

A: Datasheet

Algorithm: ntechlab\_6

Developer: N-Tech Lab

Submission Date: 2018\_10\_30

Template size: 1940 bytes

Template time (2.5 percentile): 828 msec

Template time (median): 831 msec

Template time (97.5 percentile): 886 msec

Investigation:

Frontal mugshot ranking 82 (out of 279) -- FNIR(1600000, 0, 1) = 0.0041 vs. lowest 0.0009 from sensetime\_005

Mugshot webcam ranking 67 (out of 241) -- FNIR(1600000, 0, 1) = 0.0166 vs. lowest 0.0062 from sensetime\_005

Mugshot profile ranking 42 (out of 210) -- FNIR(1600000, 0, 1) = 0.3473 vs. lowest 0.0587 from xforwardai\_002

Immigration visa-border ranking 60 (out of 168) -- FNIR(1600000, 0, 1) = 0.0073 vs. lowest 0.0013 from visionlabs\_010

Immigration visa-kiosk ranking 49 (out of 165) -- FNIR(1600000, 0, 1) = 0.1133 vs. lowest 0.0568 from cloudwalk\_hr\_000

Identification:

Frontal mugshot ranking 68 (out of 279) -- FNIR(1600000, T, L+1) = 0.0366, FPIR=0.001000 vs. lowest 0.0018 from sensetime\_004

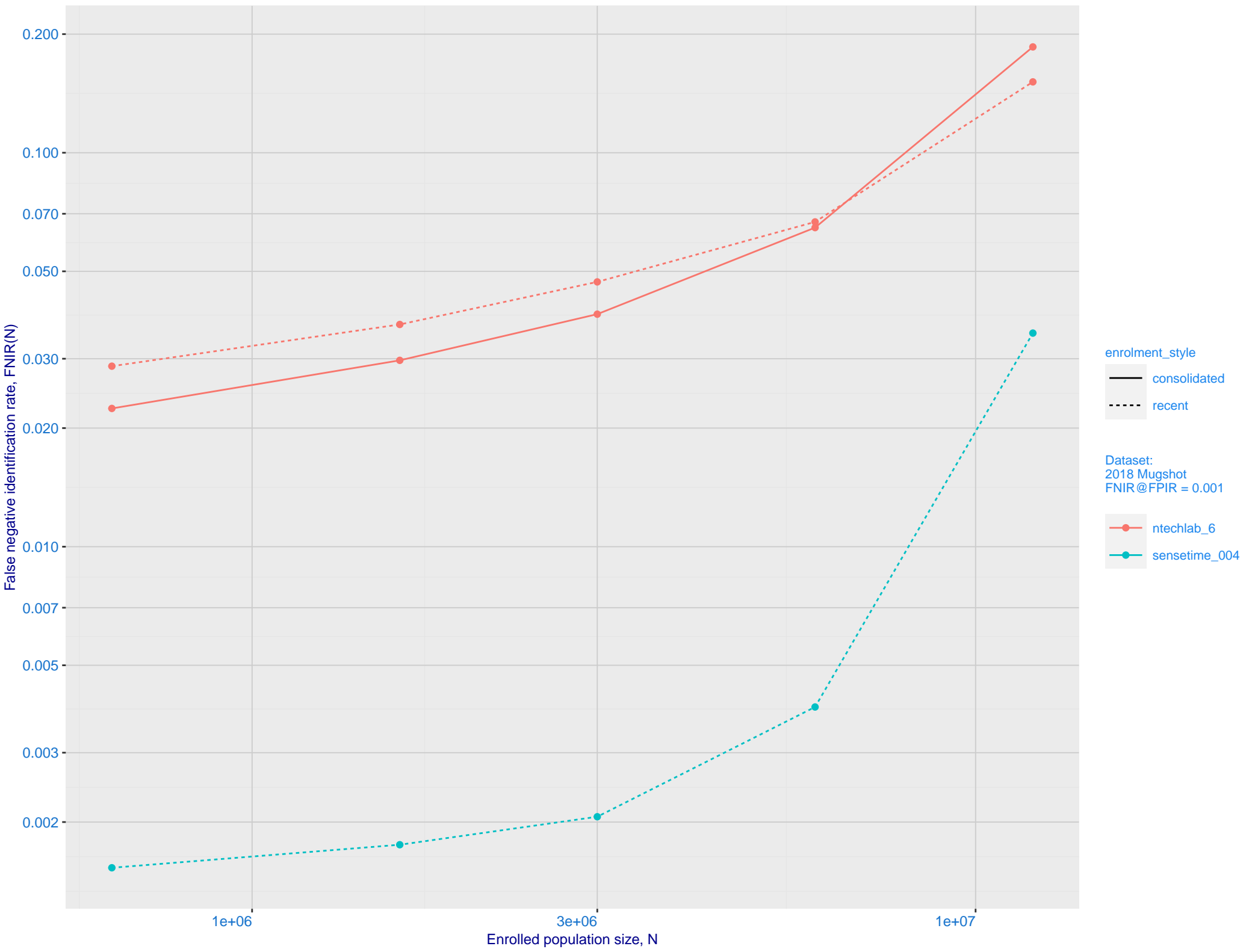
Mugshot webcam ranking 67 (out of 236) -- FNIR(1600000, T, L+1) = 0.0941, FPIR=0.001000 vs. lowest 0.0122 from sensetime\_003

Mugshot profile ranking 21 (out of 209) -- FNIR(1600000, T, L+1) = 0.7545, FPIR=0.001000 vs. lowest 0.1331 from cloudwalk\_hr\_000

