A: Datasheet

Algorithm: idemia_010

Developer: Idemia

Submission Date: 2023_01_11

Template size: 300 bytes

Template time (2.5 percentile): 953 msec

Template time (median): 956 msec

Template time (97.5 percentile): 964 msec

Investigation:

Frontal mugshot ranking 6 (out of 388) –– FNIR(1600000, 0, 1) = 0.0009 vs. lowest 0.0008 from sensetime_009

Mugshot webcam ranking 8 (out of 350) –– FNIR(1600000, 0, 1) = 0.0063 vs. lowest 0.0054 from sensetime_009

Mugshot profile ranking 10 (out of 319) –– FNIR(1600000, 0, 1) = 0.0583 vs. lowest 0.0517 from sensetime_009

Immigration visa–border ranking 5 (out of 277) –– FNIR(1600000, 0, 1) = 0.0008 vs. lowest 0.0006 from cloudwalk_mt_001

Immigration visa–kiosk ranking 4 (out of 222) –– FNIR(1600000, 0, 1) = 0.0458 vs. lowest 0.0395 from cloudwalk_mt_001

Identification:

Frontal mugshot ranking 2 (out of 388) –– FNIR(1600000, T, L+1) = 0.0011, FPIR=0.001000

Mugshot webcam ranking 2 (out of 348) –– FNIR(1600000, T, L+1) = 0.0082, FPIR=0.001000 vs. lowest 0.0072 from sensetime_009

Mugshot profile ranking 3 (out of 318) –– FNIR(1600000, T, L+1) = 0.1306, FPIR=0.001000 vs. lowest 0.0698 from cloudwalk_mt_001
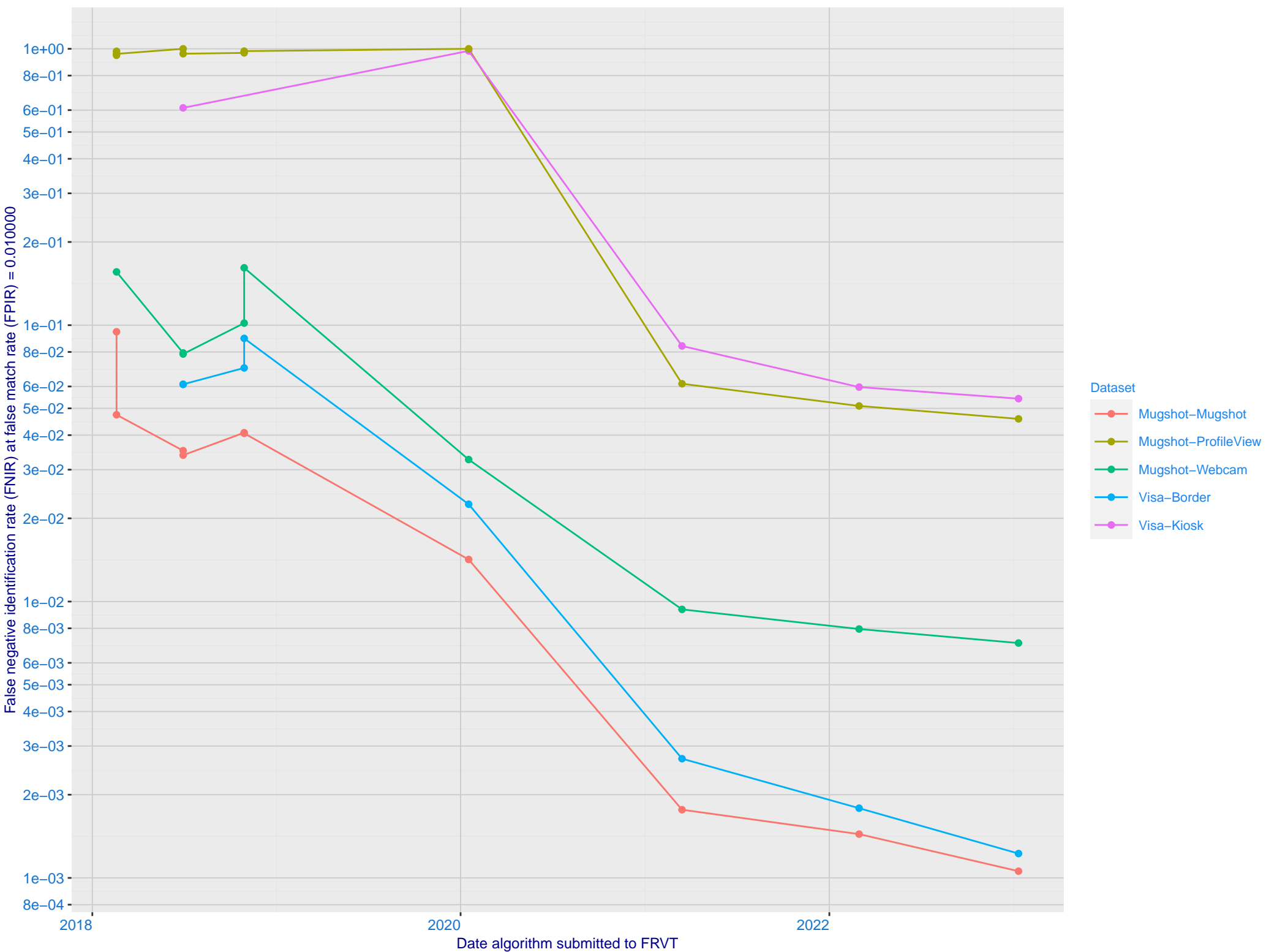
Immigration visa–border ranking 3 (out of 276) –– FNIR(1600000, T, L+1) = 0.0020, FPIR=0.001000 vs. lowest 0.0013 from cloudwalk_mt_001

