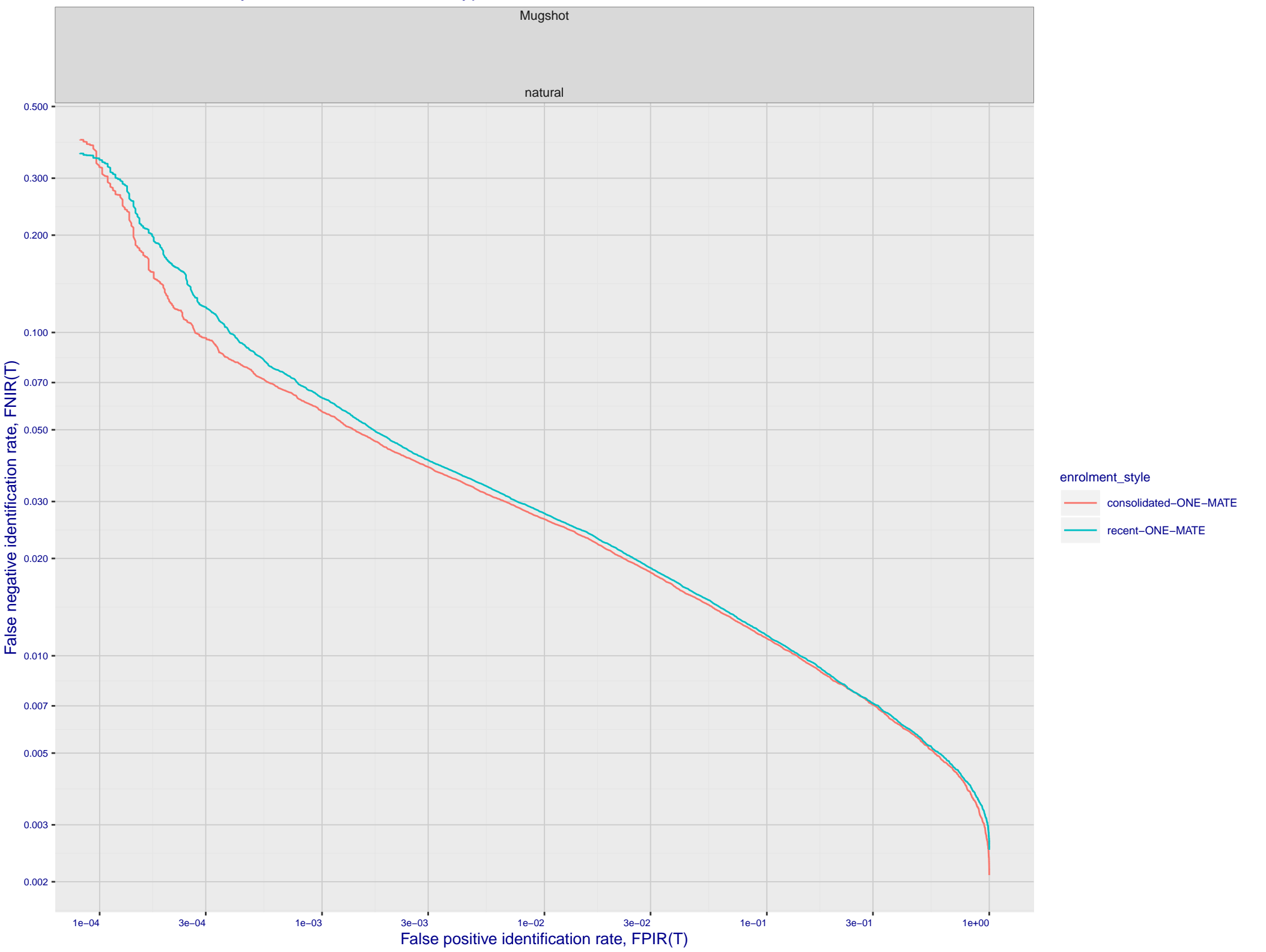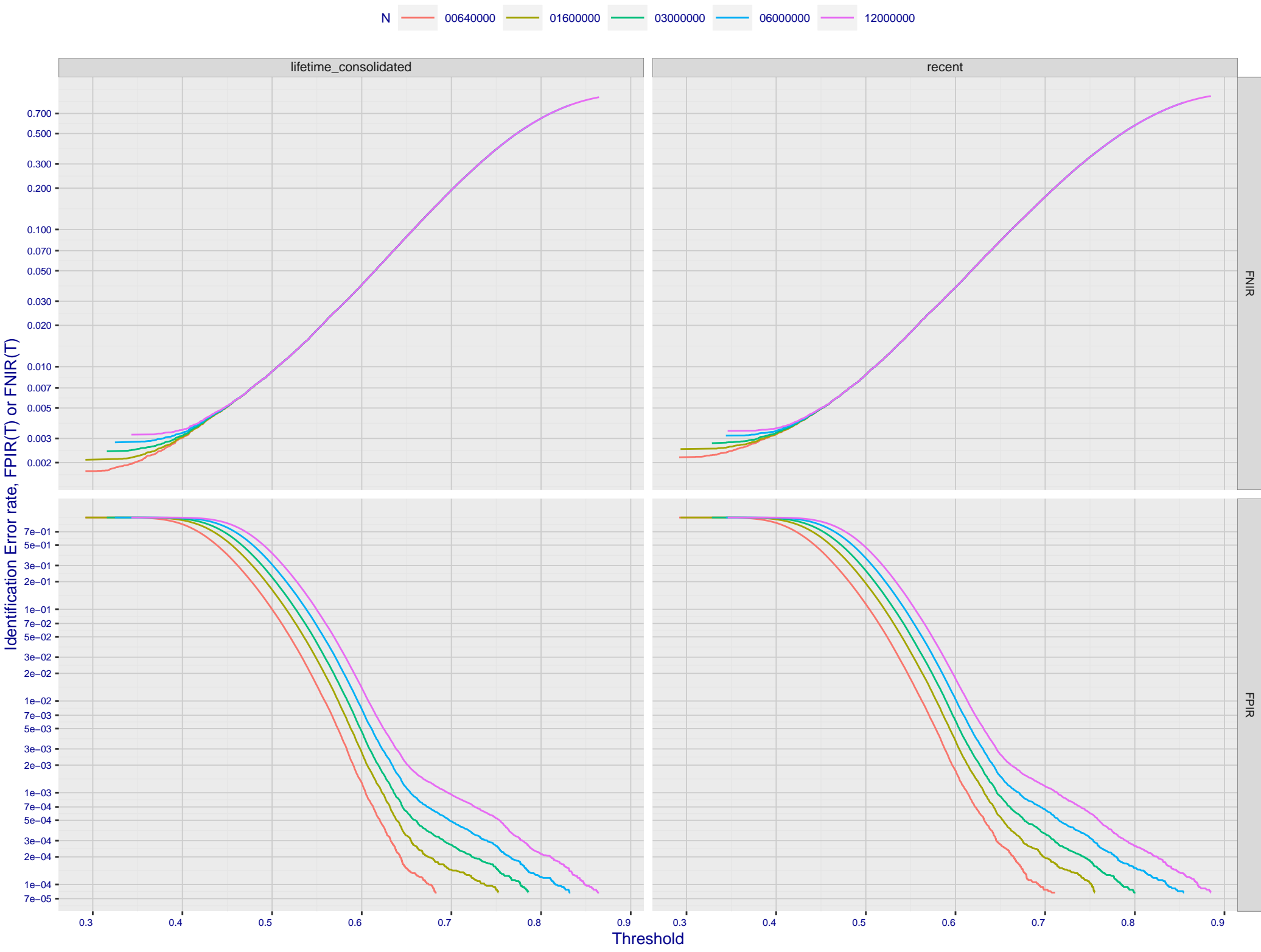