Figure S1

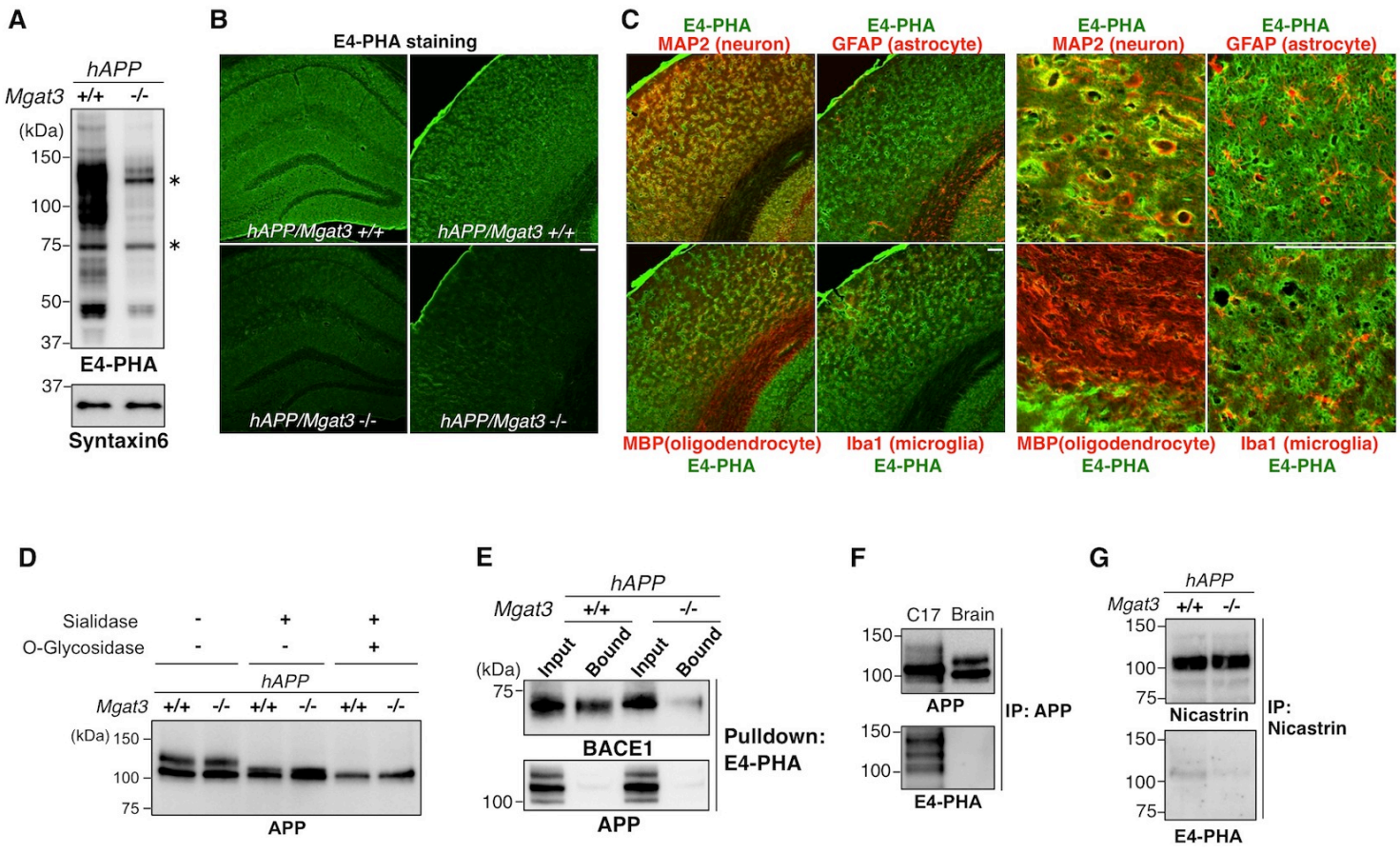
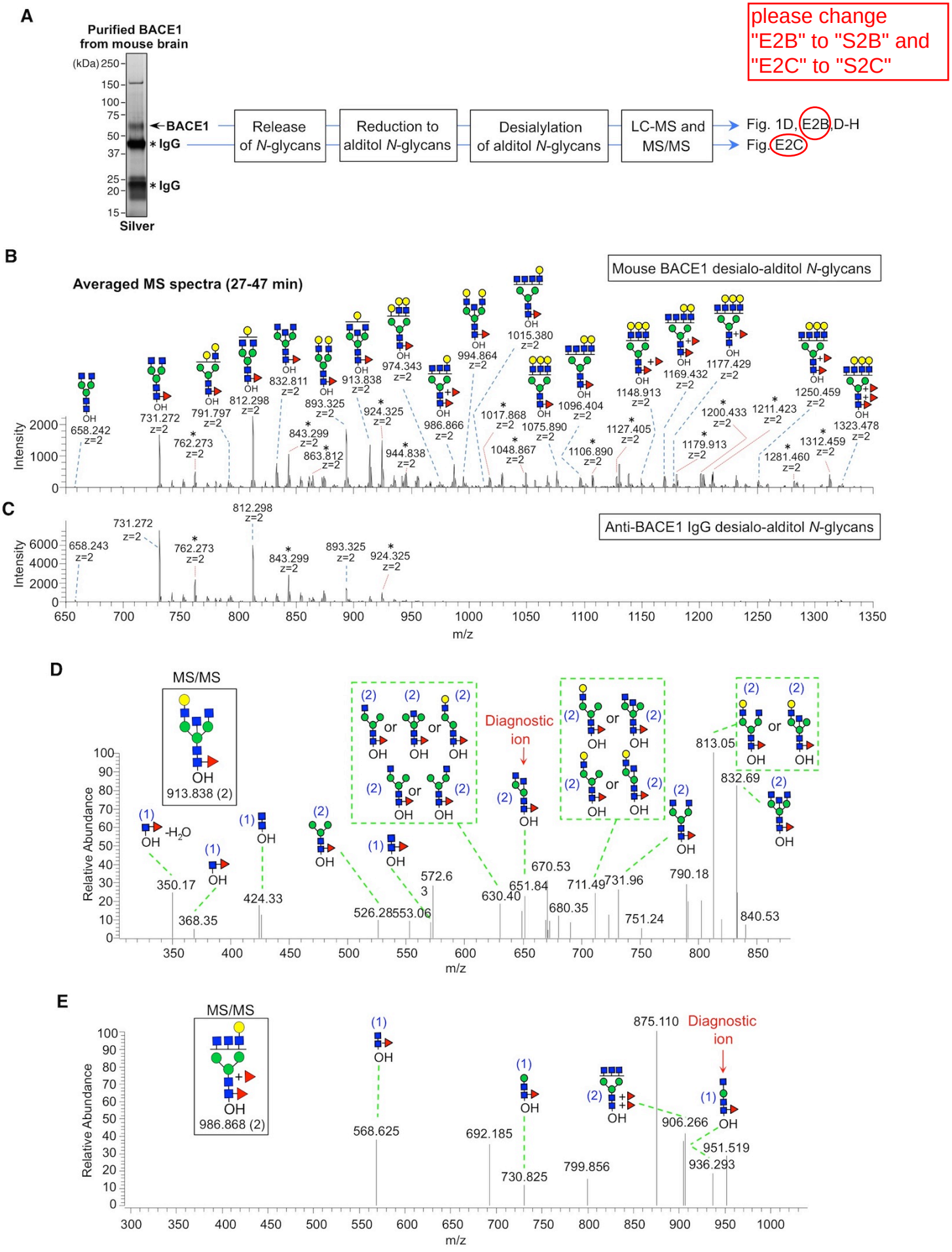

