

DNA binding strength increases the processivity and activity of a Y-Family DNA polymerase

Jing Wu^{1,2}, Alexandra De Paz¹, Bradley M. Zamft³, Adam H. Marblestone^{4,5}, Edward S. Boyden^{6,7,8}, Konrad P. Kording^{9,10} and Keith E.J. Tyo*¹

1 Department of Chemical and Biological Engineering, Northwestern University, Evanston, Illinois, United States of America,

2 The school of pharmacy, Jiangnan University, Wuxi, Jiangsu Province, China,

3 Department of Genetics, Harvard Medical School, Boston, Massachusetts, United States of America,

4 Biophysics Program, Harvard University, Boston, Massachusetts, United States of America,

5 Wyss Institute, Harvard University, Boston, Massachusetts, United States of America,

6 Media Lab, Massachusetts Institute of Technology, Cambridge, Massachusetts, United States of America,

7 Department of Biological Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts, United States of America,

8 McGovern Institute, Massachusetts Institute of Technology, Cambridge, Massachusetts, United States of America,

9 Department of Physiology, Northwestern University, Chicago, Illinois, United States of America,

10 Department of Applied Mathematics, Northwestern University, Chicago, Illinois, United States of America

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*Corresponding author:
Telephone: 847.868.0319
Fax: 847.467.2972
email: k-tyo@northwestern.edu

Supplemental Figure 1. Full-length images on processivity of Dbh and the variants. (A)Dbh, (B) Sdbh,(C) SdbhKSKIP241-245RVRKS, (D) SdbhM76I.

Supplemental Figure2. Steady-state kinetic analysis of dCTP and dATP incorporation on unmodified G and oxoG-modified templates by Dbh and the

varitants. The reaction contained a template with G or 8-oxoG at position X as

follows $5\text{'-FAM-GGTTGGATGGTAG-3'}$ and

$5\text{'-CTAAC}\underline{\text{X}}\text{CTACCATCCAACC-3'}$.The PAGE gels (top panels) show data as a

function of dCTP/ dATP concentration, while the plots (bottom panels) measure the

log of the frequency of nucleotide insertion for dCTP/ dATP. The labeled (-1) position

represents the 13-mer primer with the 3'-end positioned one base before the G or

oxoG; The labeled (0) position represents the 14-mer products with one base opposite

G or oxoG; See Table 3 for V_{\max} and K_m values.