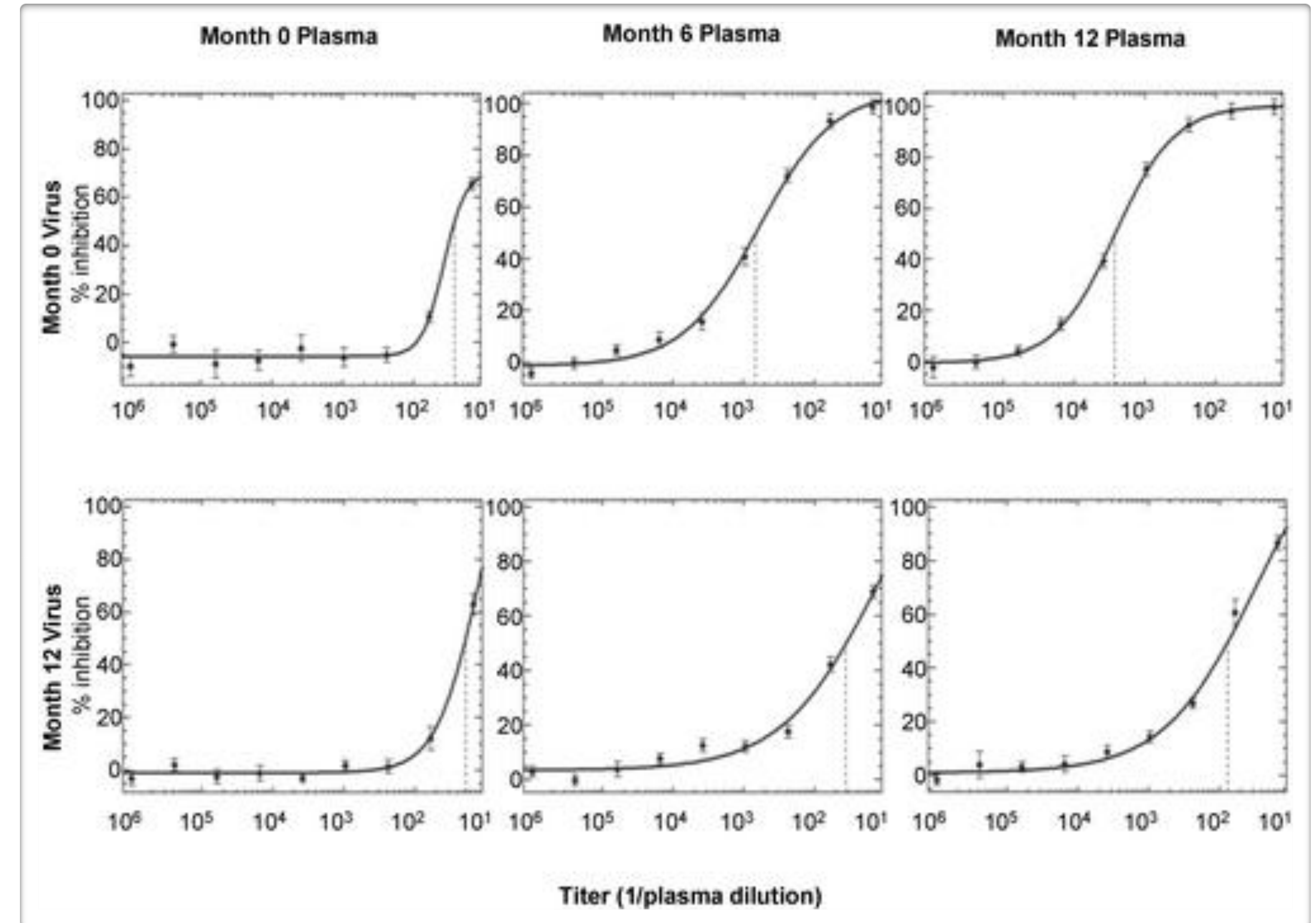


Neutralization curves from an individual with early HIV infection

- Neutralization can be measured by the serum dilution needed to reduce viral replication by 50% (typically presented as the inverse of the titer)
- Although variable between individuals, the rate of escape from neutralizing antibodies can be very high during acute/early HIV infection
- Sera are effective at neutralizing earlier viruses, but significantly less effective at neutralizing contemporaneous viruses
- The immune system loses the arms race



Amino acid substitutions in HIV-1 *env* accumulate faster during rapid escape