A
hAPP
Mgat3 +/+ -/-
(kDa)
150
100
75
50
37
E4-PHA
37
Syntaxin6
B
E4-PHA staining
hAPP/Mgat3 +/+
hAPP/Mgat3 +/+
hAPP/Mgat3 -/-
hAPP/Mgat3 -/-
C
E4-PHA
MAP2 (neuron)
E4-PHA
GFAP (astrocyte)
E4-PHA
MAP2 (neuron)
E4-PHA
GFAP (astrocyte)
MBP(oligodendrocyte)
E4-PHA
Iba1 (microglia)
E4-PHA
MBP(oligodendrocyte)
E4-PHA
Iba1 (microglia)
E4-PHA
D
Sialidase - + +
O-Glycosidase - - +
hAPP
Mgat3 +/+ -/- +/+ -/- +/+ -/-
(kDa)
150
100
75
APP
E
hAPP
Mgat3 +/+ -/-
(kDa)
Input
Bound
Input
Bound
75
BACE1
100
APP
Pulldown:
E4-PHA
F
C17 Brain
150
100
APP
IP: APP
150
100
E4-PHA
G
hAPP
Mgat3 +/+ -/-
150
100
75
Nicastrin
IP:
Nicastrin
150
100
75
E4-PHA

Figure S2

please change "E2B" to "S2B" and "E2C" to "S2C"