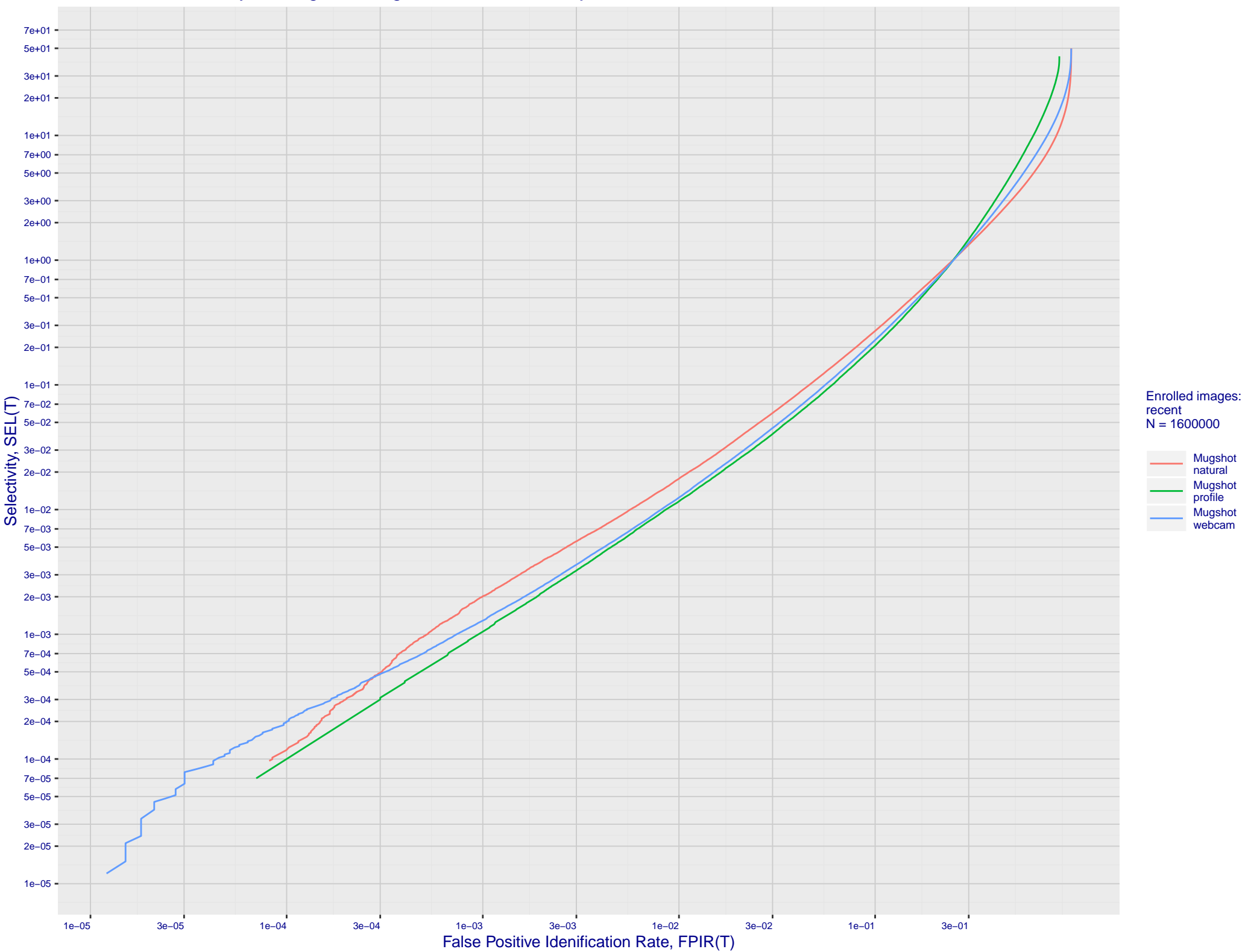A: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals
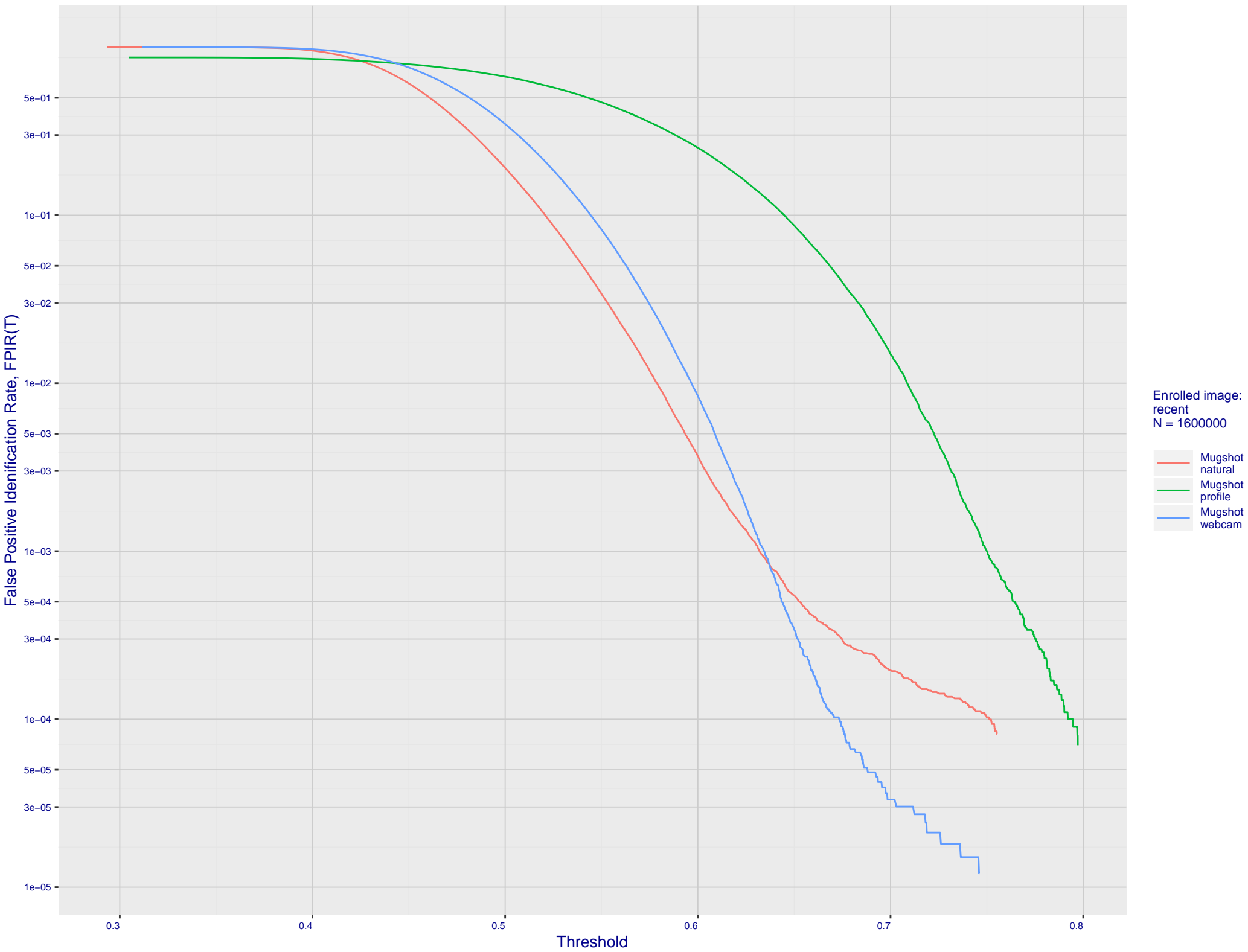
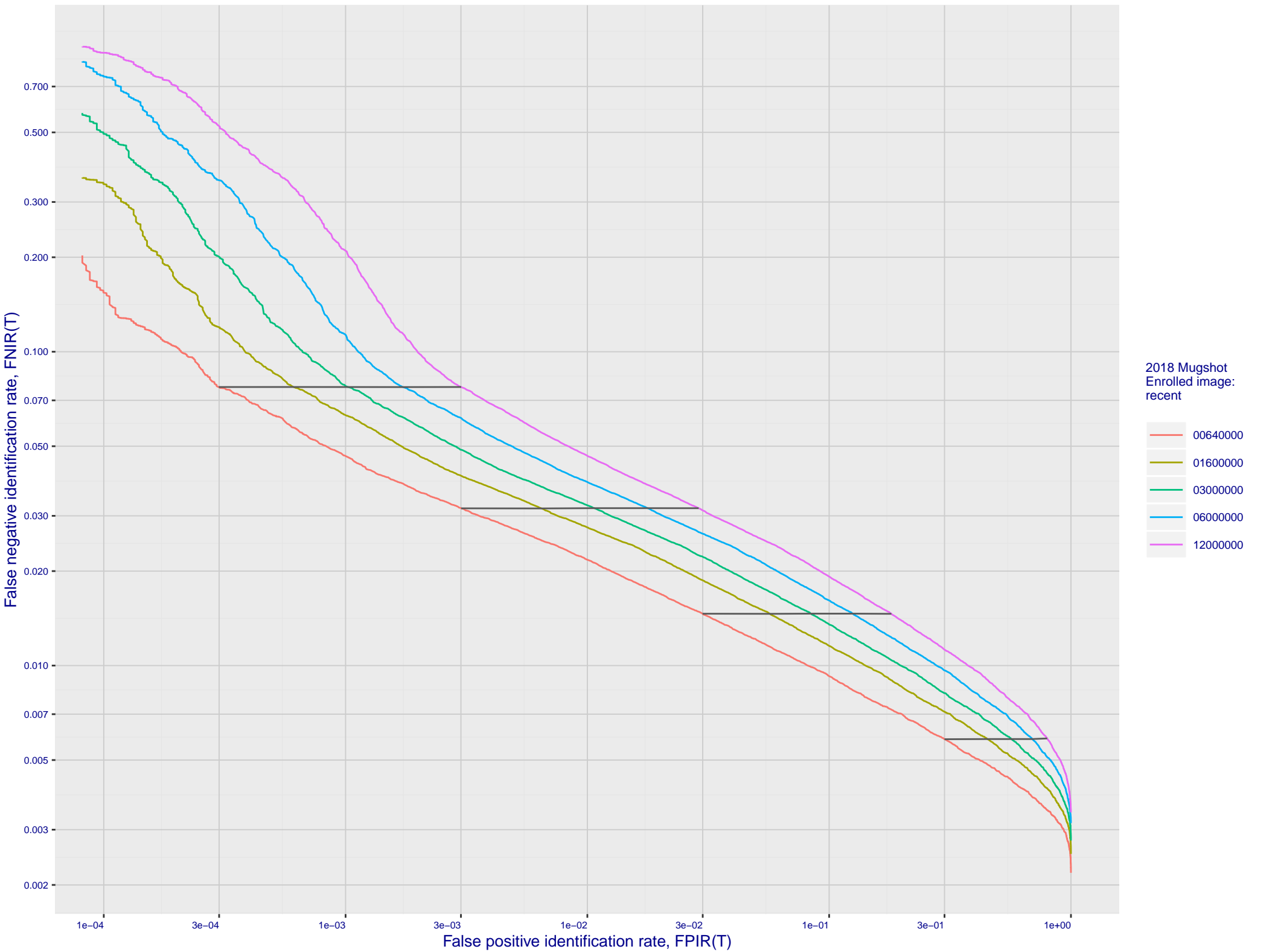B: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images

