

## It takes more than just a single target

BY THE TIME YOU HAVE READ THIS, HIV-1 WILL HAVE MUTATED.  
 BY THH TIME YOU HAVE READ THIS, HSV-1 WILL HAVE MUTATED.  
 BY THH TIME YOUYHAVE READ THVS, HSV-1 WILL HAVE MUTATED.  
 BYETHH TIME YOUYHAVE READ THVS, HSO-1 WILL HAVE MUTATED.  
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 THE CHALLENGES YHU FACE EVOLVE. SO STAYLONE STEP AHTAD.  
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**THE CHALLENGES YOU FACE EVOLVE. SO STAY ONE STEP AHEAD.**

## As the challenges you face evolve...

### HIV mutates

*“No HIV-1 mutation can be considered to be neutral”<sup>1</sup>*

- Growing evidence indicates all HIV subtypes may be prone to errors; posing enormous challenges to viral load monitoring.<sup>2</sup>
- HIV-1 diversity is increasing and recombinants of greater complexity are being created.<sup>1,3</sup>
  - Produces  $10^{10}$  virions / day.<sup>4</sup>
  - Creates a polymorphism every 2,000–5,000 nucleotides.<sup>4</sup>
- Drug pressure and polymorphisms can lead to RT-PCR inefficiency.<sup>2,3,5-7</sup>
- Mismatches and mutations unseen by single target assays can lead to underquantification.<sup>3,6</sup>

***Underquantification can have major clinical repercussions; delaying the detection of drug resistance<sup>2,3</sup>***



## Treatments evolve

### *Newer classes of medications change treatment regimens*

- European, US and International guidelines recommend integrase inhibitors for 1<sup>st</sup> line therapy.<sup>8,9, 25</sup>
- In 2012, the use of raltegravir increased 25%.<sup>10</sup>
- The integrase gene is an attractive target for drug development.<sup>11</sup>
  - Raltegravir is approved for global use.
  - Elvitegravir is approved for use in the US and is under review in Europe.
  - Dolutegravir under regulatory review in the US, Europe, and Japan.
  - Additional compounds are in development.

### *Drug resistance remains a central problem*

- Associated with all antiretrovirals, including integrase inhibitors.<sup>12-15</sup>
- Over 42 mutations are associated with resistance to raltegravir.<sup>16,17</sup>

***Selective pressure on a drug target has the potential to compromise treatment efficacy<sup>11</sup>***

## So does Roche and the support we provide.

### Two targets

*“Represents an important step forward”<sup>5</sup>*

- Targeting two regions improves genotype inclusivity, detects HIV-1 variants and potentially avoids underquantification.<sup>5,6,18</sup>
  - 30 samples not quantified by the single target assay were quantified by the Roche dual target HIV-1 assay.<sup>5</sup>
  - The single target comparator assay quantified 19% of samples significantly lower than the Roche dual target HIV-1 assay.<sup>3</sup>
- Amplification of a less ideal target region might explain discrepancies already observed in the literature.<sup>3,5,6,18</sup>

***Accurately quantifying HIV-1 RNA with a dual target assay contributes to optimal treatment decisions for patient management<sup>2,5,18,19</sup>***





## Superior sensitivity

*“Evolution of viral resistance can occur in the setting of low-level viremia”<sup>8,11</sup>*

- Two clinical trials and a cohort analysis detected new resistance mutations in 37% and 65% respectively of patients who had developed persistent low-level viremia.<sup>8,20,21</sup>
- Viremia between 20-49 RNA copies/mL have been associated with higher baseline viral load and less time on ART.<sup>22,23</sup>
- Quantifying HIV-1 viremia between 20-49 copies/mL may have value.<sup>19,22</sup>

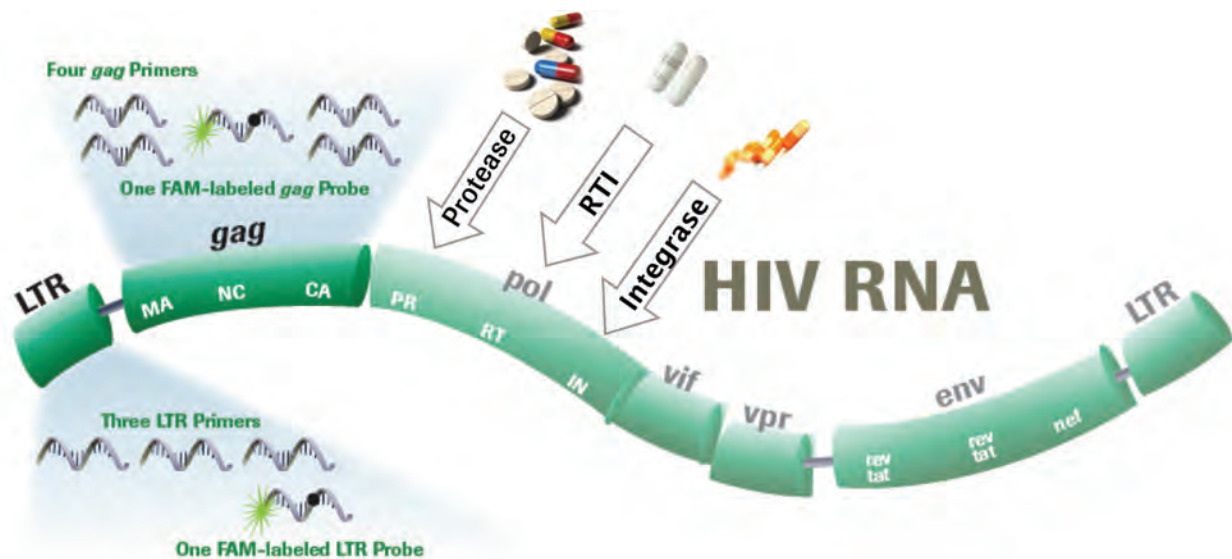
***Sensitive assays provide insight into disease awareness, assist in research eradication efforts, and may lead to improvements in disease management for patients living with the HIV-1 virus<sup>3,18</sup>***

## Stay one step ahead

With the COBAS® AmpliPrep/COBAS TaqMan® HIV-1 Test v2.0 and the COBAS TaqMan® HIV-1 Test, v2.0 for use with the High Pure System\*

*Performance for today; prepared for tomorrow*

It takes more than just a single target to stay ahead of HIV-1. A diversified approach includes multiple safeguards, such as a dual target and increased sensitivity, providing confidence in test results for patients living with the HIV-1 virus<sup>2,5,22-24</sup>



\*This test is intended for use in conjunction with clinical presentation and other laboratory markers of disease progress for the clinical management of HIV-1 infected patients. The test can be used to assess patient prognosis by measuring the baseline HIV-1 RNA level or to monitor the effects of antiretroviral therapy by measuring changes in EDTA plasma HIV-1 RNA levels during the course of antiretroviral treatment.



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