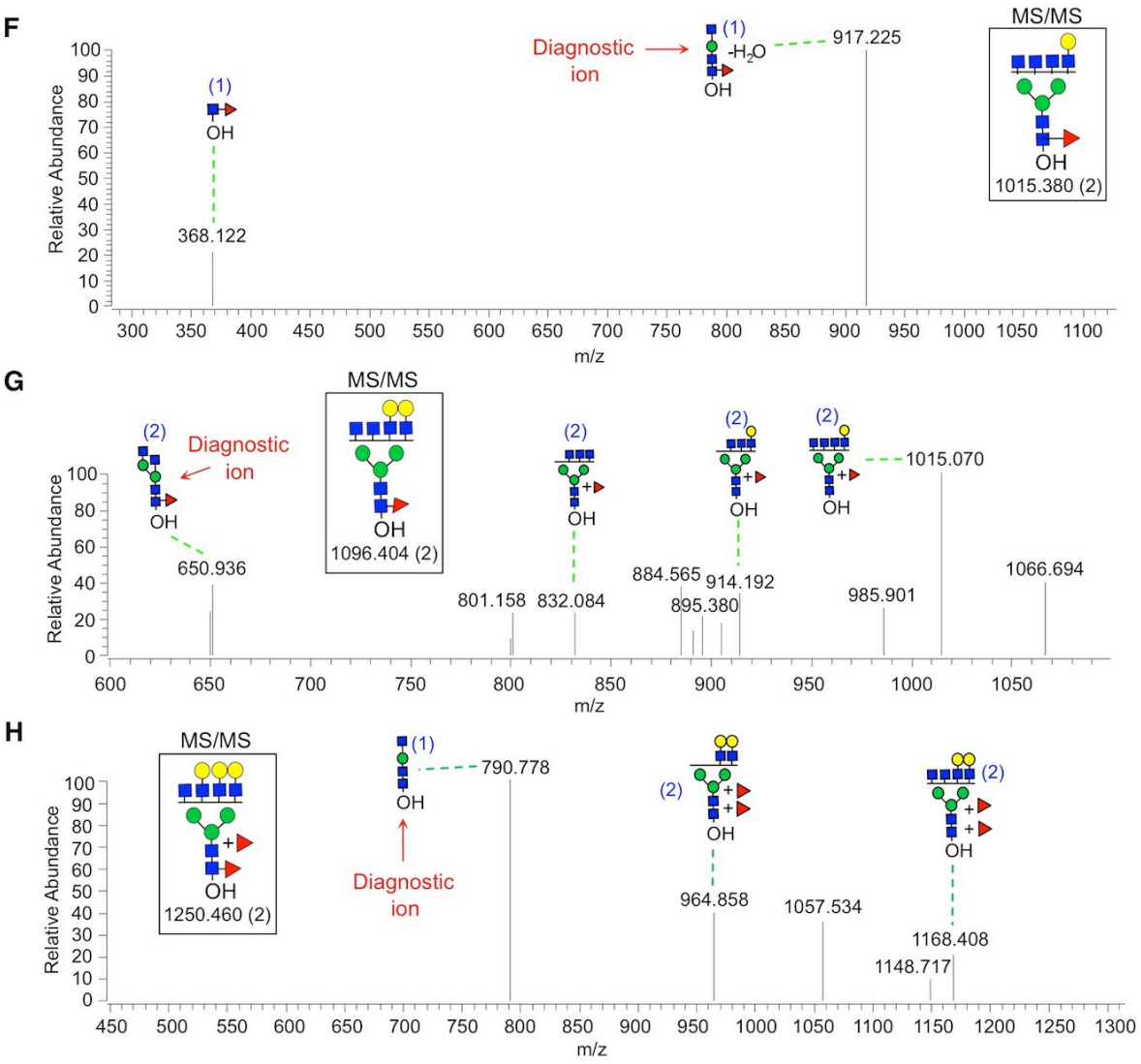

F
Relative Abundance
m/z
(1)
OH
368.122
Diagnostic ion
(1)
-H2O
OH
917.225
MS/MS
OH
1015.380 (2)
G
Relative Abundance
m/z
(2)
Diagnostic ion
OH
650.936
MS/MS
OH
1096.404 (2)
(2)
OH
801.158
832.084
(2)
OH
884.565
914.192
