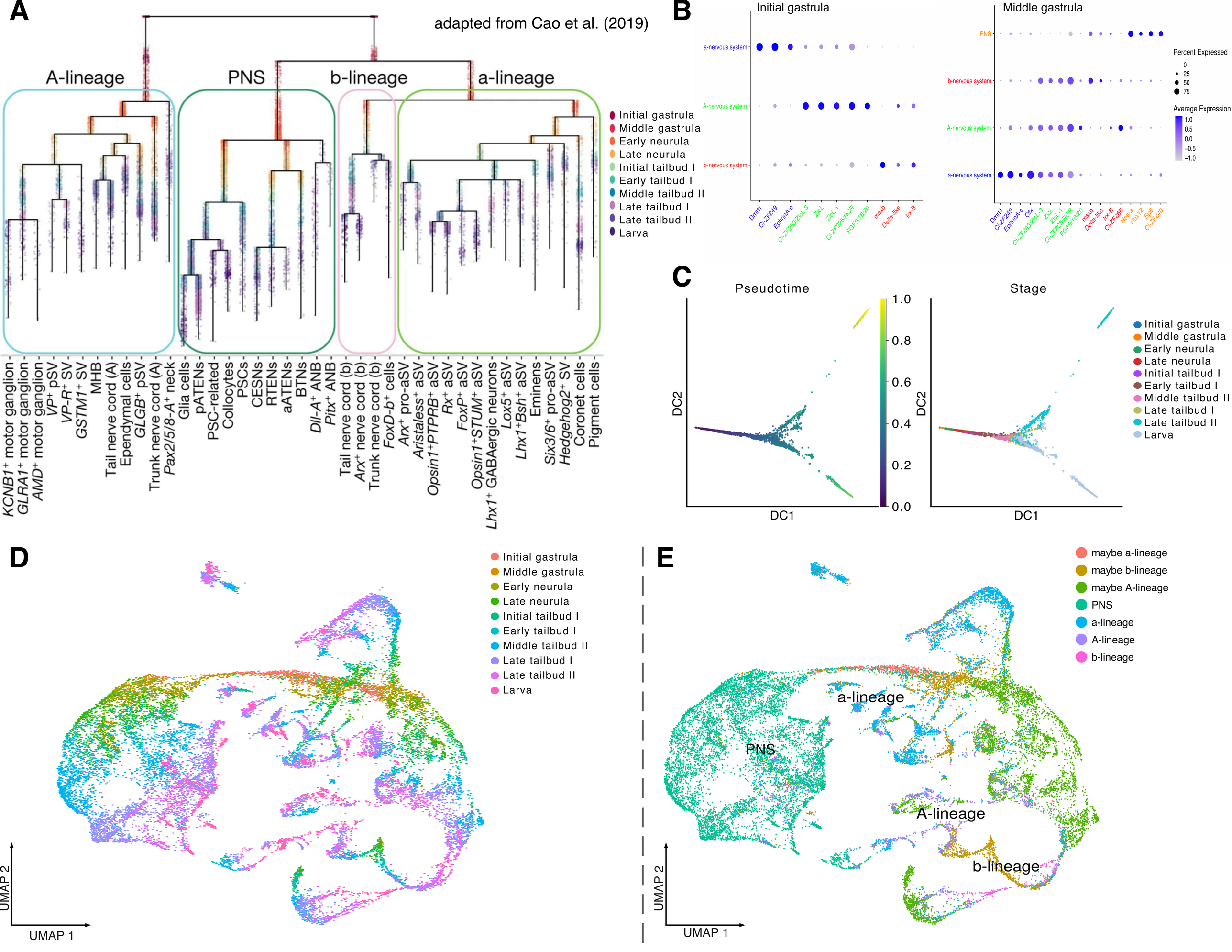
A
adapted from Cao et al. (2019)
A-lineage
PNS
b-lineage
a-lineage
Initial gastrula
Middle gastrula
Early neurula
Late neurula
Initial tailbud I
Early tailbud I
Middle tailbud II
Late tailbud I
Late tailbud II
Larva
KCNB1+ motor ganglion
GLRA1+ motor ganglion
AMD+ motor ganglion
VP+ pSV
VP-R+ SV
GSTM1+ SV
MHB
Tail nerve cord (A)
Ependymal cells
GLGB+ pSV
Trunk nerve cord (A)
Pax2/5/8-A+ neck
Glia cells
pATENs
PSC-related
Collocytes
PSCs
CESNs
RTENs
aATENs
BTNs
Dll-A+ ANB
Pitx+ ANB
Tail nerve cord (b)
Arx+ nerve cord (b)
Trunk nerve cord (b)
FoxD-b+ cells
Arx+ pro-aSV
Aristaless+ aSV
Opsin1+PTPRB+ aSV
Rx+ aSV
FoxP+ aSV
Opsin1+STUM+ aSV
Lhx1+ GABAergic neurons
Lox5+ aSV
Lhx1+Bsh+ aSV
Eminens
Six3/6+ pro-aSV
Hedgehog2+ SV
Coronet cells
Pigment cells
B
Initial gastrula
Middle gastrula
a-nervous system
A-nervous system
b-nervous system
Dmrt1
Ci-ZF249
EphrinA-c
Ci-ZF283/ZicL-3
ZicL
ZicL-1
Ci-ZF225/ROR
FGF9/16/20
msxb
Delta-like
Irx-B
PNS
Otx
Ci-ZF266
Hes-a
Hox12
Sp8
Ci-ZF240
Percent Expressed
0
25
50
75
Average Expression
1.0
0.5
0.0
−0.5
−1.0
C
Pseudotime
Stage
DC1
DC2
1.0
0.8
0.6
0.4
0.2
0.0
Initial gastrula
Middle gastrula
Early neurula
Late neurula
Initial tailbud I
Early tailbud I
Middle tailbud II
Late tailbud I
Late tailbud II
Larva
D
Initial gastrula
Middle gastrula
Early neurula
Late neurula
Initial tailbud I
Early tailbud I
Middle tailbud II
Late tailbud I
Late tailbud II
Larva
UMAP 1
UMAP 2
E
maybe a-lineage
maybe b-lineage
maybe A-lineage
PNS
a-lineage
A-lineage
b-lineage
UMAP 1
UMAP 2