

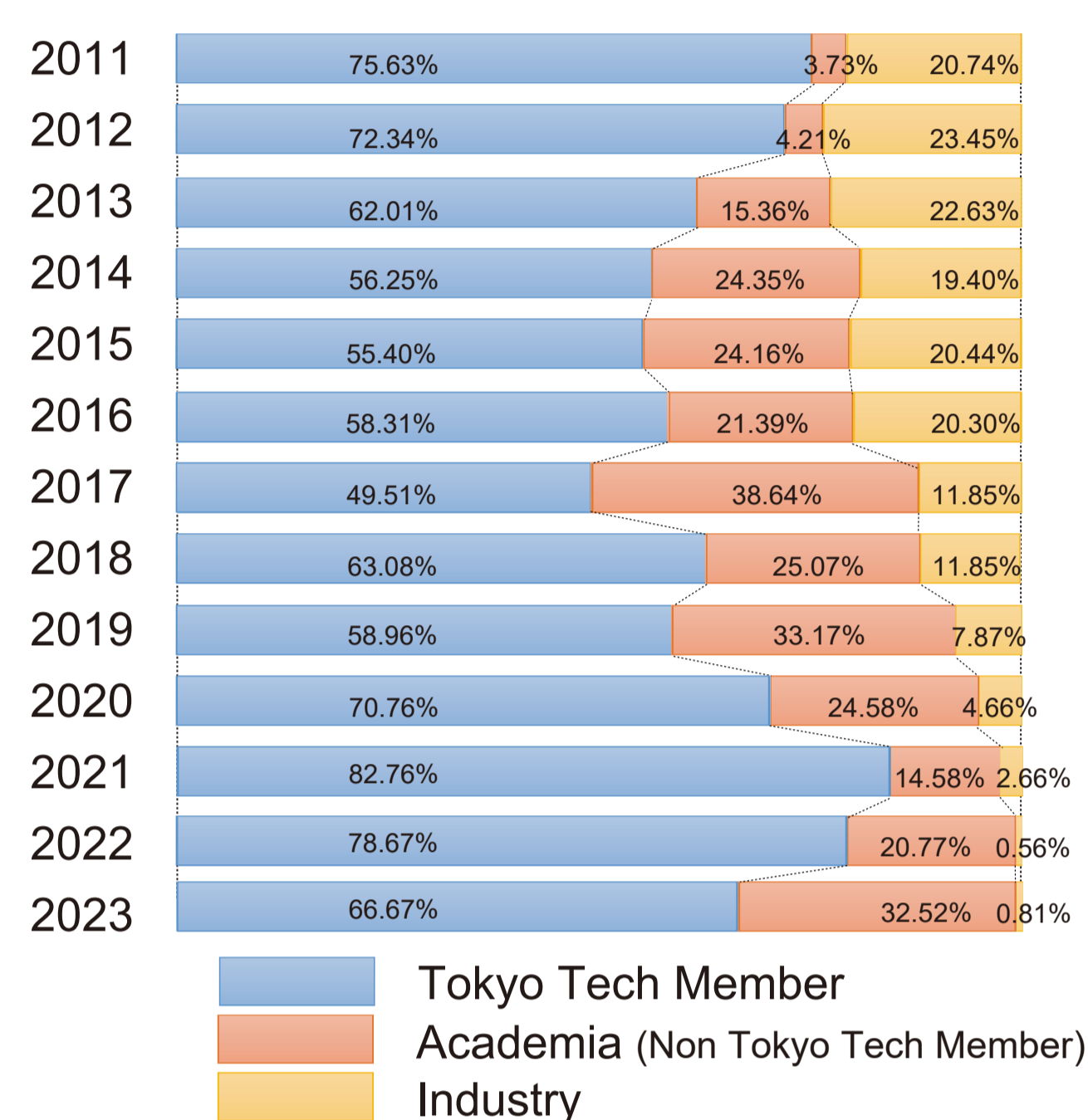
Joint Usage of TSUBAME3.0

Partnership Resource Allocations

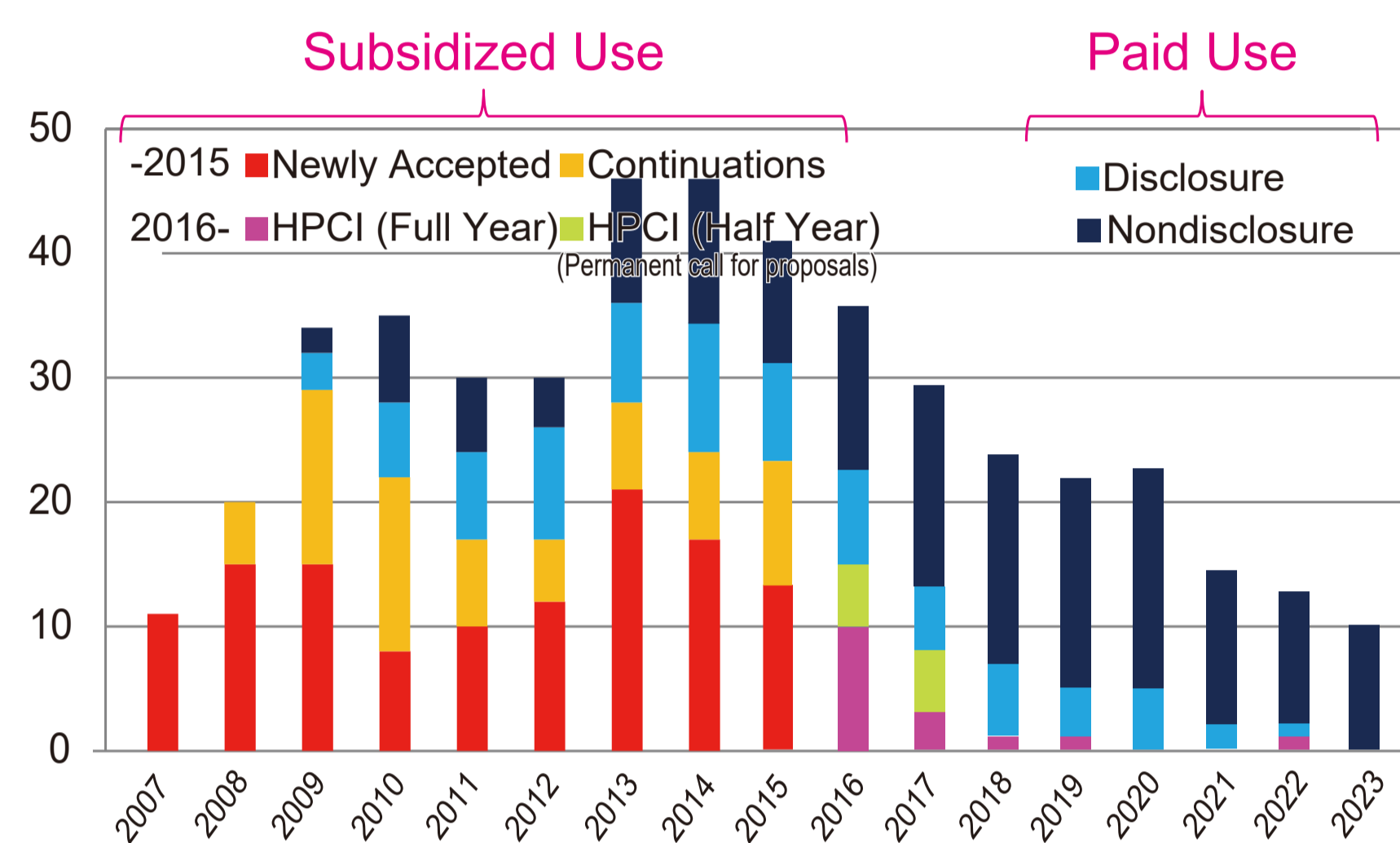
TSUBAME Industrial Use -Statistical Information-

TSUBAME is open to academia and industries. Industrial use started in FY2007.

TSUBAME Resource Usage Profile



The Number of Industrial Projects



How to Use TSUBAME?

User Types	Programs	Remarks
Tokyo Tech Students and Faculty Member		All Students have TSUBAME accounts.
Non-Tokyo Tech Users (Academic and Industrial Users)	Partnership Resource Allocations HPCI/JHPCN	Supported by MEXT
Industrial Users	Project for Creation of Research Platforms and Sharing of Advanced Research Infrastructure (- 2015) HPCI/JHPCN (2016 -)	Supported by MEXT
Foreign Researchers	International Collaboration	
Collaborators with Tokyo Tech Professors	Research Collaboration based on Research Fund or Industrial Contracts	

TSUBAME Services

Intellectual Property Rights are reserved completely by the users and are not required to be shared with Science Tokyo. Each node has 2 Intel Xeon processors (28 cores) and 4 NVIDIA Tesla P100 GPUs, with 256GB Memory.

Cis-allosteric regulation of HIV-1 reverse transcriptase by Integrase

Takao Masuda (Tokyo Medical and Dental University), Osamu Kotani (National Institute of Infectious Diseases) et al.