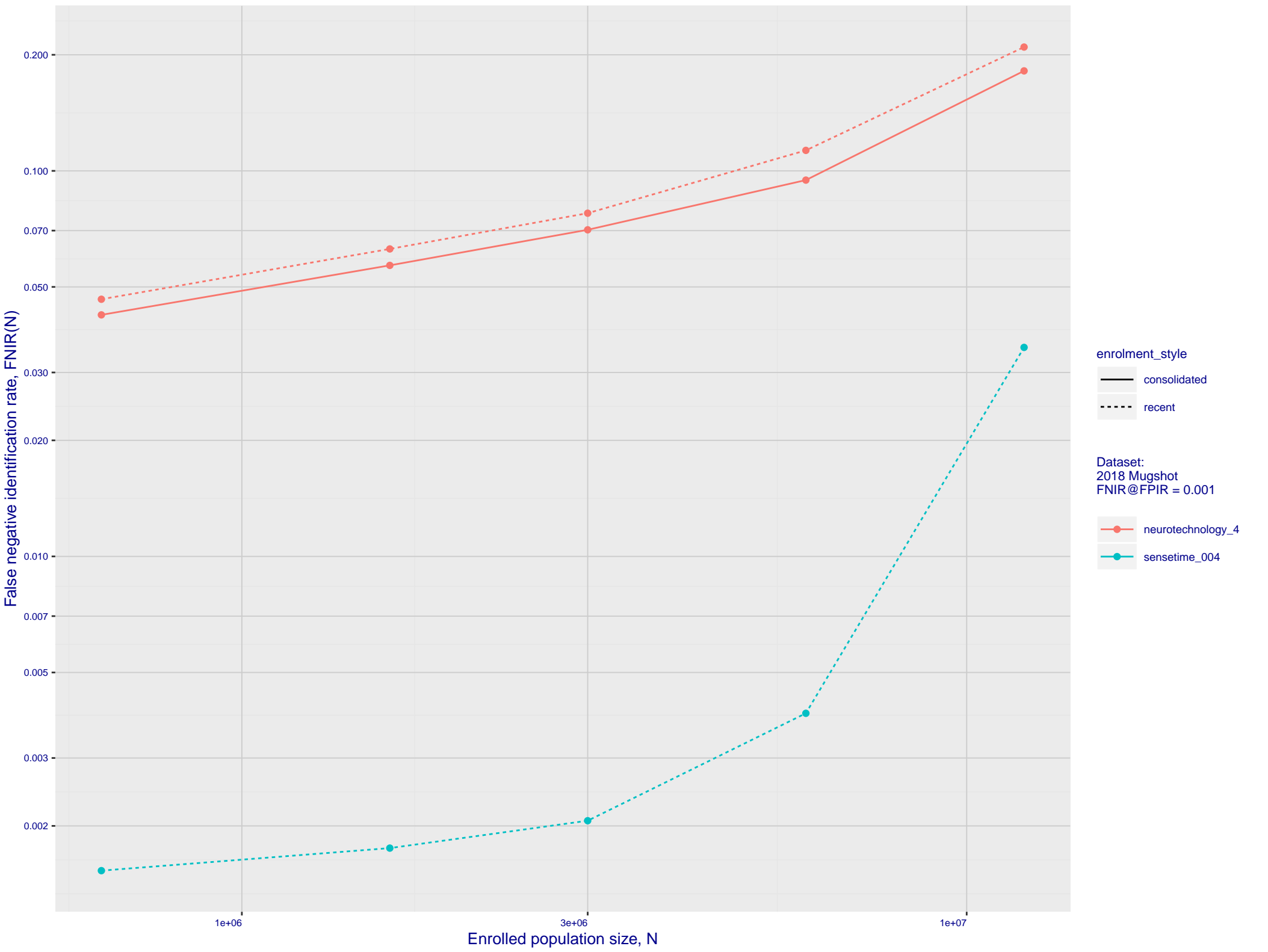C: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate

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

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

F: Mugshot natural images, identification mode: FNIR(N, L+1, T) vs. most accurate (sensetime_004)

## G: Datasheet

Algorithm: neurotechnology_4

Developer: Neurotechnology

Submission Date: 2018_06_27

Template size: 2048 bytes

Template time (2.5 percentile): 524 msec

Template time (median): 537 msec

Template time (97.5 percentile): 584 msec

Frontal mugshot investigation rank 75 –– FNIR(1600000, 0, 1) = 0.0056  vs. lowest 0.0010 from sensetime_004

natural investigation rank 58 –– FNIR(1600000, 0, 1) = 0.0200  vs. lowest 0.0067 from sensetime_003

natural investigation rank 318 –– FNIR(1600000, 0, 1) = 0.9694  vs. lowest 0.0492 from paravision_005

natural investigation rank 318 –– FNIR(1600000, 0, 1) = 0.9694  vs. lowest 0.0492 from paravision_005

Frontal mugshot identification rank 92 –– FNIR(1600000, T, L+1) = 0.0627  vs. lowest 0.0018 from sensetime_004
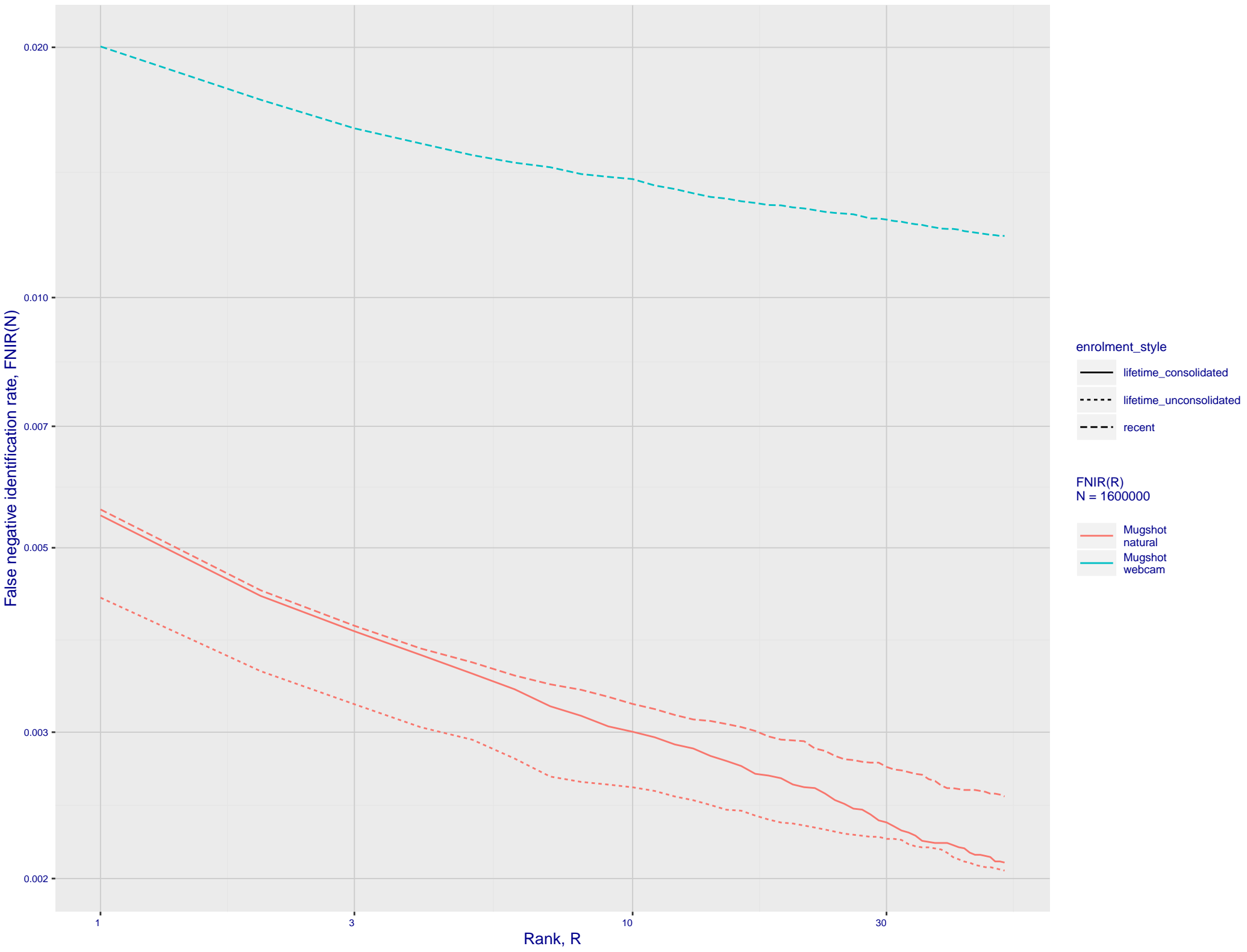
natural identification rank 67 –– FNIR(1600000, T, L+1) = 0.1170  vs. lowest 0.0122 from sensetime_003