895.380
(2)
OH
985.901
1015.070
1066.694
H
Relative Abundance
m/z
MS/MS
OH
1250.460 (2)
(1)
OH
790.778
Diagnostic ion
(2)
OH
964.858
1057.534
(2)
OH
1168.408
1148.717

Figure S3

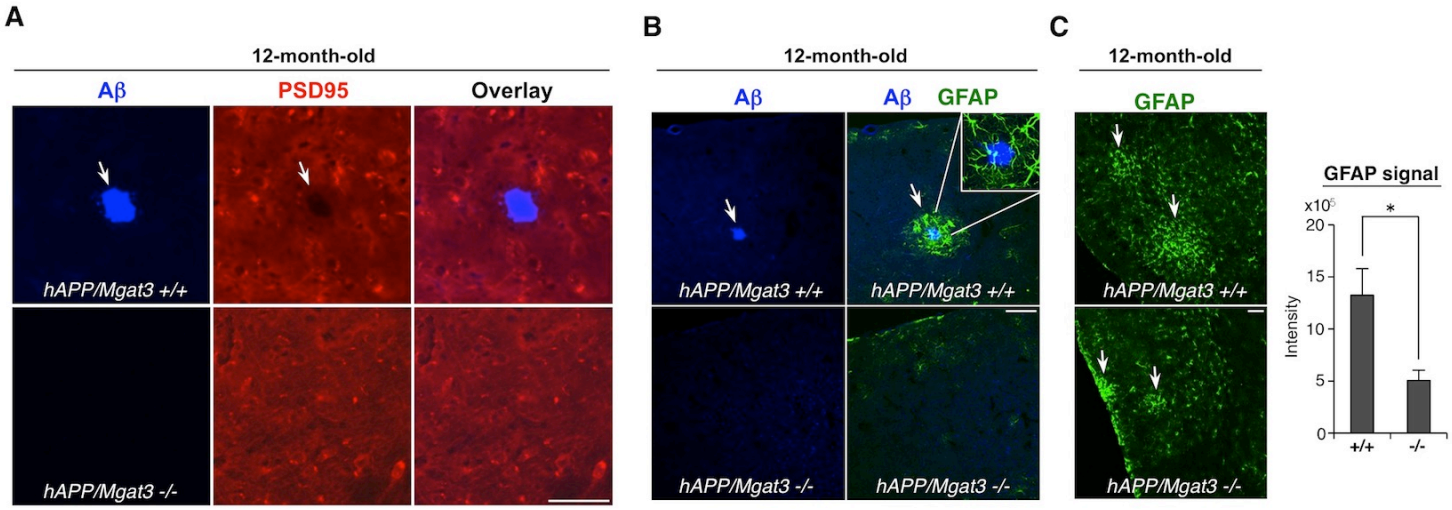
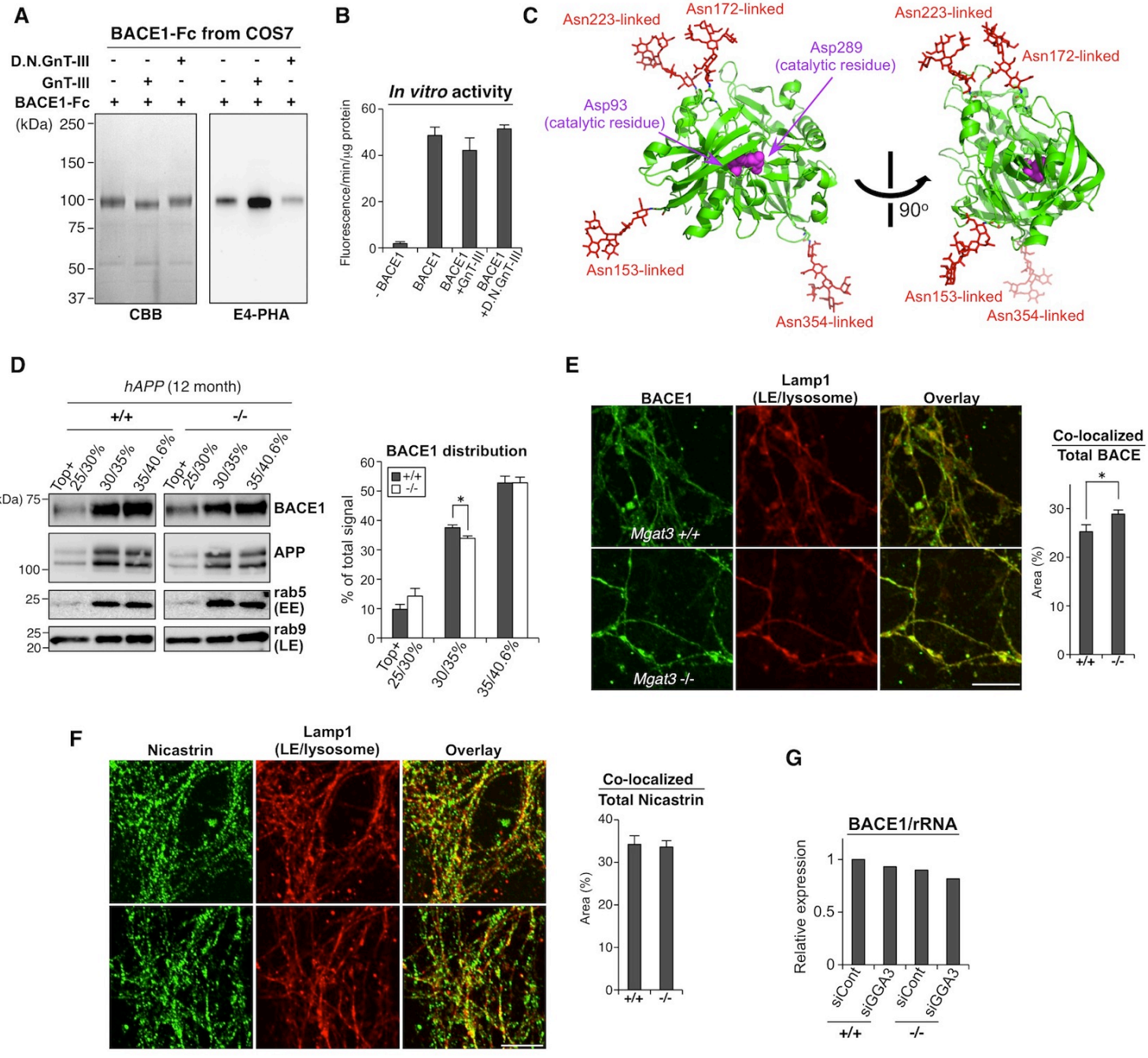

