some other

broadly neutralising antibodies,

such as those in a class

called VRC01. The researchers

compared the sample from the

patient with what they had in

stock, looking for similar antibodies

and the viral copies to

determine its evolution path.

Rapport