natural identification rank 93 –– FNIR(1600000, T, L+1) = 0.9928  vs. lowest 0.1020 from sensetime_004
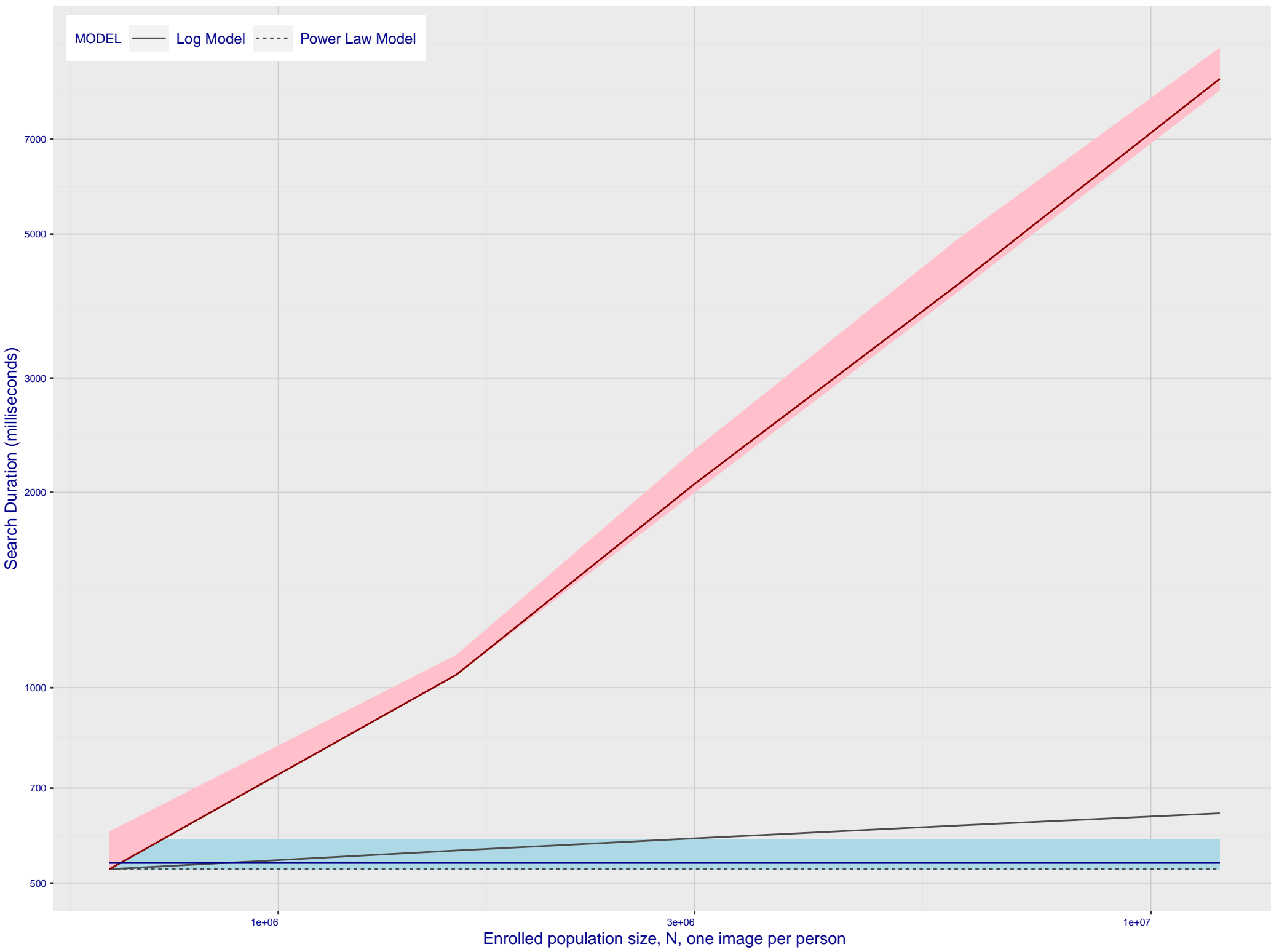
H: Investigational mode: FNIR(N, 1, 0) vs. most accurate (yitu_4)
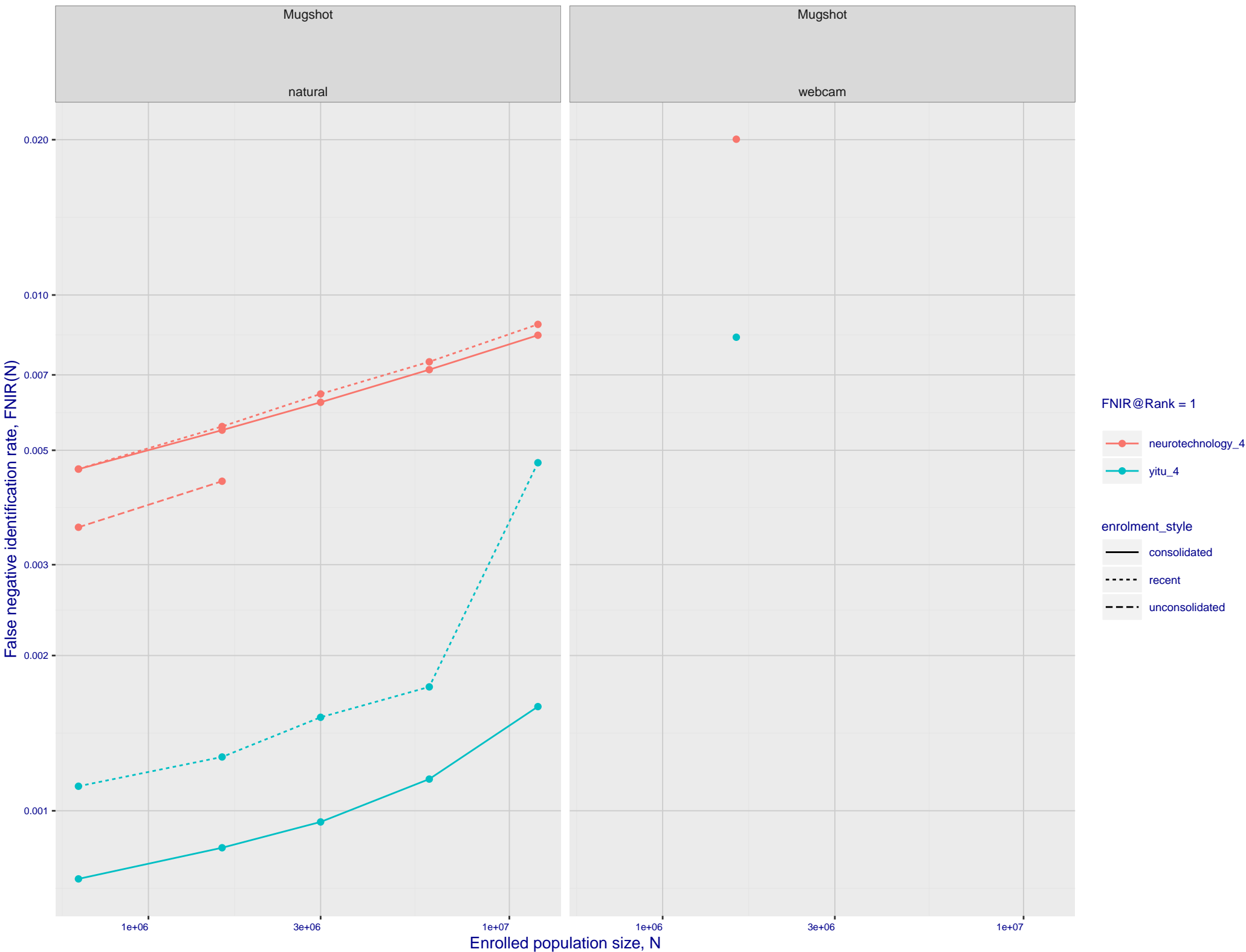
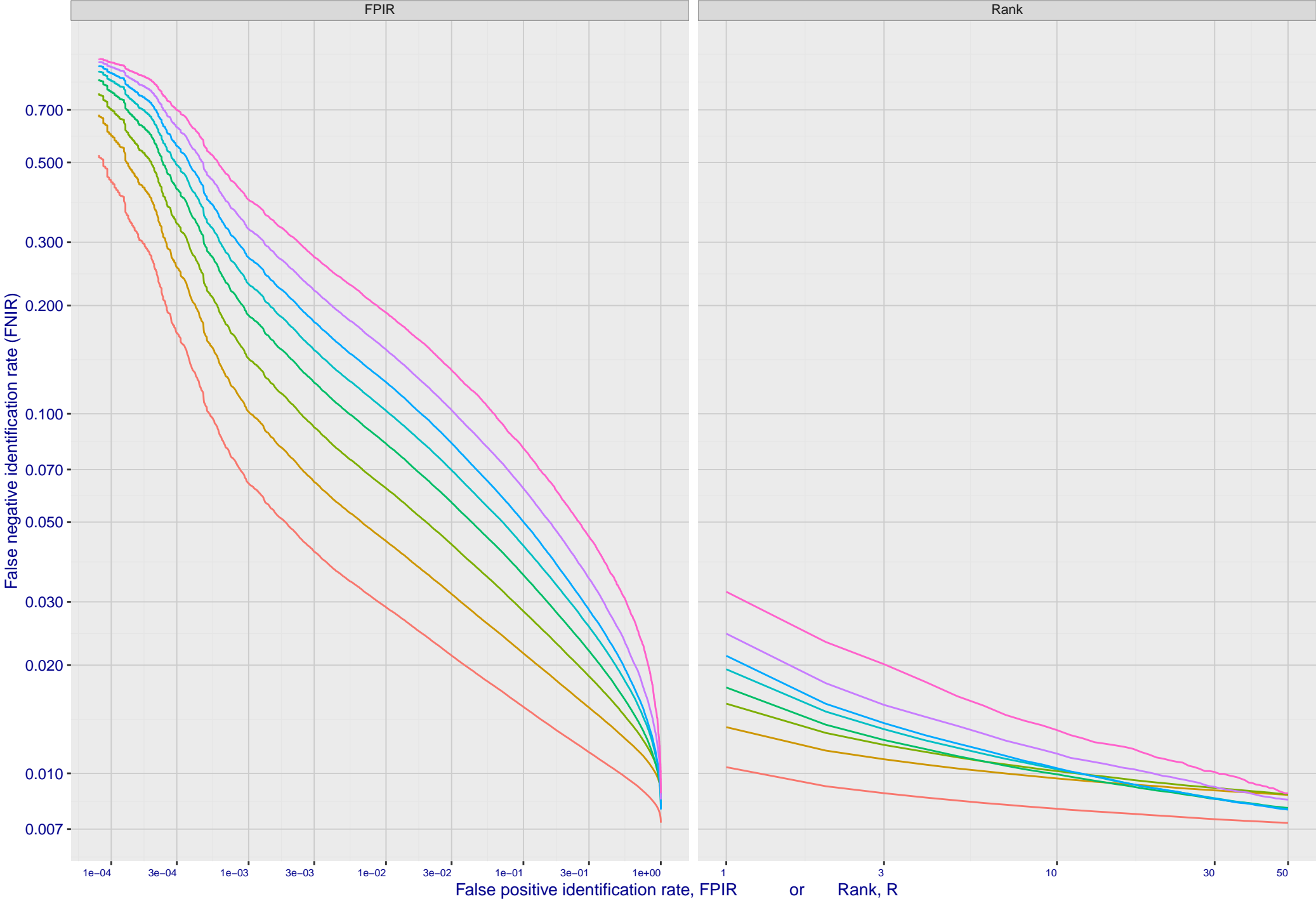I: Investigational mode: FNIR(1600000, R, 0) by probe type

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

MODEL —— Log Model ····· Power Law Model

Search Duration (milliseconds)

Enrolled population size, N, one image per person

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

Dataset: 2018 Mugshot    N = 3068801

Legend:
(00,02]
(02,04]
(04,06]
(06,08]
(08,10]
(10,12]
(12,14]
(14,18]

FPIR | Rank

False negative identification rate (FNIR)

False positive identification rate, FPIR    or    Rank, R

N: Decline of genuine scores with ageing