Nothing to disclose
No Conflict of Interest

Better Understanding of Optimum Sleep for Human

The Genes-First Approach for Human Sleep Traits

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Selected ***Familial*** Sleep-Wake Phenotypes

Advanced Sleep Phase ←

--morning larks

Delayed Sleep Phase

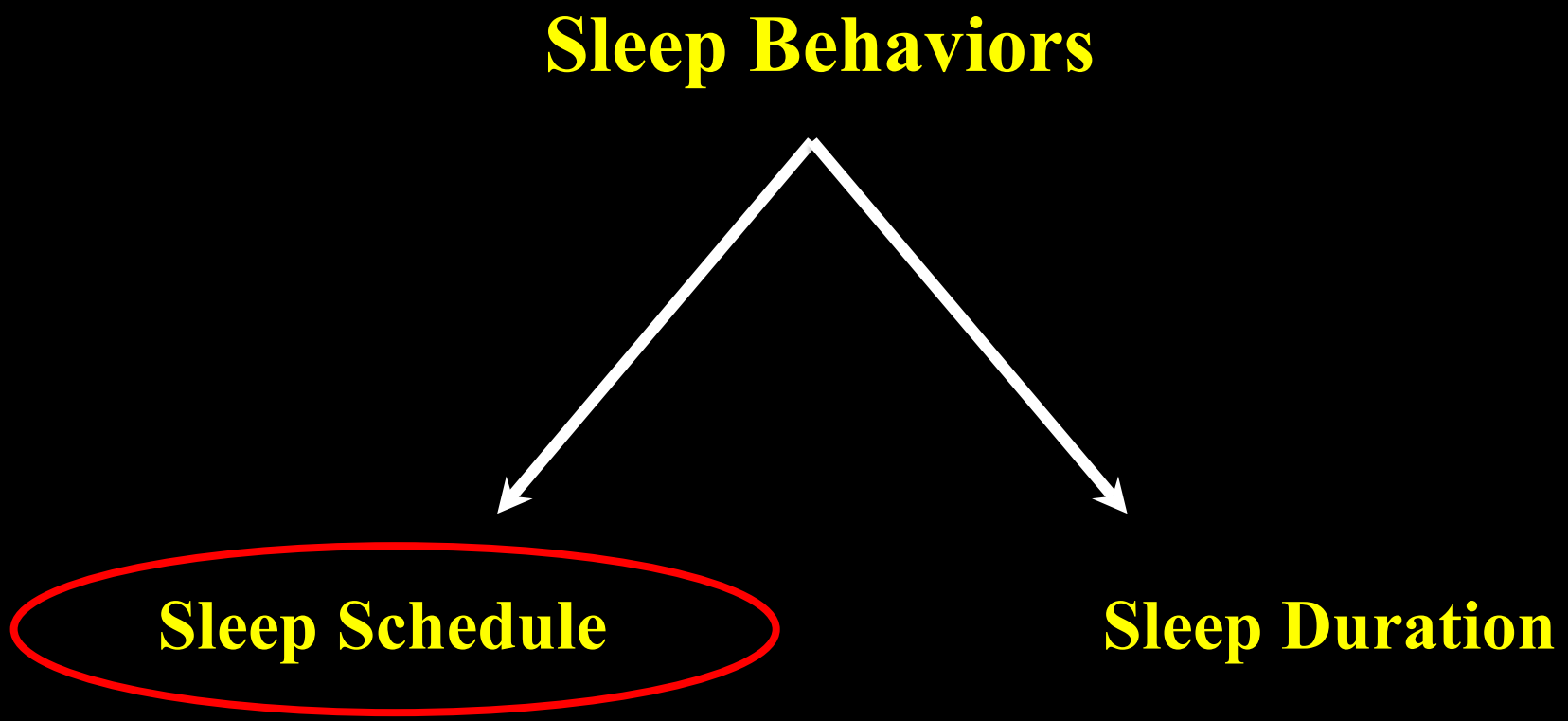
--night owls

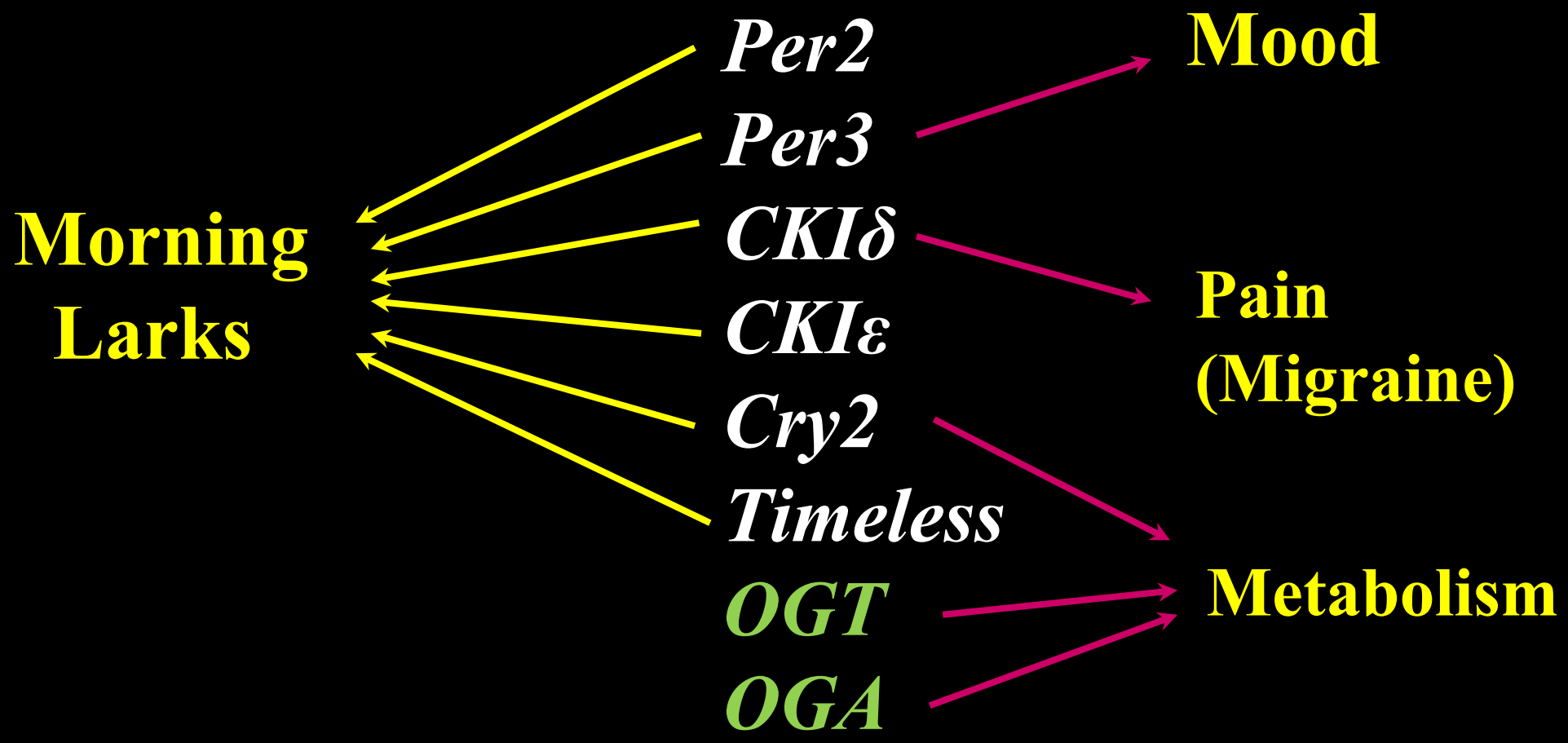
Natural Short Sleeper ←

--less sleep

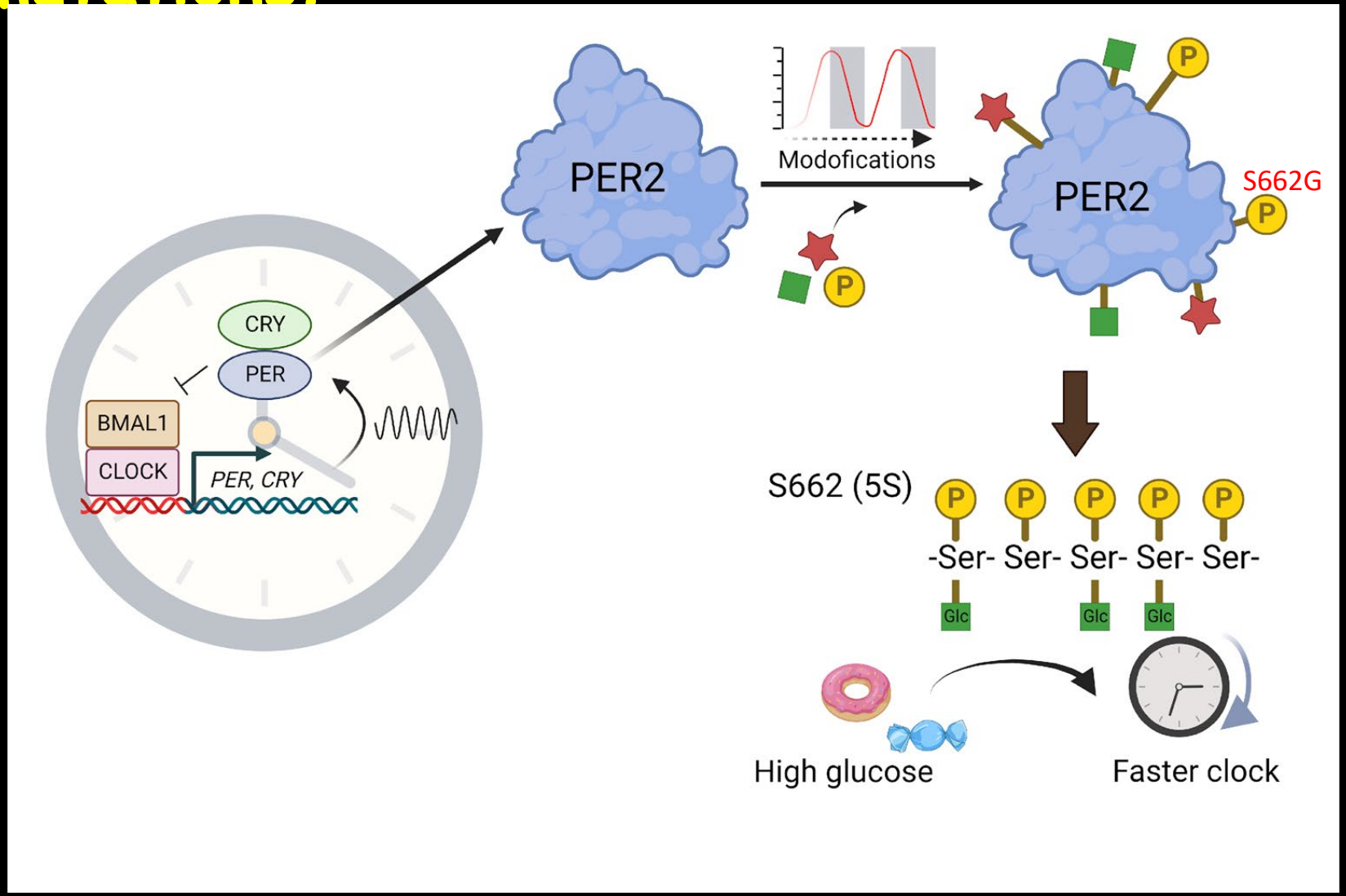
Natural Long Sleeper

--more sleep


Sleep Behaviors
Sleep Schedule
Sleep Duration


Morning Larks
Per2
Per3
CKIδ
CKIε
Cry2
Timeless
OGT
OGA
Mood
Pain (Migraine)
Metabolism

What can we learn from human mutations?