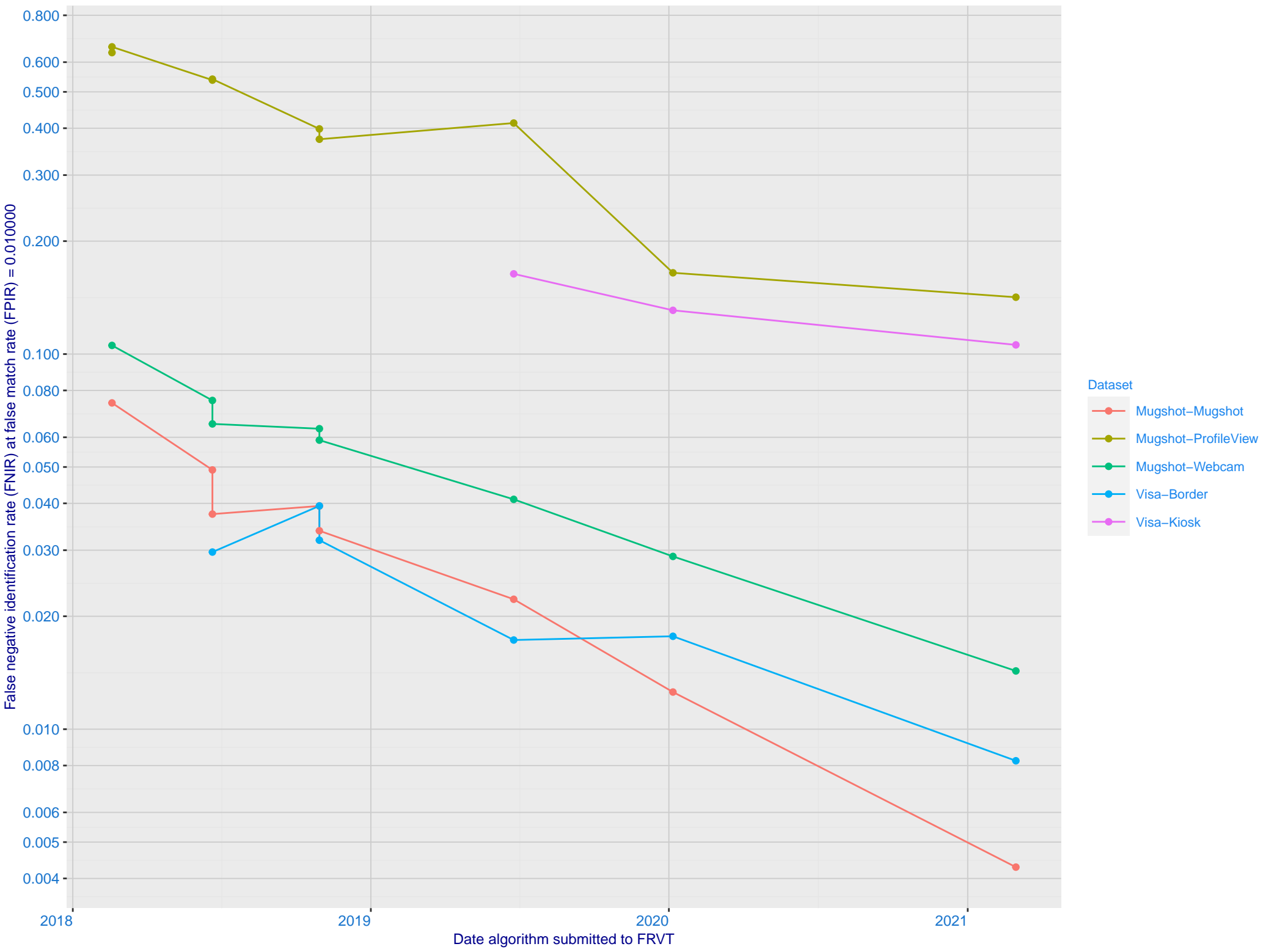
Immigration visa-border ranking 58 (out of 167) -- FNIR(1600000, T, L+1) = 0.0574, FPIR=0.001000 vs. lowest 0.0047 from idemia\_008

Immigration visa-kiosk ranking 35 (out of 162) -- FNIR(1600000, T, L+1) = 0.2605, FPIR=0.001000 vs. lowest 0.0996 from cloudwalk\_hr\_000

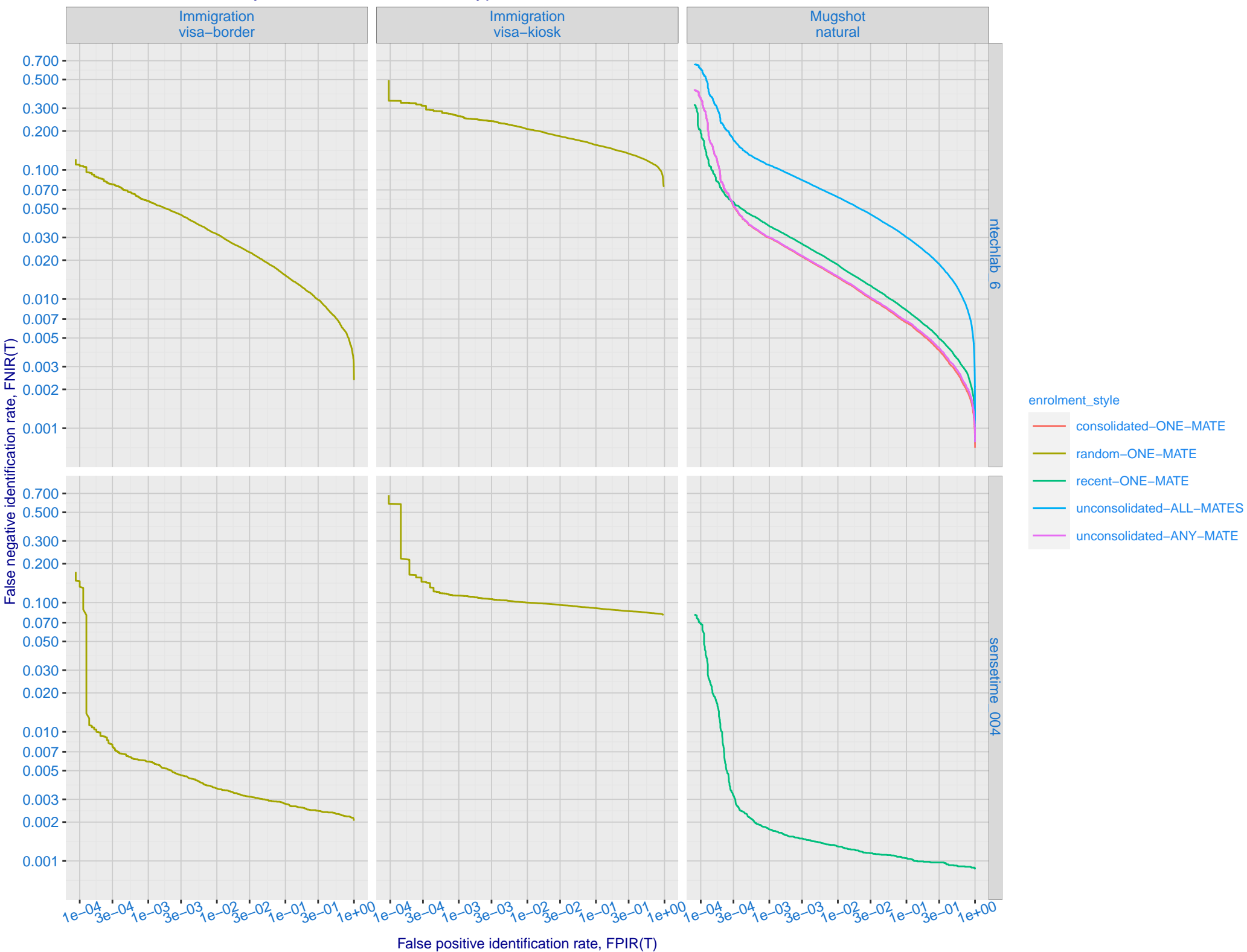
B: Mugshot natural images, identification mode: FNIR(N, L+1, T) vs. most accurate (sensitive\_004)