Immigration visa–kiosk ranking 2 (out of 222) –– FNIR(1600000, T, L+1) = 0.0633, FPIR=0.001000 vs. lowest 0.0532 from cloudwalk_mt_001
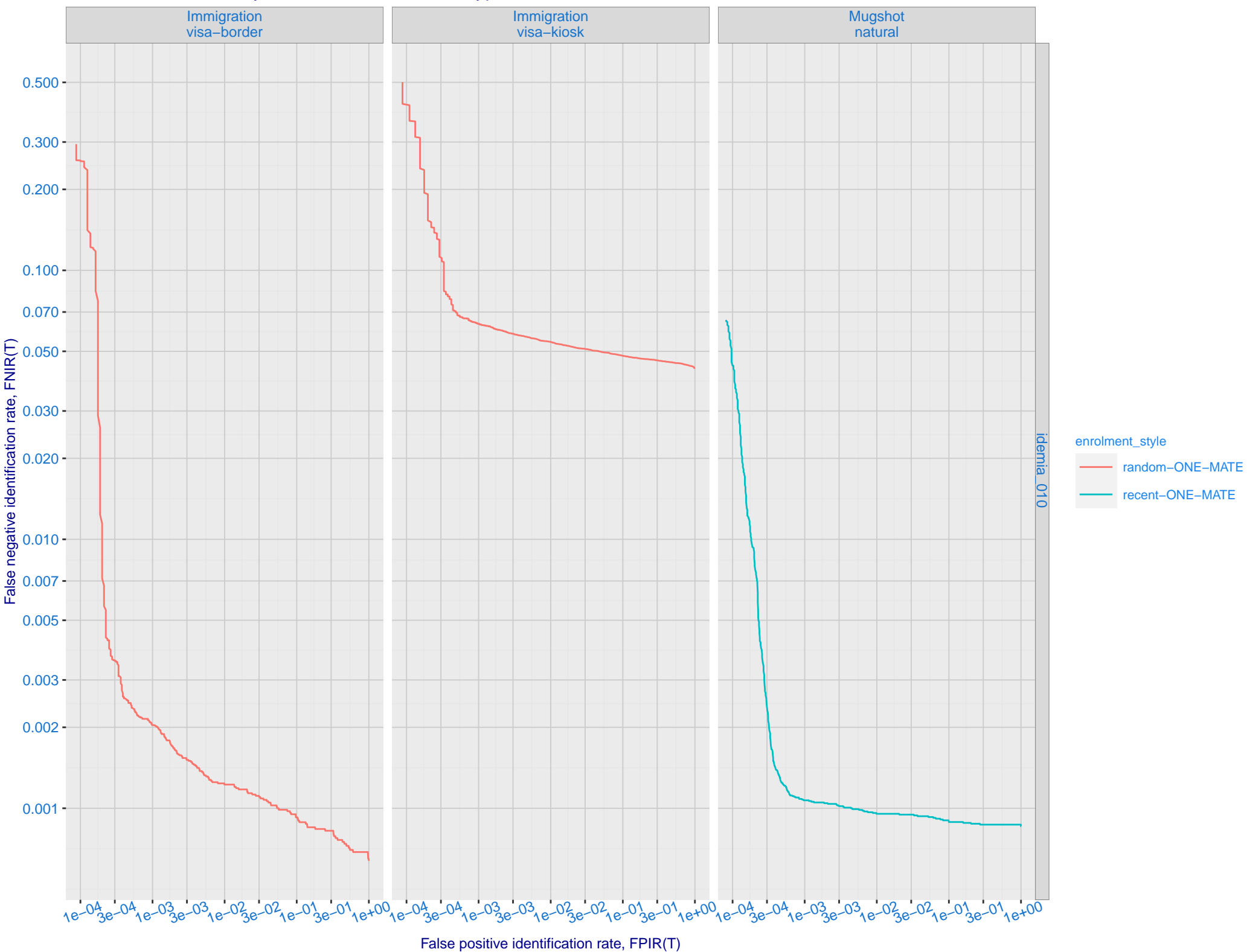
B: Mugshot natural images, identification mode: FNIR(N, L+1, T) vs. most accurate (idemia_010)
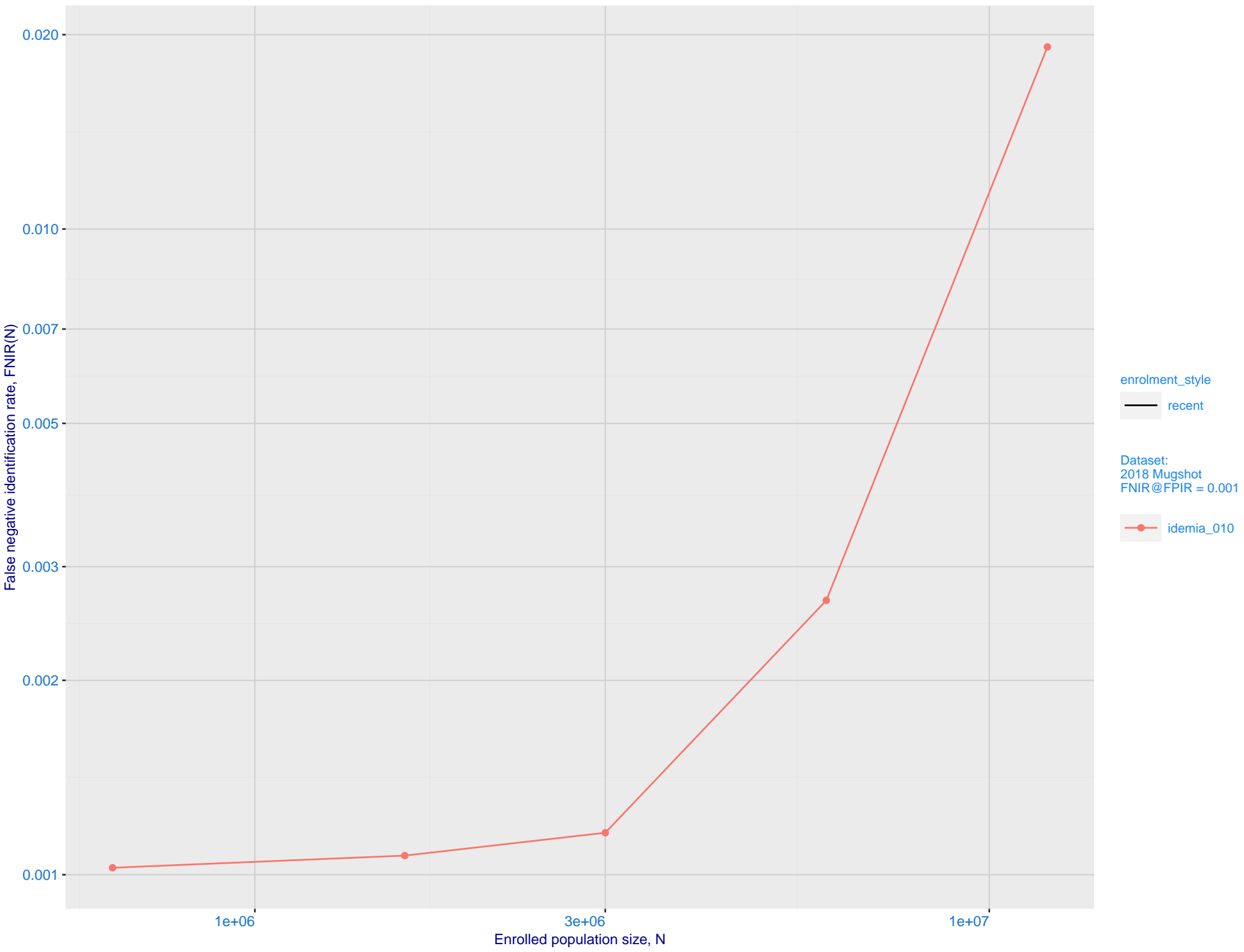
C: Evolution of accuracy for IDEMIA algorithms on three datasets 2018 – present

