



# Ulandelelwano lobude phambi konyango lwe-HIV-1 yokusetyenziswa kwifilogenetikhi ukubonakaliswa ukubuya kwentsholongwane kwakhona



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## I-Abstract

Nangona i-antiretroviral yonyango (i-ART) iphumelele ekuthomalaliseni ukukhula kwentsholongwane ebantwini abaphila ne-HIV (i-PLWH), intsholongwane iyaqhubela ethubeni ichaphazela iiseli kwaye zingaphinda zivele xa unyango luphazamisekile. Ngaphambili siye saqaphela, kwabasetyhini evela kwi-CAPRISA 002 Iqela losulelo oluqatha, Kwazulu-Natal, uninzi lweentsholongwane ezikwaziyo ukuphinda zenziwe kusuka amaqhinga enziwe kweli dama lifihliweyo elinxulumene kakhulu nokujikeleza kwentsholongwane kwiqela phakathi kunyaka owandulela ukuqaliswa kwe-ART. Ngelixa iintsholongwane eziphinda-phindiweyo kunye nezibangelwayo zisuka kwidami elinye kwaye zidibana, aziloluhlu lunye. Besijonge ukufumanisa ukuba intsholongwane ephinda-phindiweyo yafakwa nini kwidami elifihlakeleyo kubantu basetyhini abalithoba ukusuka kwiqela elifanayo elifumana ukuphindaphindwa kwentsholongwane (Bangaphantsi kwama-1000 e-RNA iikopi/ml) ubuncinane kunyaka omnye emva kokuqaliswa kwe-ART, kusetyenziswa iindlela ze-filogenetikhi. Iingingqi ezintathu zofuzo, ezimbini kwi-env kunye nenye kwi-nef zandiswa kwaye zalandelelana zavela kwi-RNA yentsholongwane ethathwe kwi-plasma ngokuphakathi emva kweenyanga ezintandathu rhoqo ukusuka kusulelo oluqatha ukuya ekuqalisweni kwe-ART, kwaye nangexesha lokuphinda kuqhagamshelwane, kusetyenziswa i-Illumina Miseq ene-Primer ID (i-PID). Unxulumano lwentsholongwane ebuyelayo kwiintsholongwane zangaphambi kwe-ART kwamiselwa, usebenzisa ubuninzi obunokwenzeka njengemithi ene-patristic, i-clade kunye neendlela zokubeka usebenzisa umbhobho wokuthandana wesiko (<https://primer-id.org/ogy>). Zontathu ezinginqi zofuzo zikhuliswe ngempumelelo kwaye zilandelelaniswe kwabasetyhini abalithoba. Ngokuphakathi, I-354 ye-PID yokulandelelana kwemvumelwano (uluhlu lwe-18-4760) ngexesha ngalinye kwingingqi yaphambi kwe-ART kunye ne-293 ye-PID yokuvumelana ulandelelwano lwentsholongwane yokubotshwa kakhona (uluhlu lwe-3-2383) ekubotsheni kwakhona lwenziwe kumthathi-nxaxheba ngamnye. Ukunqanda kakuhle kwimithi yefilogenetikhi kunokuba sisiphumo sokusuleleka ngeendlela ezininzi kunye nemigca eyahluka-hlukeneyo echongiwe njengomceli mngeni kwindlela yethu yokwenza. Ukumisela eyona ndlela/iindlela zokuvelisa imithi kusetyenziswa ulungelelwaniso lobude olulolona lufanelekileyo kwaye ukujongana nokungacaci ukuba kosulelo oluninzi kunye nemigca eyahlukanisiweyo okanye edibeneyo idala ubaluleko.

## Imvelaphi

- Idama elifihlakeleyo le-HIV-1 lihlala lingoyena mqobo kunyango kubantu abaphila ne-HIV (PLWH), ngaphandle konyango olusebenzayo lwe-antiretroviral (ART).
- Uphazamiseko locinezelo lwe-ART, lukholisa ukukhokelela kwintsholongwane ekhawulezayo ukubuya kwidama elifihlakeleyo.
- Iintsholongwane ezibuya ngexesha lokudityaniswa kwakhona zimele iqhezu kuphela lalo vimba ufihlakeleyo.
- Ngapha koko, iintsholongwane zivuselelwe kwi-vitro zisebenzisa iindlela ezinje ngovavanyo bobungakanani bokukhula kwentsholongwane (qVOA) kunye nezozizivela ngexesha lokubuyela kwakhona okanye ukuphazamiseka konyango ziyadibana, kodwa zohlukile i-1,2.
- Uphononongo lwangaphambili lubonise ukuba uninzi lwedama njengoko lilinganiswa ne-proviral okanye ukukhula kolandelelwano lwentsholongwane eyasekwa kufutshane nexesha lokuqaliswa kwe-ART 3,4,5. Sijonge ukuvavanya ukuba oku kufunyanisiweyo kuyahambelana na neentsholongwane ezibuyelayo.

## Ukubaluleka

- Uhlalutyo lwemvelaphi yethutyana yentsholongwane ebuyayo luya kubonelela ngengqiqo engcono yeqhezu lendawo yokugcina amanzi ekwaziyo ukuvela kwakhona ngexesha lophazamiseko lonyango.
- Ukuqondwa okuphuculweyo kwe-HIV-1 yeendlela yedami inokwazisa izicwangciso-qhinga zokuthintela ukuyilwa kunye nokuzingisa kwayo.

## Imibulelo

Abathathi nxaxheba bonke abavela kwa- CAPRISA 002 Iqela losulelo olungamandla



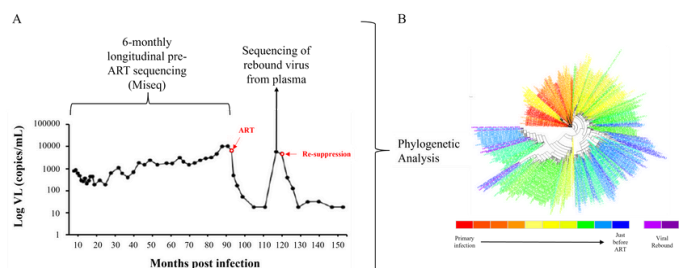
National Institute of Allergy and Infectious Diseases



## Iindlela zokusebenza

Abathathi-nxaxheba kuphando

- Usulelo olungapheliyo lwe-PLWH olusuka kwiqela le-CAPRISA002 abacinezelwe ngokwentsholongwane kangangesithuba sonyaka omnye, balandelwa kukubuya kwentsholongwane egazini bachongwa.
- Ulandelelwano lwe-ART yangaphambili kunye nentsholongwane ebuyayo
- Ulandelelwano olunzulu lwe-Illumina MiSeq kunye nesazisi se-Primer yasetyenziselwa ukuvelisa ulandelelwano kwi-RNA yentsholongwane evela kwi-plasma, isampulwa rhoqo kwiinyanga ezi-6 zonyango lwangaphambili kwenziwa njalo nakule ibuyayo (Fig 1A).



**Ifiga yoku-1:** Amagqabantshintshi e-pre-ART kunye nendlela yokulandelelana kwentsholongwane ebuyayo