Sleep

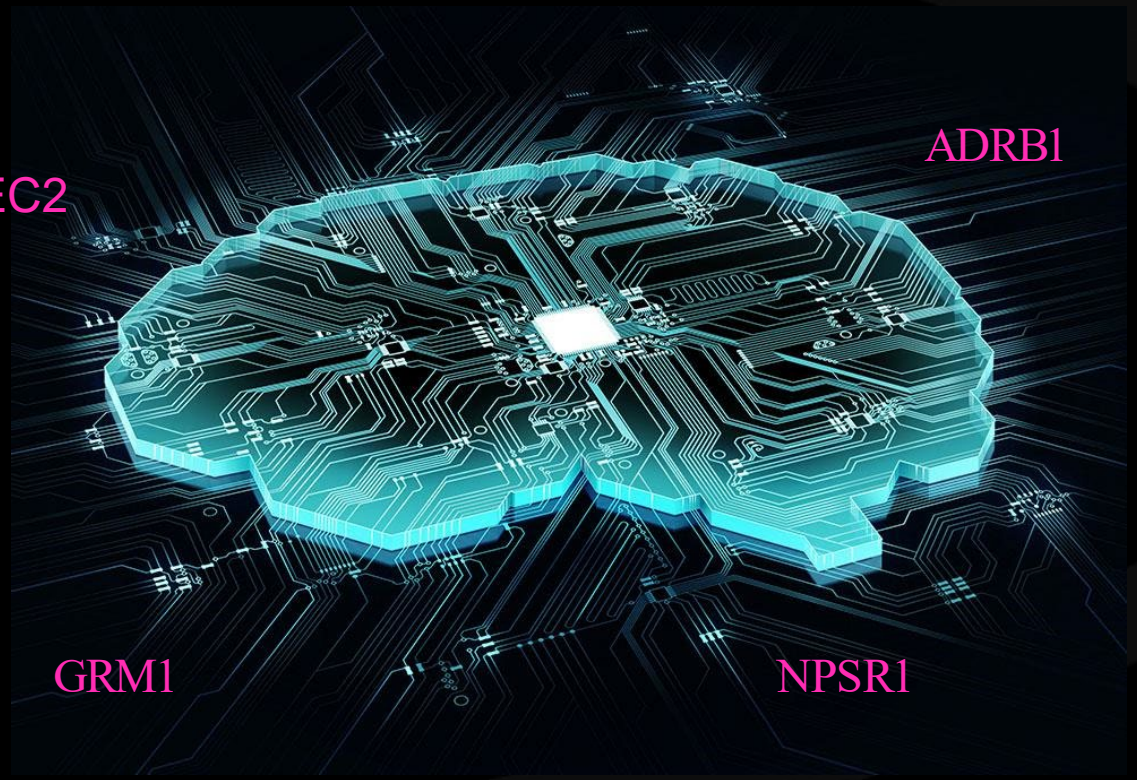
Need : 8 - 8.5 hours

Get : 6.5 – 7 hours

Familial Natural Short Sleep (FNSS)