Dataset

- Mugshot–Mugshot
- Mugshot–ProfileView
- Mugshot–Webcam
- Visa–Border
- Visa–Kiosk

X-axis: Date algorithm submitted to FRVT

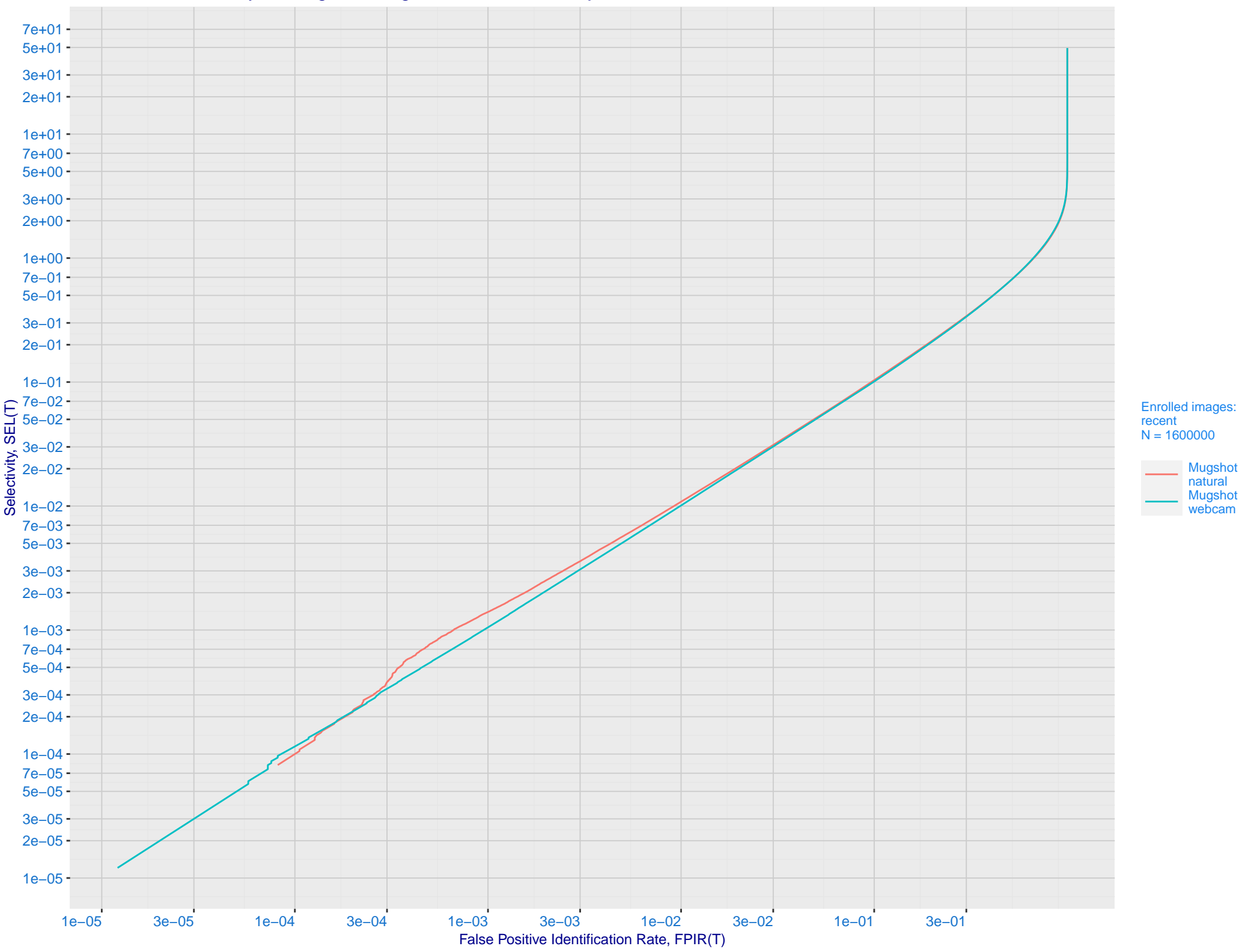Y-axis: False negative identification rate (FNIR) at false match rate (FMR) = 0.010000

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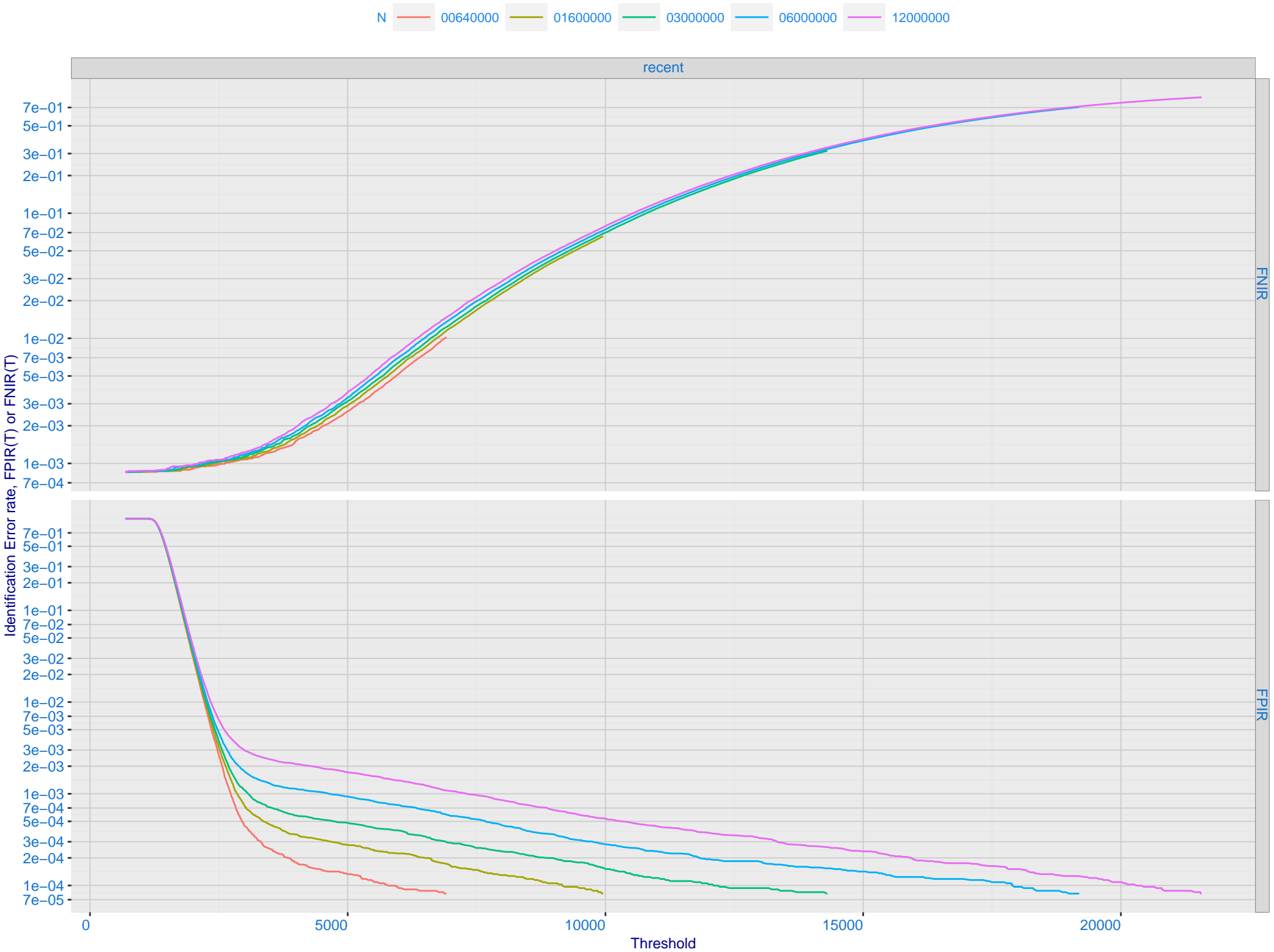
F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate

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

H: Reduced length candidate lists for human review
Dataset is border−border with time−lapse [10,15] YRS with N = 1600000. Probes are 10−15 years later than enrollment image
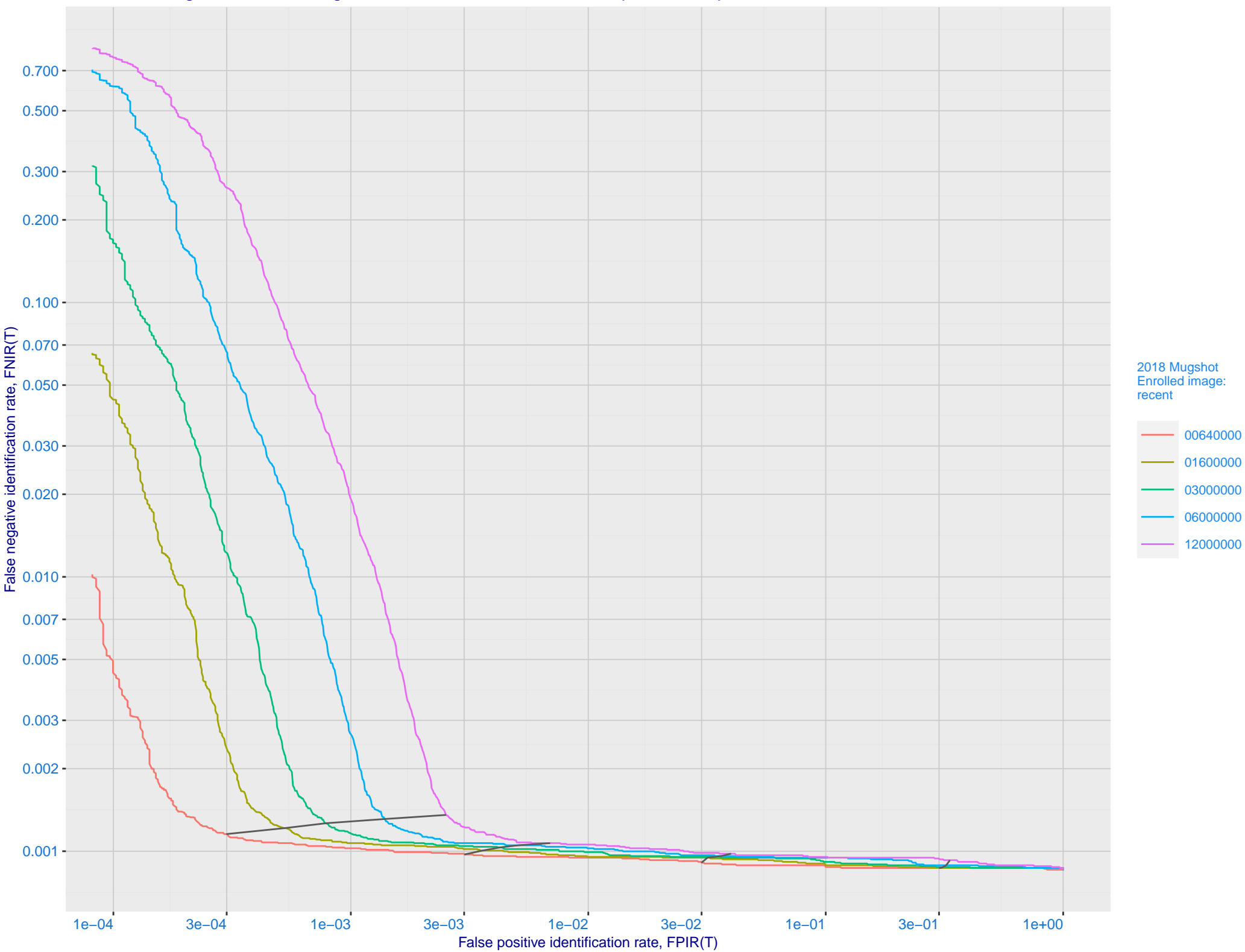
I: FNIR and FPIR dependence on threshold
Dataset is border−border with time−lapse [10,15] YRS with N = 1600000. Probes are 10−15 years later than enrollment image
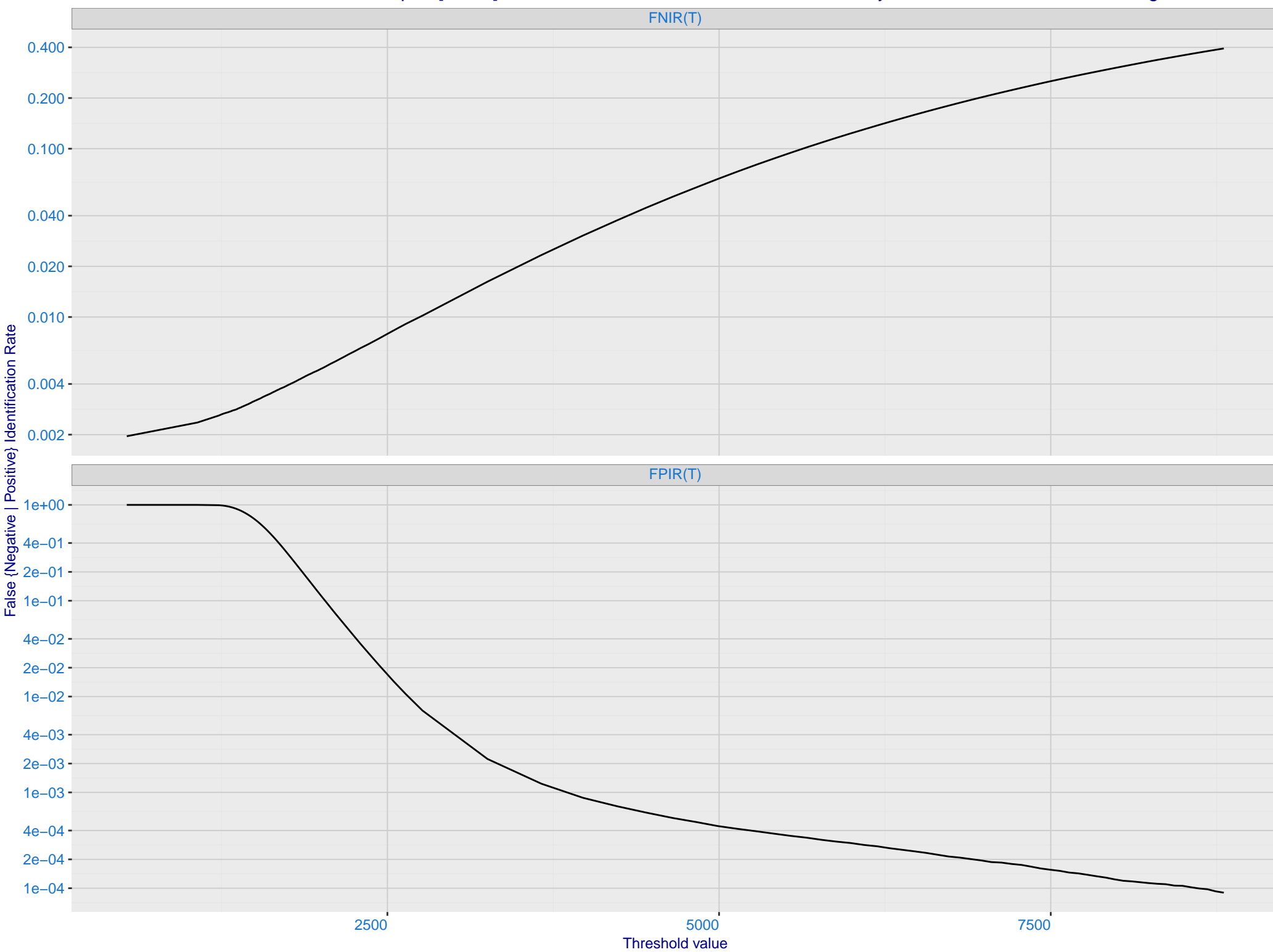
J: DET for Mugshot natural images and various N. Links connect points of equal threshold.