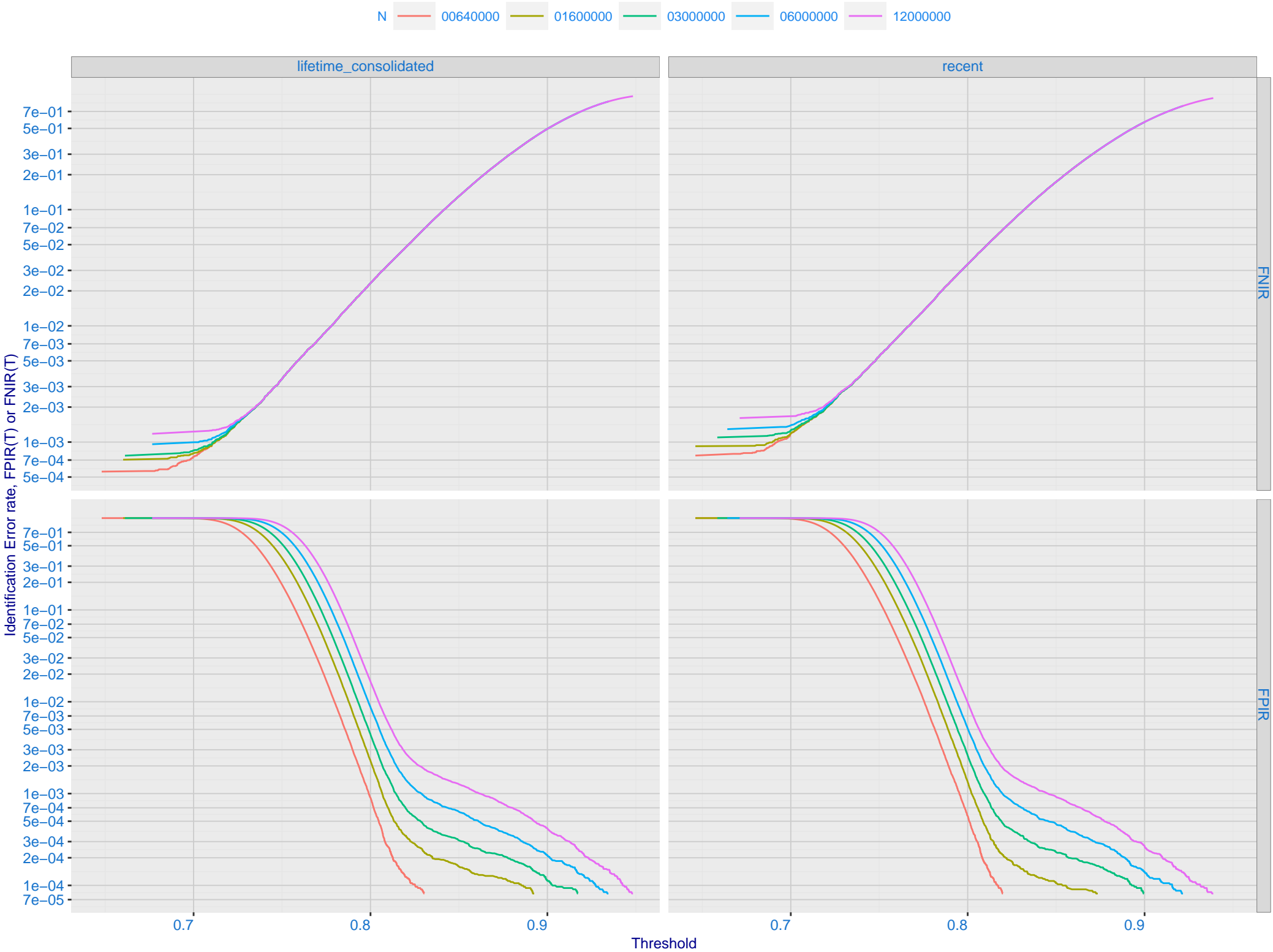
C: Evolution of accuracy for NTECHLAB algorithms on three datasets 2018 – present