This result is an excerpt from the reports at an URL: <https://doi.org/10.3390/v15010031>

Reverse transcriptase (RT) and integrase (IN) are encoded tandemly in the pol genes of retroviruses. This study examined the effect of IN fusion on RT during reverse transcription by an in vitro cell-free assay, using recombinant HIV-1 RTIN (rRTIN). It found that, compared to recombinant RT, rRTIN generated significantly higher cDNAs under physiological concentrations of dNTPs. Then, analysis of molecular dynamics simulations suggested that IN can influence the structural dynamics of the RT active center and the inhibitor binding pockets in cis. Thus, This study demonstrated, for the first time, the cis-allosteric regulatory roles of IN in RT structure and enzymatic activity.

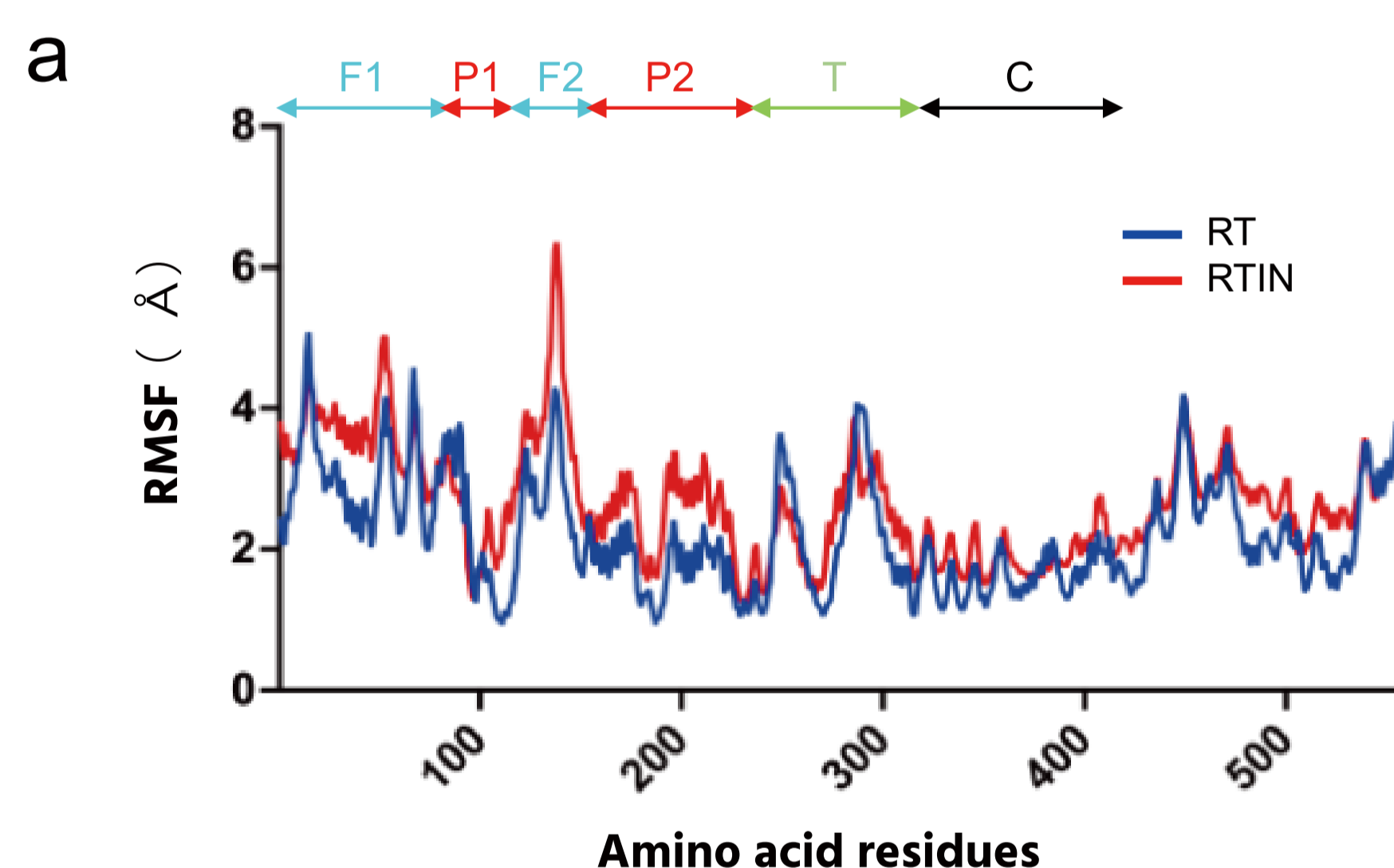
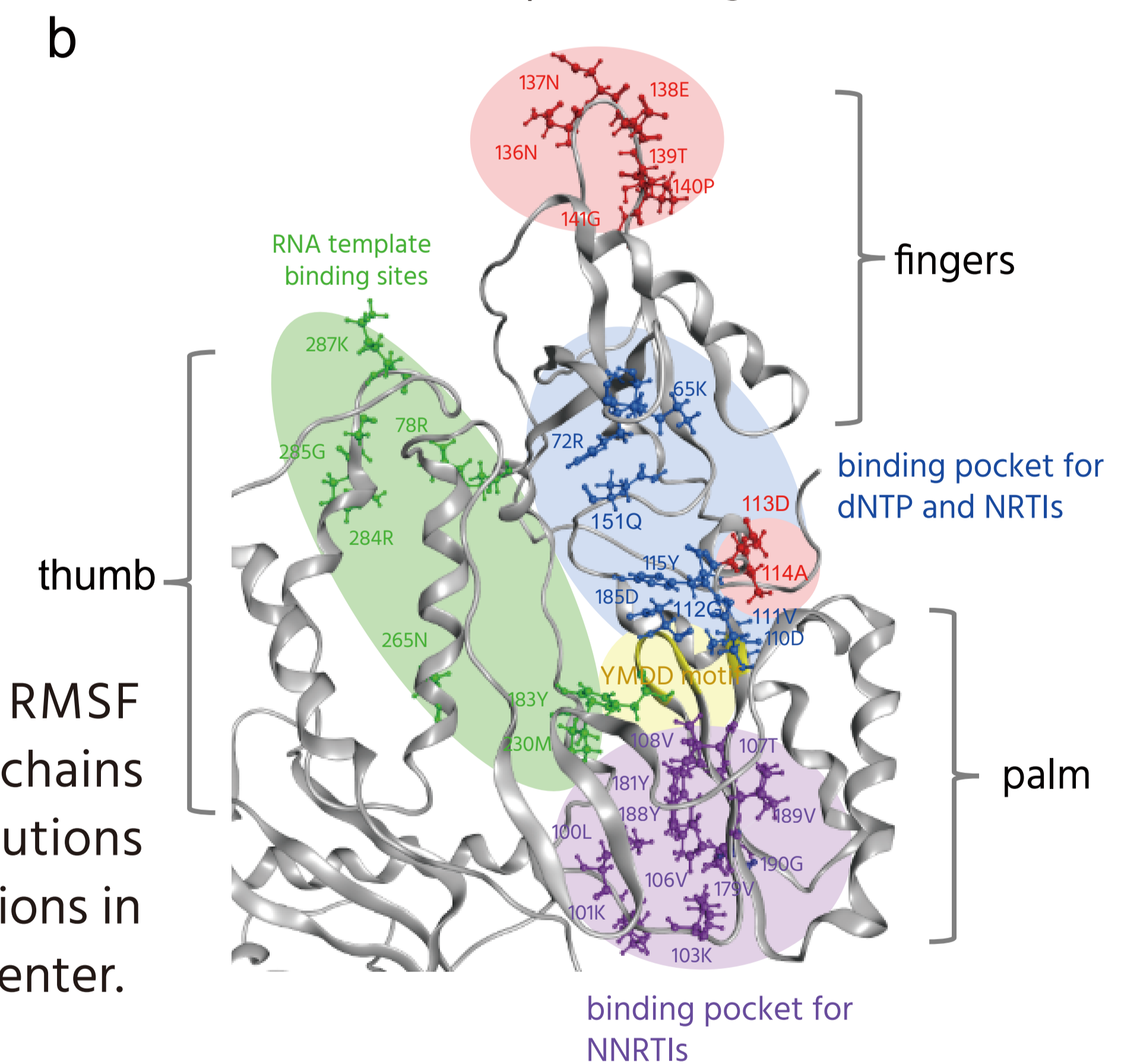


Figure: Effects of IN fusion on fluctuations of RT protein. RMSF values, which indicate the atomic fluctuations of the main chains of individual amino acids during MD simulations. (a) Distributions of RMSF in RT. Numbers on the horizontal axes indicate positions in the mature RT of HIV-1 NL4-3. (b) Overall view of RT active center.



HPCI confederation and JHPCN

High Performance Computing Infrastructure (HPCI)

National grid infrastructure for HPC research

Resources

- 15 supercomputers in Japan, including TSUB-AME3.0
- 90PB global shared storage to share data

Status

- 10 projects use TSUBAME3.0 for the HPCI project on FY2023

For more details, please go to booth #3930 "Research Organization for Information Science & Technology (RIST)"

Joint Usage/Research Center for Interdisciplinary Large-scale Information Infrastructures (JHPCN)

The Network-Type Research Center aims to contribute to the advancement and permanent development of the academic and research infrastructure of Japan

Resources Provider

- 8 supercomputer centers in Japan, including TSUB-AME3.0

Status of Joint Research Projects

- 7 projects use TSUBAME3.0, and total 68 projects are adopted as JHPCN projects on FY2023, including international & Industry joint research projects