K: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_009)

False negative identification rate, FNIR(N) (y-axis)

Enrolled population size, N (x-axis)

Panels:
- Immigration visa-border
- Immigration visa-kiosk
- Mugshot natural
- Mugshot webcam

Legend:

FNIR @ Rank = 1
- idemia_010
- sensetime_009

enrolment_style
- random
- recent
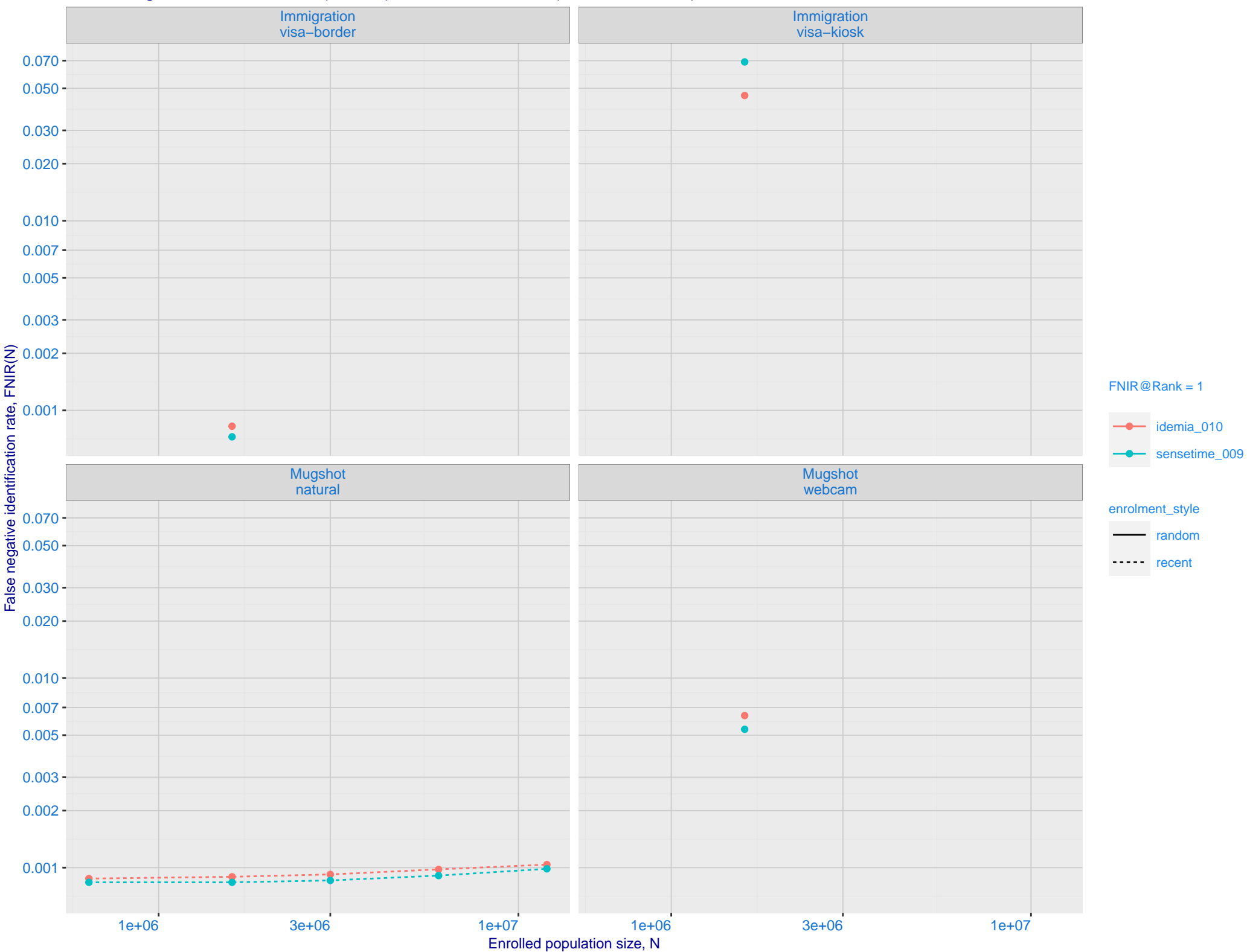
L: Investigational mode: FNIR(1600000, R, 0) by probe type
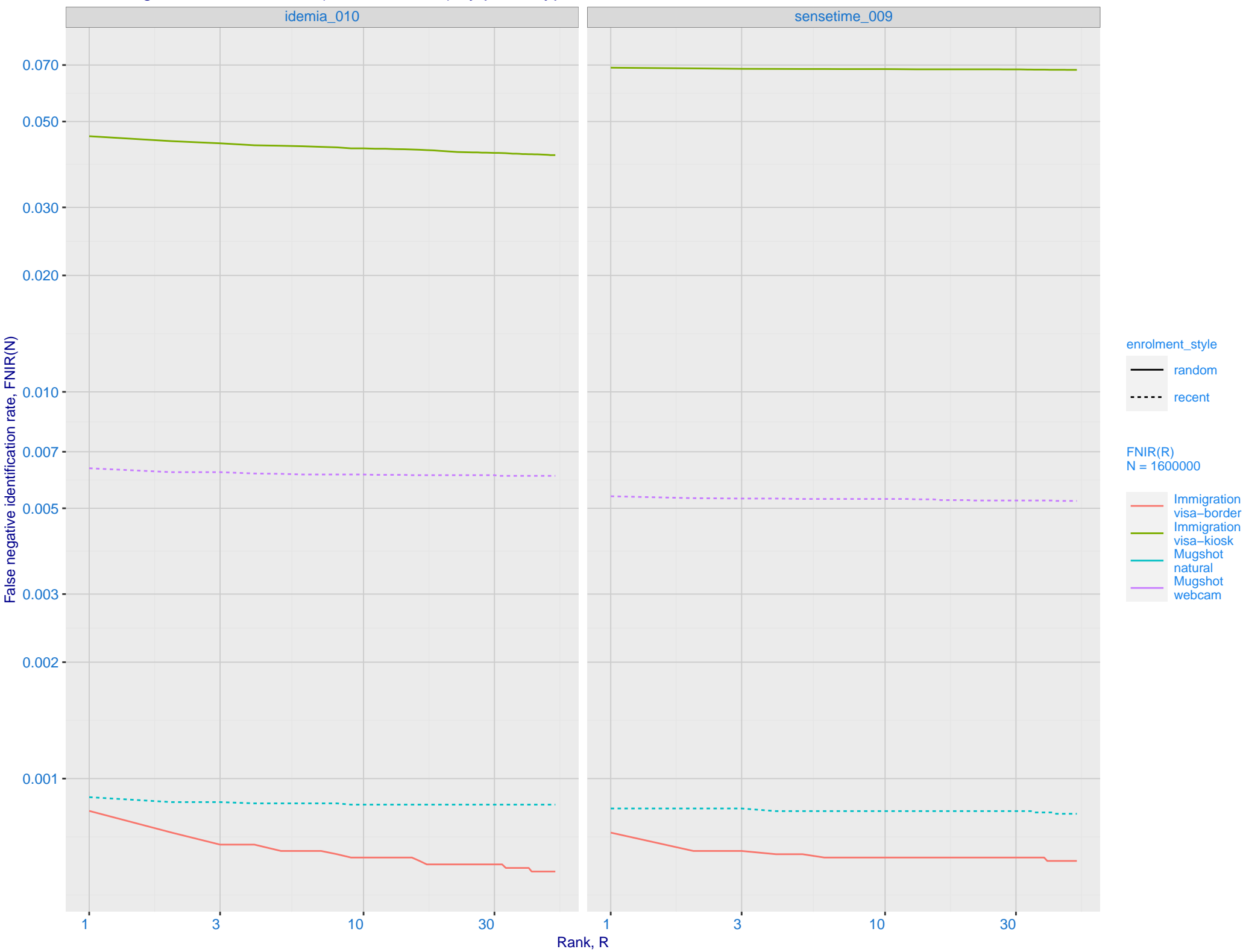
M: Template duration; search duration vs. N. The blue and pink ribbon covers 95 percent of observed measurements. The template generation time is independent of N. The log and power–law models are fit to the first two (N,T) observations