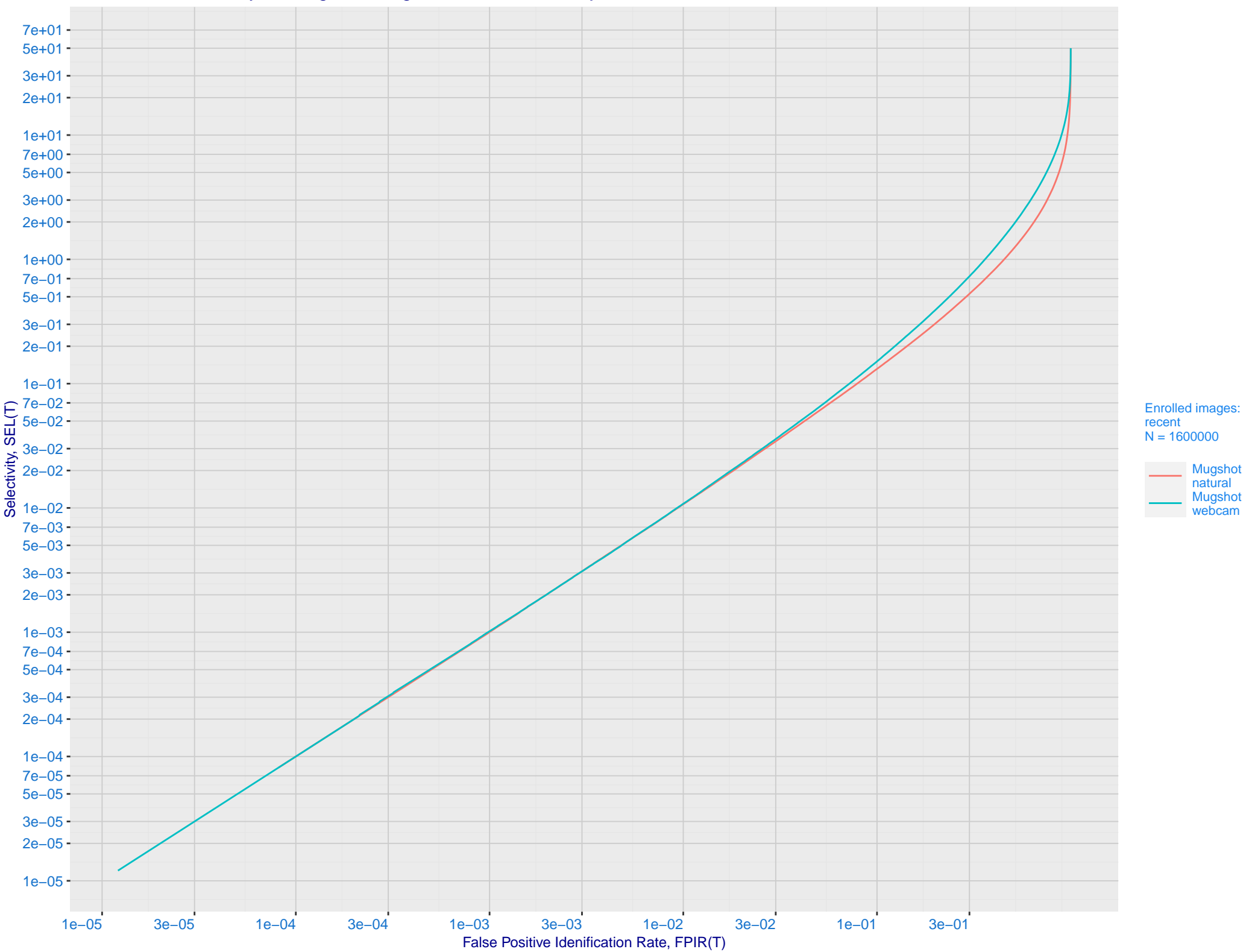
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals



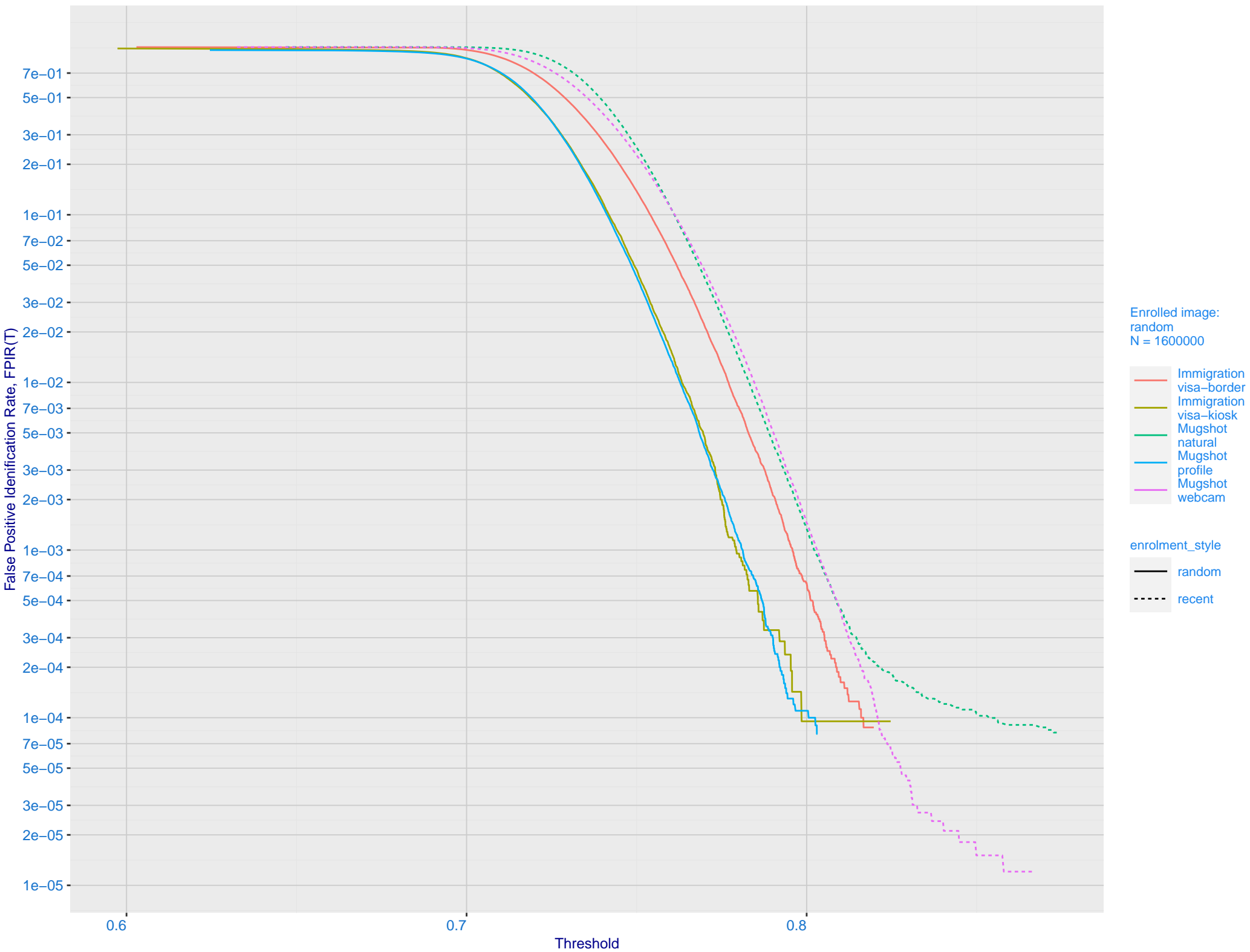
E: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images



