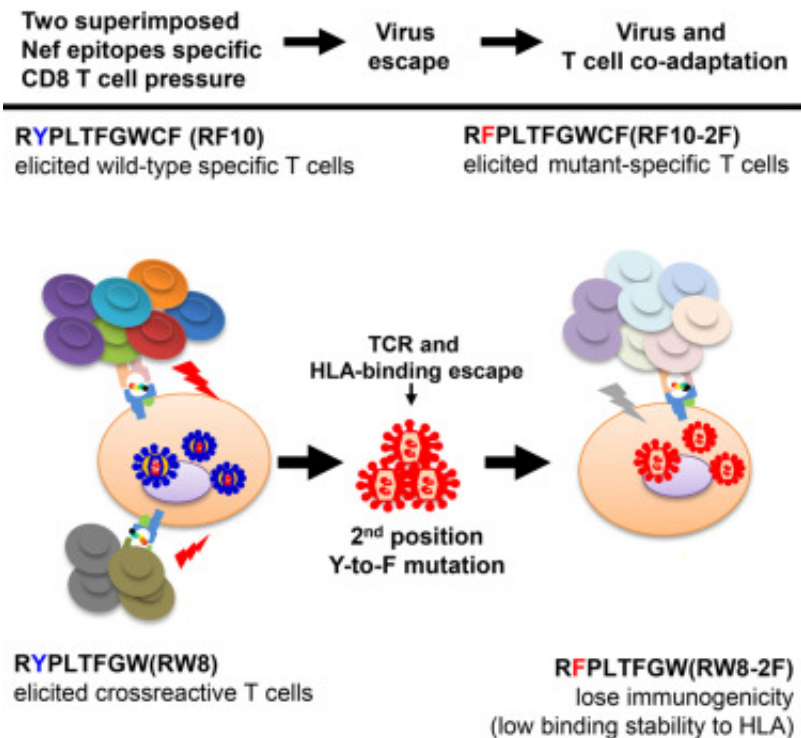


Single HIV mutation induces distinct T cell immune responses

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HIV adapts to wild-type specific T cells through mutation thereby inducing two different T cell mutations, only one of which is effective. Credit: Xiaoming Sun & Professor Masafumi Takiguchi

In an effort to increase the understanding of HIV and cytotoxic T lymphocyte (CTL) co-evolution, and improve the development of T cell-mediated AIDS vaccines, which induce the creation of HIV-specific T

cells within the body, a research collaboration between researchers in Japan, China, France, Kazakhstan, and the UK analyzed T cell responses to a single HIV escape mutation. The researchers looked at how the HIV single mutant was selected by different (RW8- and RF10-specific) CTLs, and investigated the new corresponding CTLs.

The research focused on a mutation that is very frequently found in individuals having the [human leukocyte antigen](#) HLA-A*24:02, which is estimated to be in approximately 70% of the Japanese population, and revealed that one mutation produced two outcomes. During HIV/CTL co-evolution, the mutation induced a new T-cell repertoire in one RF10 mutant epitope but not in the RW8 mutant epitope. The research clarified the coadaptation between a single HIV-1 mutation and T cells.

"This study demonstrated that only a single mutation selected by T cells produced 2 different outcomes in T cell adaptation suggesting a more complex co-evolution between HIV and T cell in the body," said Professor Masafumi Takiguchi of Kumamoto University, leader of the research project. "This finding will contribute to the development of an effective T cell-mediated AIDS vaccine in the future."

More information: Xiaoming Sun et al, Effects of a Single Escape Mutation on T Cell and HIV-1 Co-adaptation, *Cell Reports* (2016). [DOI: 10.1016/j.celrep.2016.05.017](https://doi.org/10.1016/j.celrep.2016.05.017)

Provided by Kumamoto University

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