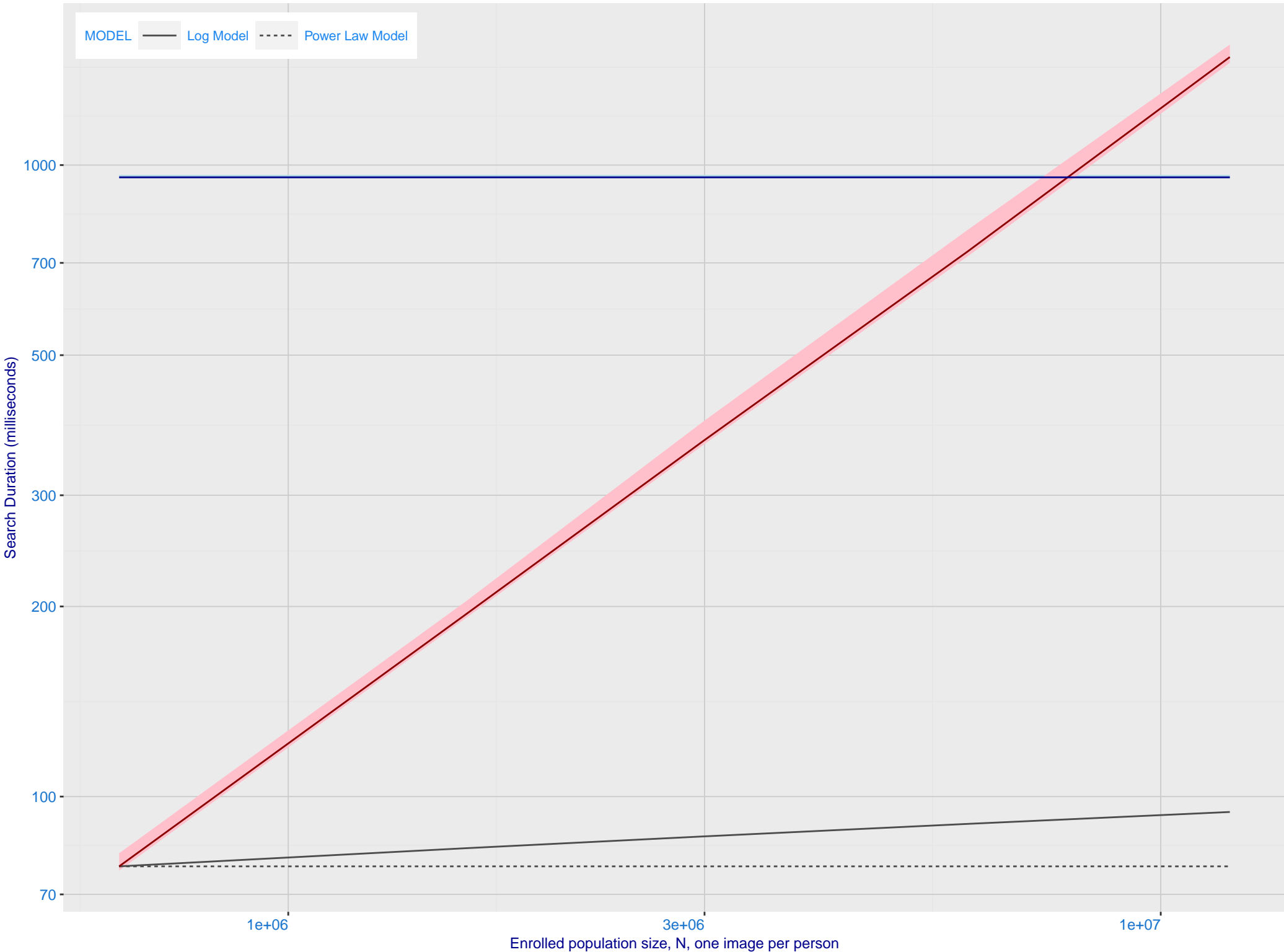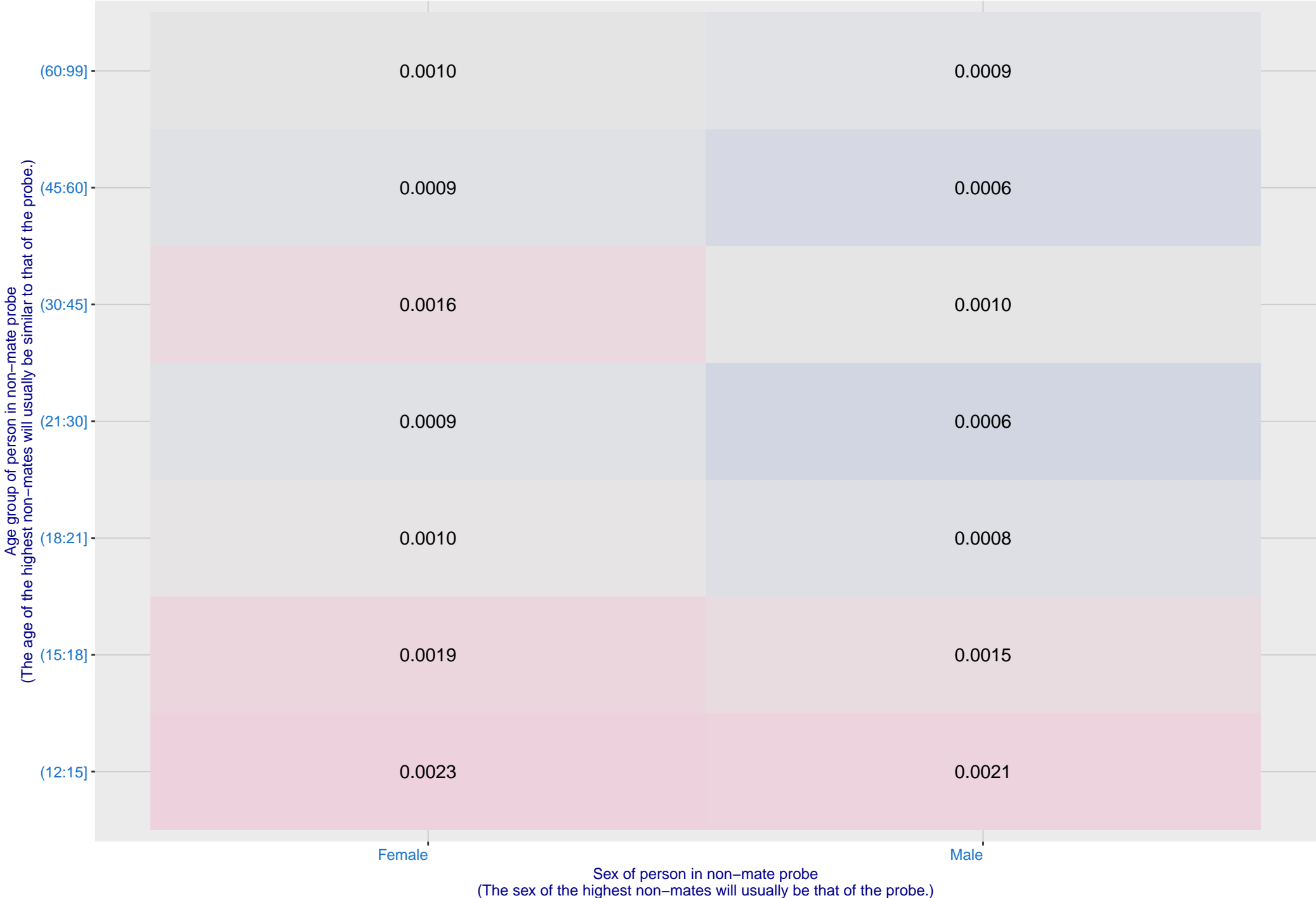
O: FNIR(T, N = 1.6 million) by sex, age and time−lapse. The top row gives investigational rank−1 miss rates. The bottom panels give high threshold for more lights−out identification with low FPIR.