A
12-month-old
Aβ
PSD95
Overlay
hAPP/Mgat3 +/+
hAPP/Mgat3 -/-
B
12-month-old
Aβ
Aβ GFAP
hAPP/Mgat3 +/+
hAPP/Mgat3 -/-
C
12-month-old
GFAP
hAPP/Mgat3 +/+
hAPP/Mgat3 -/-
GFAP signal
x10⁶
20
15
10
5
0
Intensity
*
+/+
-/-

Figure S4


A
BACE1-Fc from COS7
D.N.GnT-III
GnT-III
BACE1-Fc
(kDa) 250
150
100
75
50
37
CBB
E4-PHA
B
In vitro activity
Fluorescence/min/μg protein
- BACE1
BACE1
BACE1 +GnT-III
BACE1 +D.N.GnT-III
C
Asn223-linked
Asn172-linked
Asp289 (catalytic residue)
Asp93 (catalytic residue)
Asn153-linked
Asn354-linked
90°
D
hAPP (12 month)
+/+
-/-
Top+
25/30%
30/35%
35/40.6%
(kDa) 75
BACE1
APP
100
25
rab5 (EE)
25
20
rab9 (LE)
BACE1 distribution
% of total signal
E
BACE1
Lamp1 (LE/lysosome)
Overlay
Mgat3 +/+
Mgat3 -/-
Co-localized
Total BACE
Area (%)
F
Nicastrin
Lamp1 (LE/lysosome)
Overlay
Co-localized
Total Nicastrin
G
BACE1/rRNA
Relative expression
siCont
siGGA3