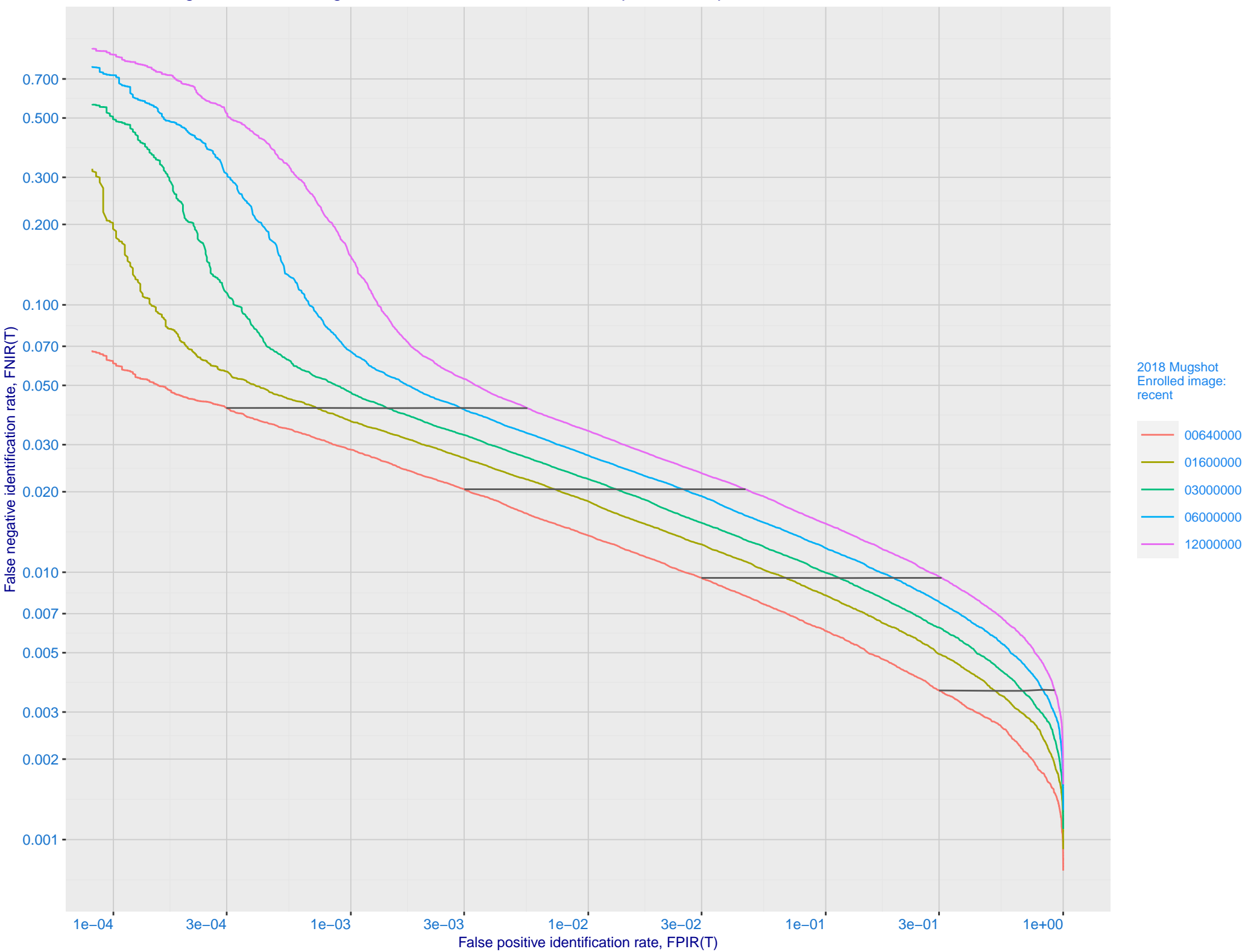
F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate



G: FPIR dependence on T by probe type for N = 1600000 subjects

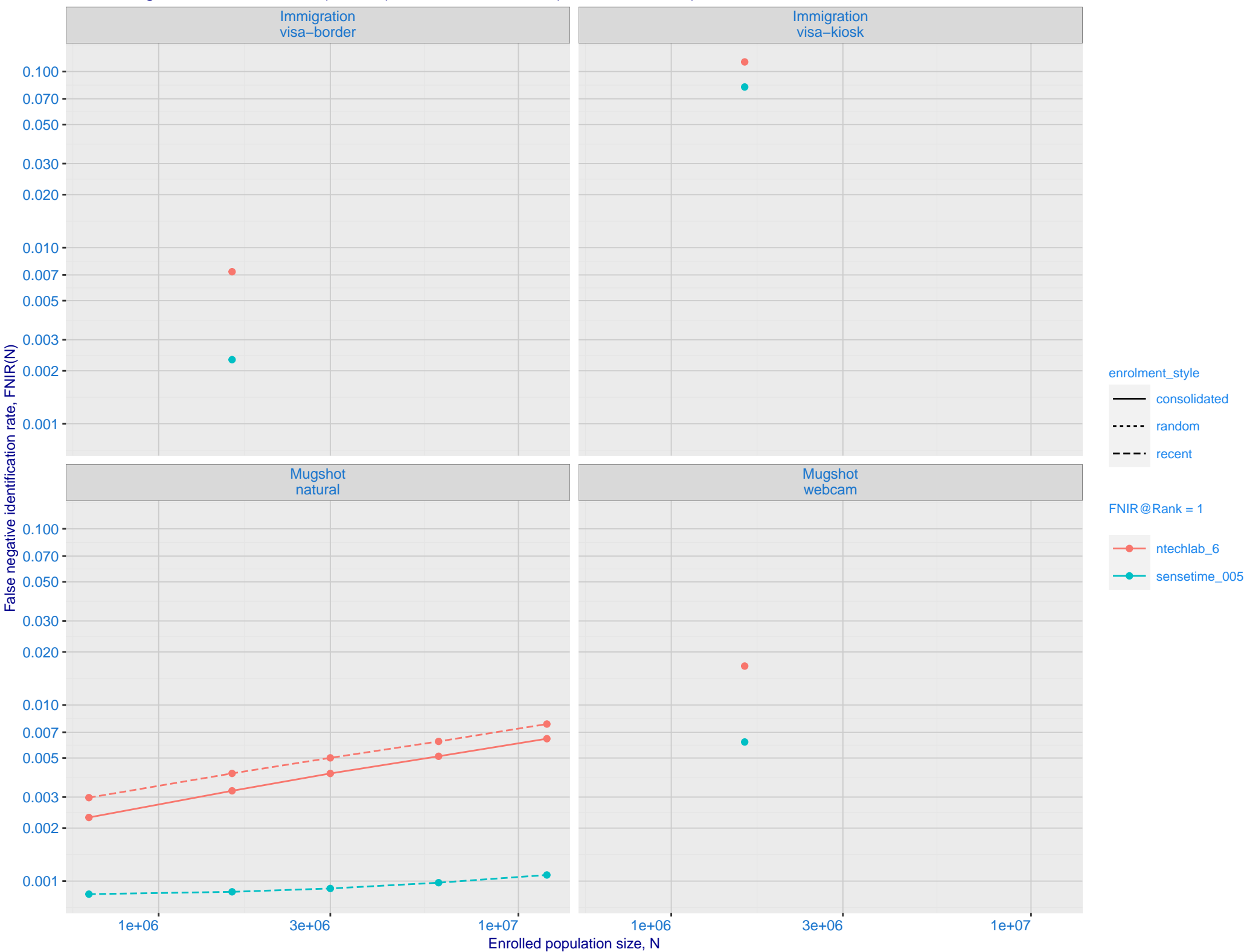


J: DET for Mugshot natural images and various N. Links connect points of equal threshold.