- Sleep 4 to 6 hours a day, life long
- Active and healthy

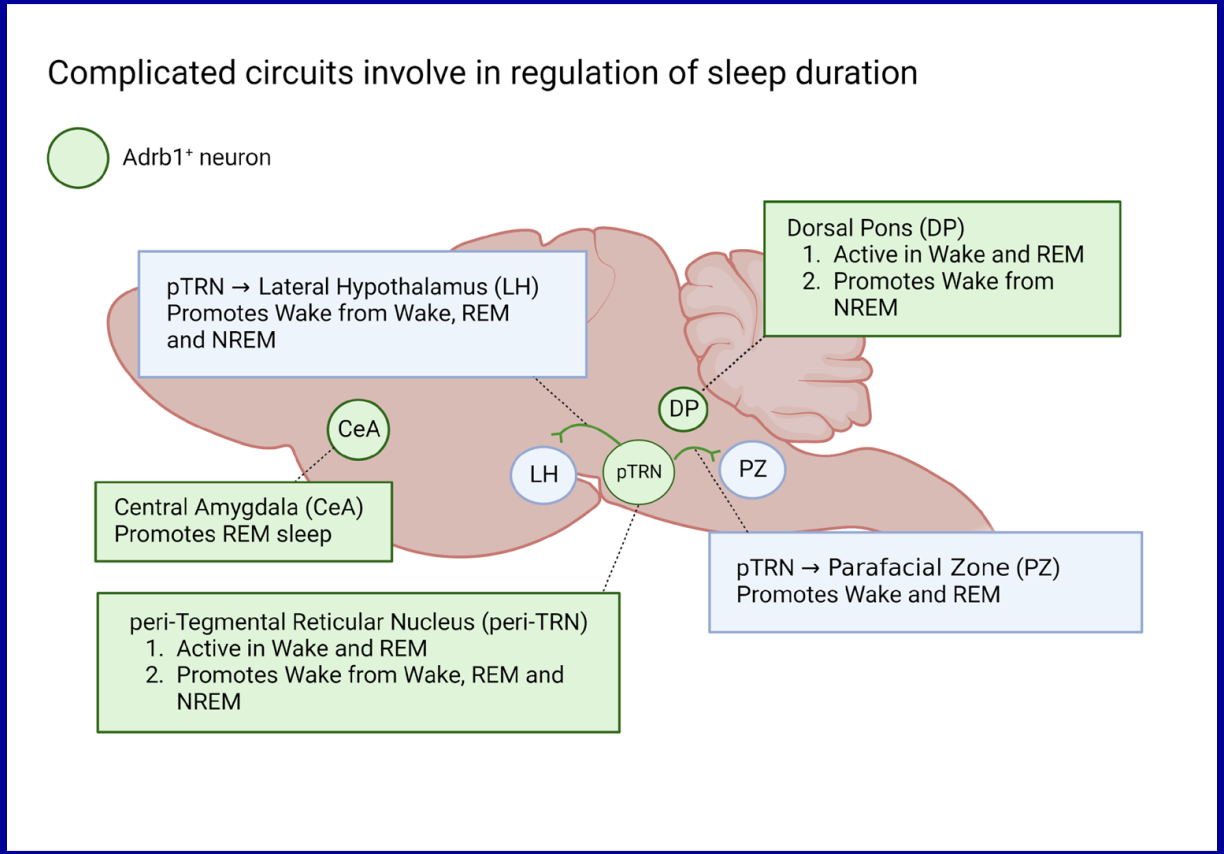
Genes-First Approach: From genes to circuits



5 mutations on 4 genes published

ADRB1 neurons in sleep circuits

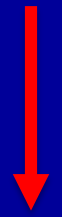
Sleep duration/quality



Sleep and Healthy Longevity

Sleep and Healthy Longevity

Do NSS individuals have better sleep quality?



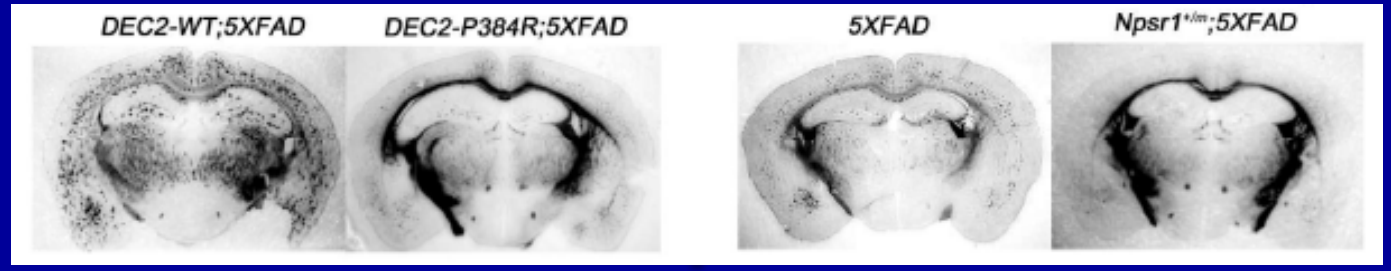
Do NSS mutations offer protection from diseases?