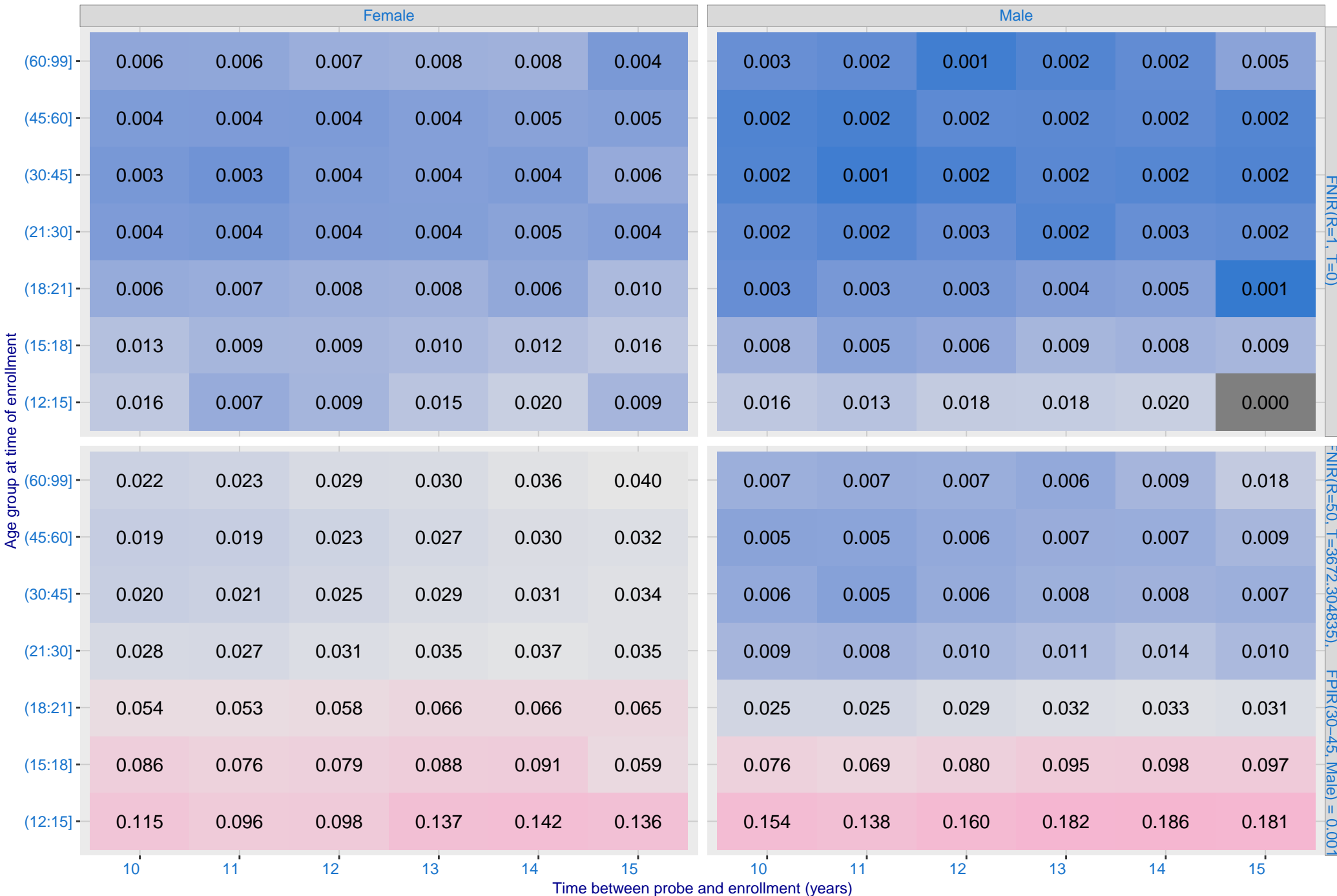
P: FPIR(N = 1.6 million) by sex and age. It is typical for false positive identification rates to be higher in women except in their teens.
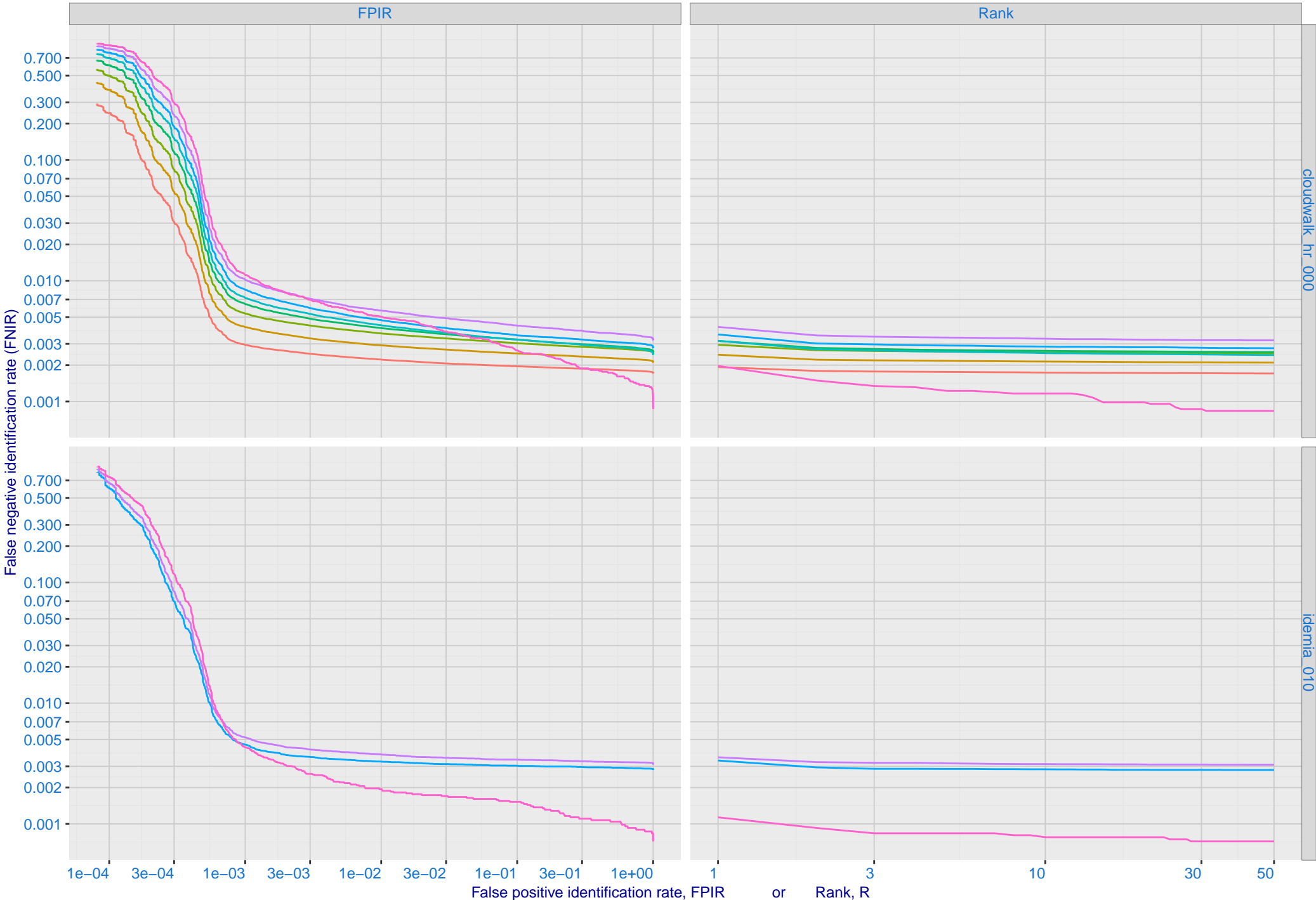
Q: Identification FNIR(N, T, L+1) and Investigational FNIR(N, 0, R) under ageing

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