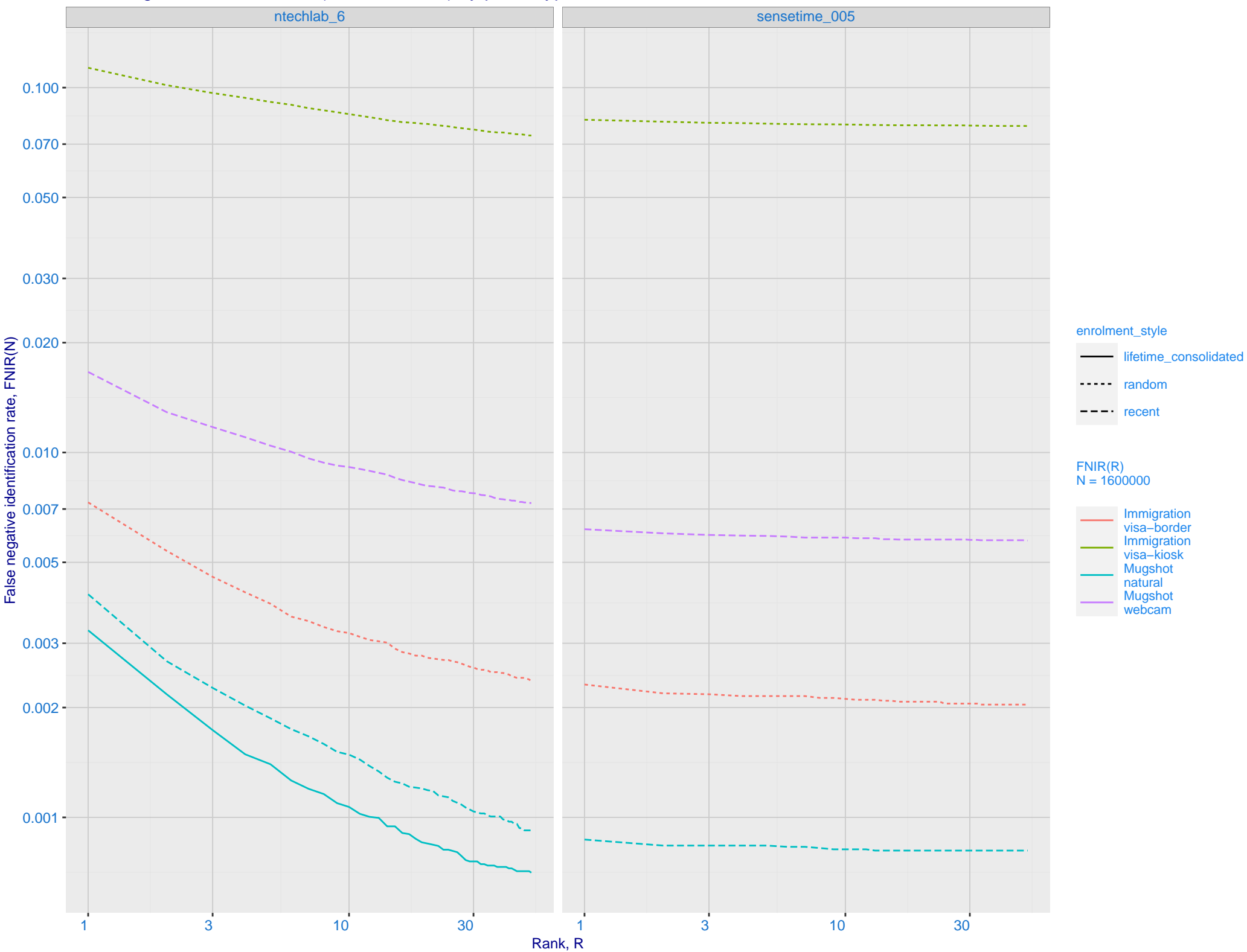




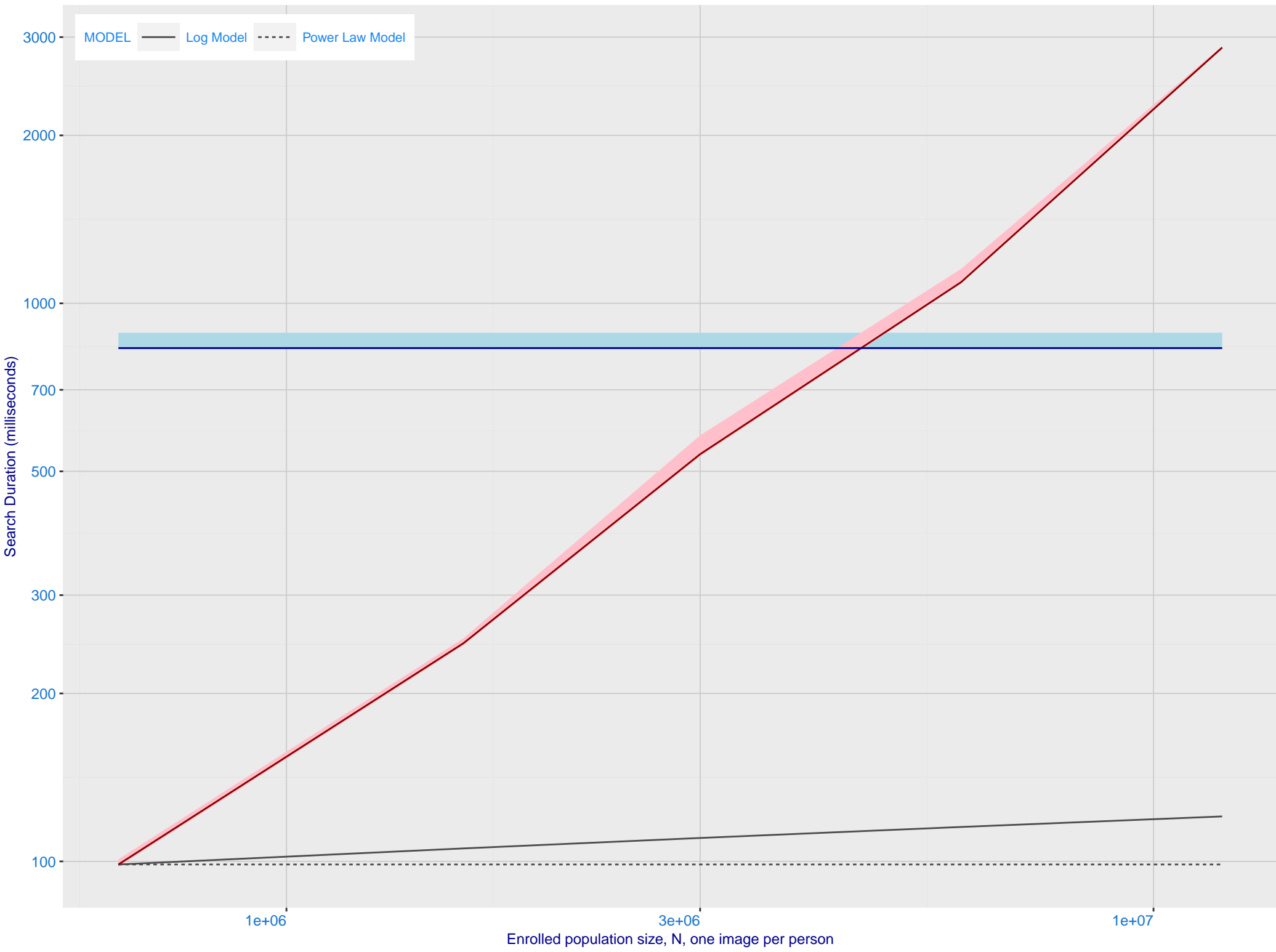
K: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime\_005)