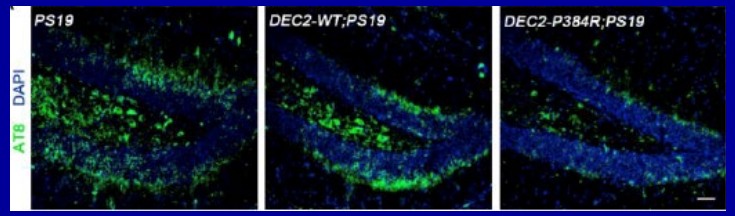
Are NSS individuals resistant to diseases?

FNSS x Aβ (5XFAD) or tau (PS19)

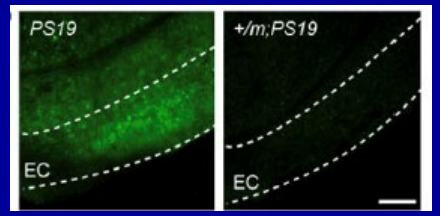
Plaques and Tangles in FNSS+AD mice

6 Months

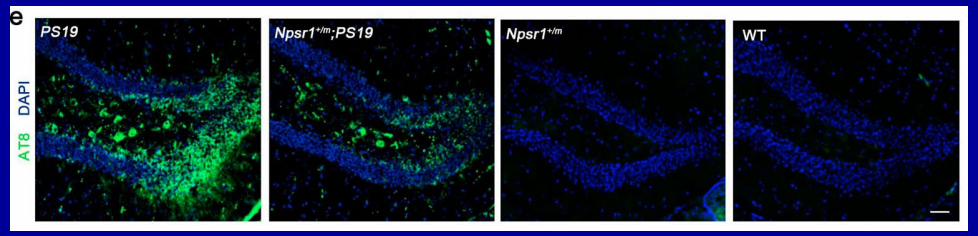




DEC2

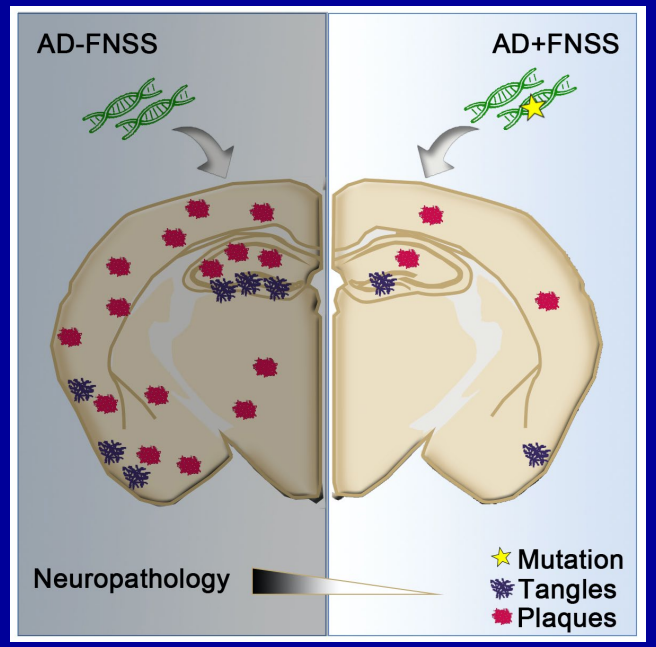


ADRB1



NPSR1

FNSS mutations offer protection from AD-like diseases (and others ?)



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