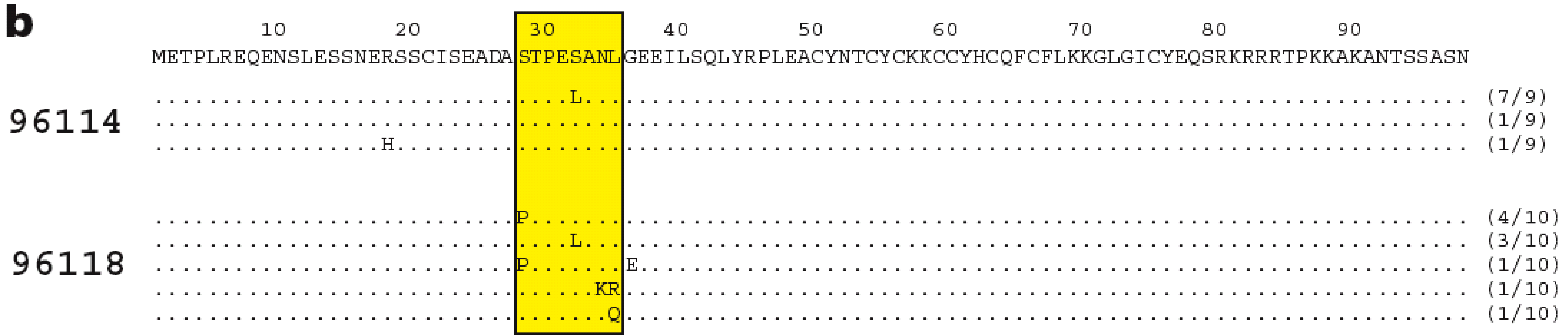


Rapid SIV sequence evolution in macaques in response to CTL-driven selection

- **SIV: the only animal model of HIV (rhesus macaques)**
- Experimental infection with MHC-matched strain of SIV
- **Virus sequenced from a sample 2 weeks post infection**
- **Only variation was in an epitope recognized by the MHC - CTL *escape***



Key drivers of adaptation in pathogens

- Zoonoses and transmission to new hosts (both species and individuals)
- Immune selection of the host (CTL, innate, antibody)
- Development of drug resistance (therapeutics)
- Virulence/transmissibility - also tropism shifts
- Host/pathogen arms-races, e.g. host antiviral factors
- **Most of the time, most of the viral genome is conserved**