L: Investigational mode: FNIR(1600000, R, 0) by probe type

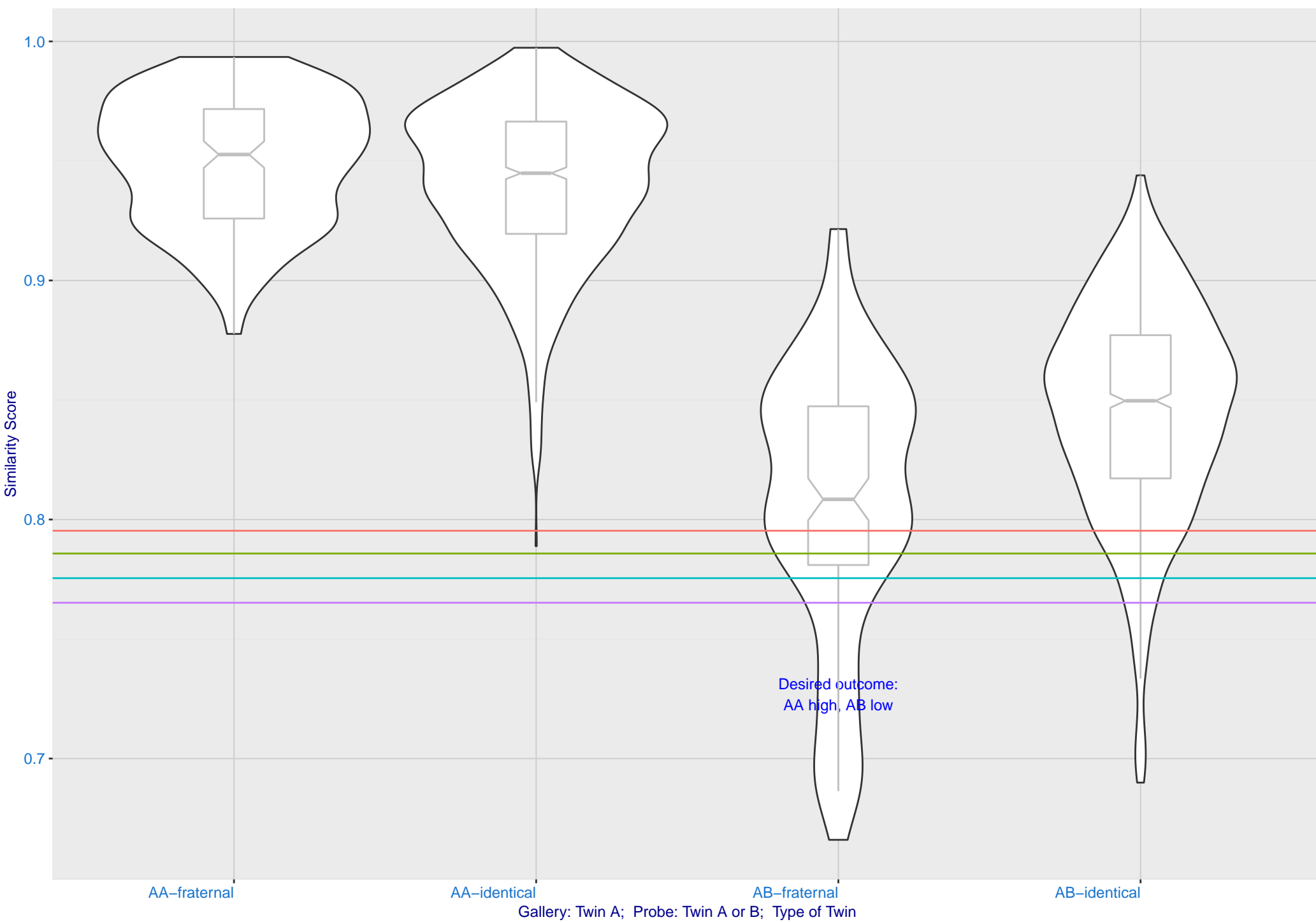


M: Template duration; search duration vs. N. The blue and pink ribbon covers 95 percent of observed measurements.  
The template generation time is independent of N. The log and power-law models are fit to the first two (N,T) observations



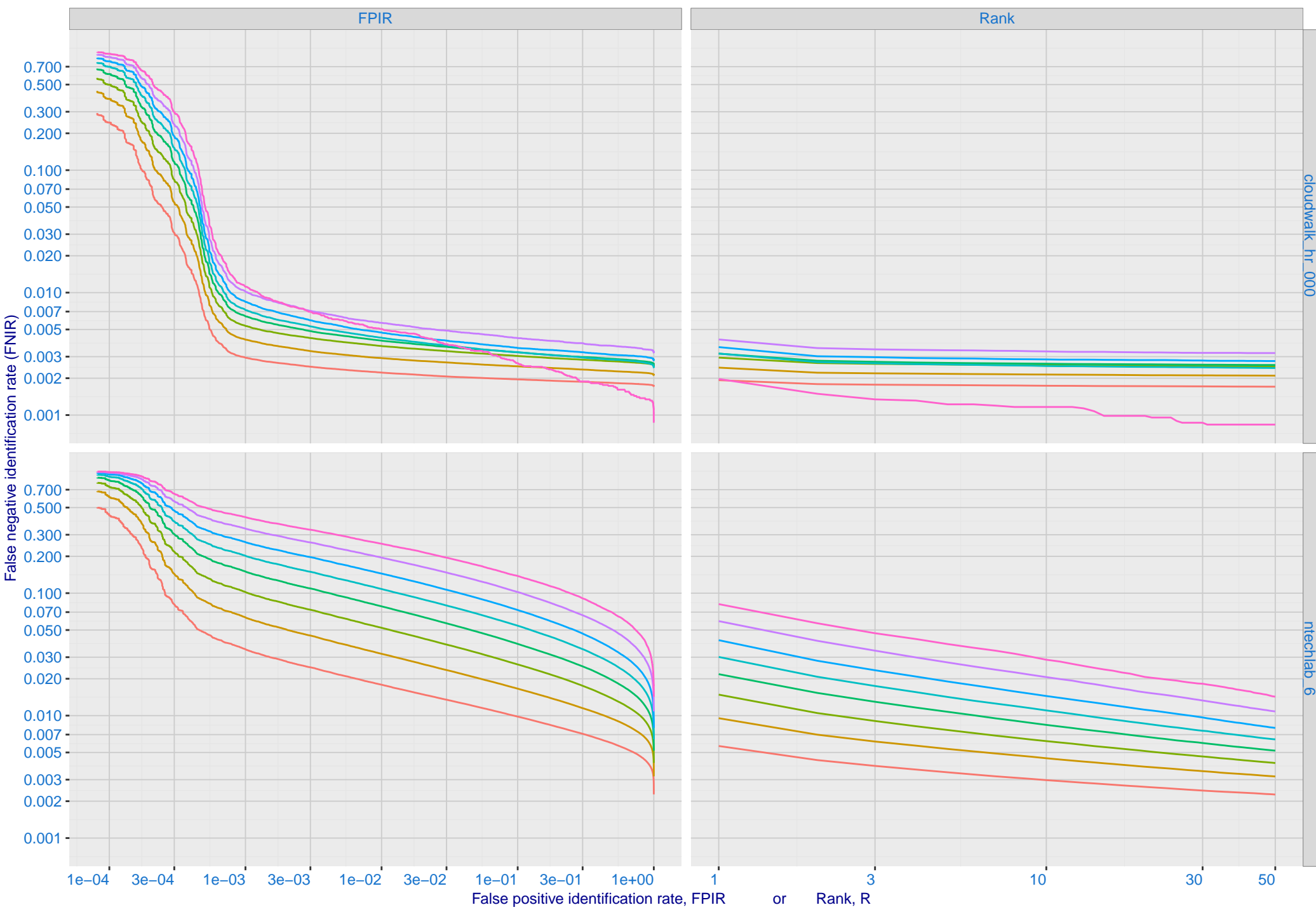
# N: Solo-Twin and Twin-Twin similarity scores

TVAL — FPIR = 0.001 — FPIR = 0.003 — FPIR = 0.010 — FPIR = 0.030



# Q: Identification FNIR(N, T, L+1) and Investigational FNIR(N, 0, R) under ageing

Dataset: 2018 Mugshot N = 3068801



R: Decline of genuine scores with ageing, with some eventually dropping below typical thresholds shown by the horizontal lines

