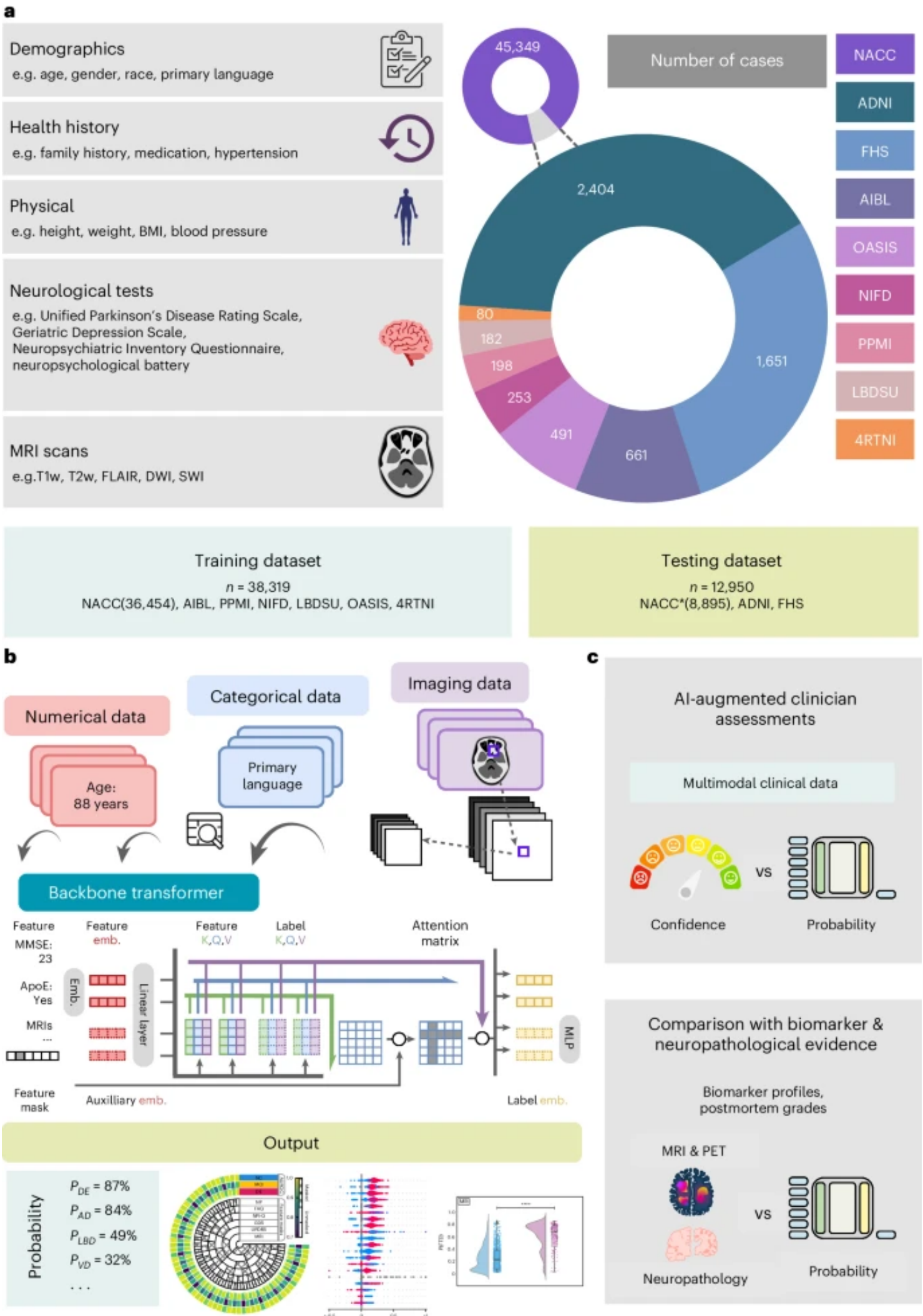
a
Demographics
e.g. age, gender, race, primary language
Health history
e.g. family history, medication, hypertension
Physical
e.g. height, weight, BMI, blood pressure
Neurological tests
e.g. Unified Parkinson's Disease Rating Scale, Geriatric Depression Scale, Neuropsychiatric Inventory Questionnaire, neuropsychological battery
MRI scans
e.g.T1w, T2w, FLAIR, DWI, SWI
Number of cases
45,349
2,404
1,651
661
491
253
198
182
80
NACC
ADNI
FHS
AIBL
OASIS
NIFD
PPMI
LBDSU
4RTNI
Training dataset
n = 38,319
NACC(36,454), AIBL, PPMI, NIFD, LBDSU, OASIS, 4RTNI
Testing dataset
n = 12,950
NACC*(8,895), ADNI, FHS
b
Numerical data
Categorical data
Imaging data
Age: 88 years
Primary language
Backbone transformer
Feature
MMSE: 23
ApoE: Yes
MRIs
...
Feature emb.
Emb.
Linear layer
Feature K,Q,V
Label K,Q,V
Attention matrix
MLP
Feature mask
Auxilliary emb.
Label emb.
Output
Probability
P_{DE} = 87%
P_{AD} = 84%
P_{LBD} = 49%
P_{VD} = 32%
. . .
c
AI-augmented clinician assessments
Multimodal clinical data
vs
Confidence
Probability
Comparison with biomarker & neuropathological evidence
Biomarker profiles, postmortem grades
MRI & PET
vs
Neuropathology
Probability