Using C. elegans as a Model Organism to Study Genes linked to Alzheimer's

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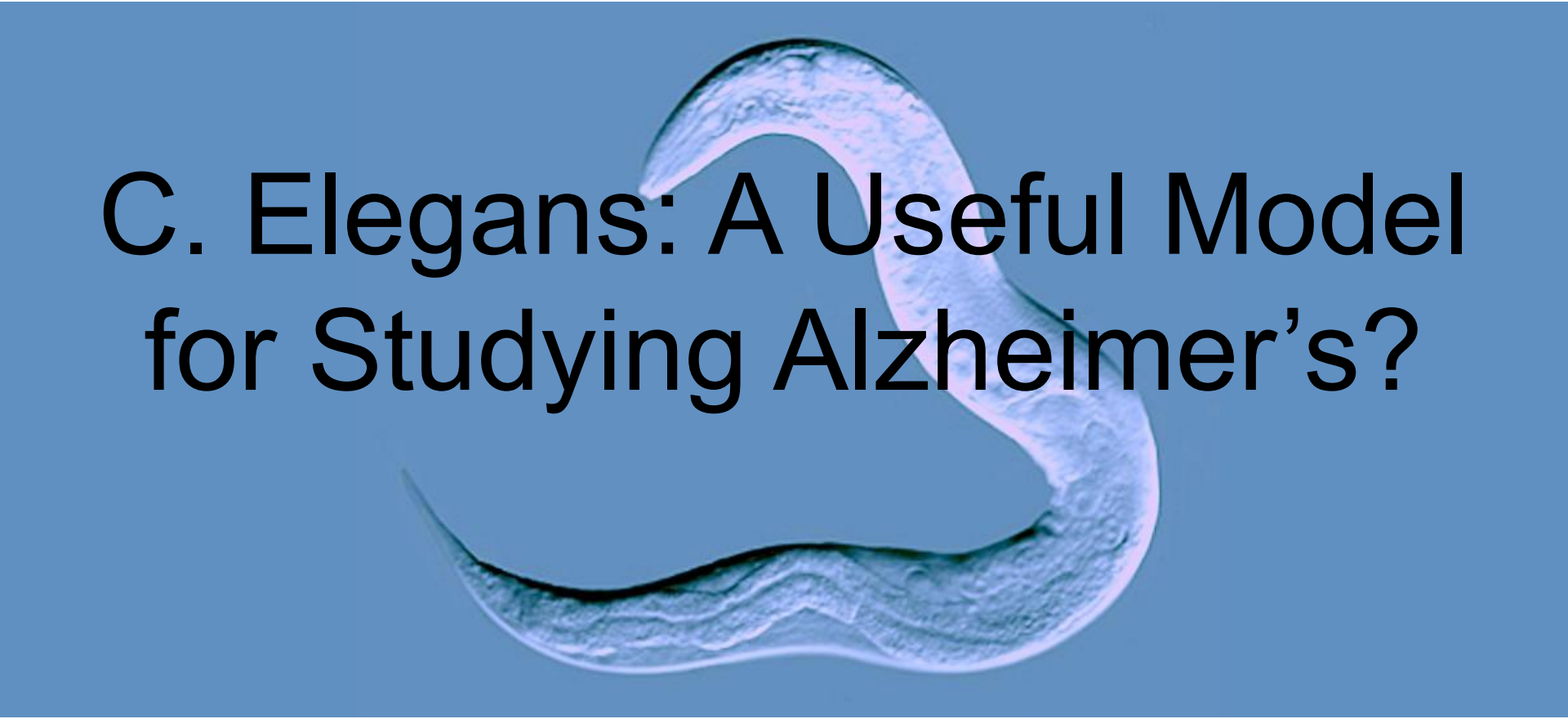
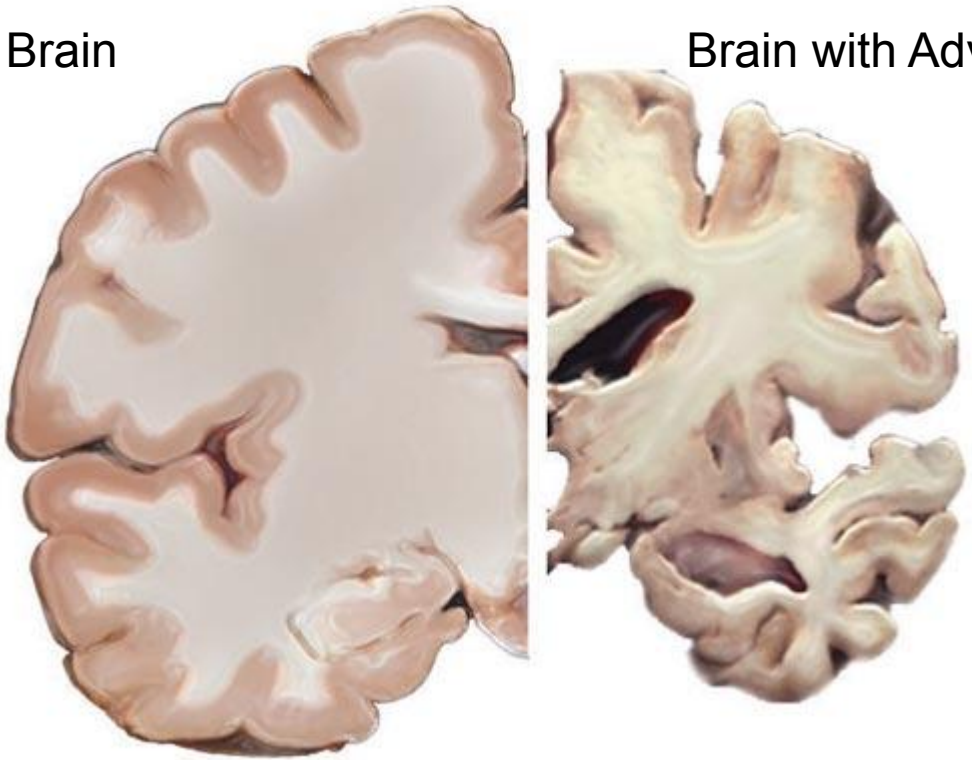
C. Elegans: A Useful Model for Studying Alzheimer's?



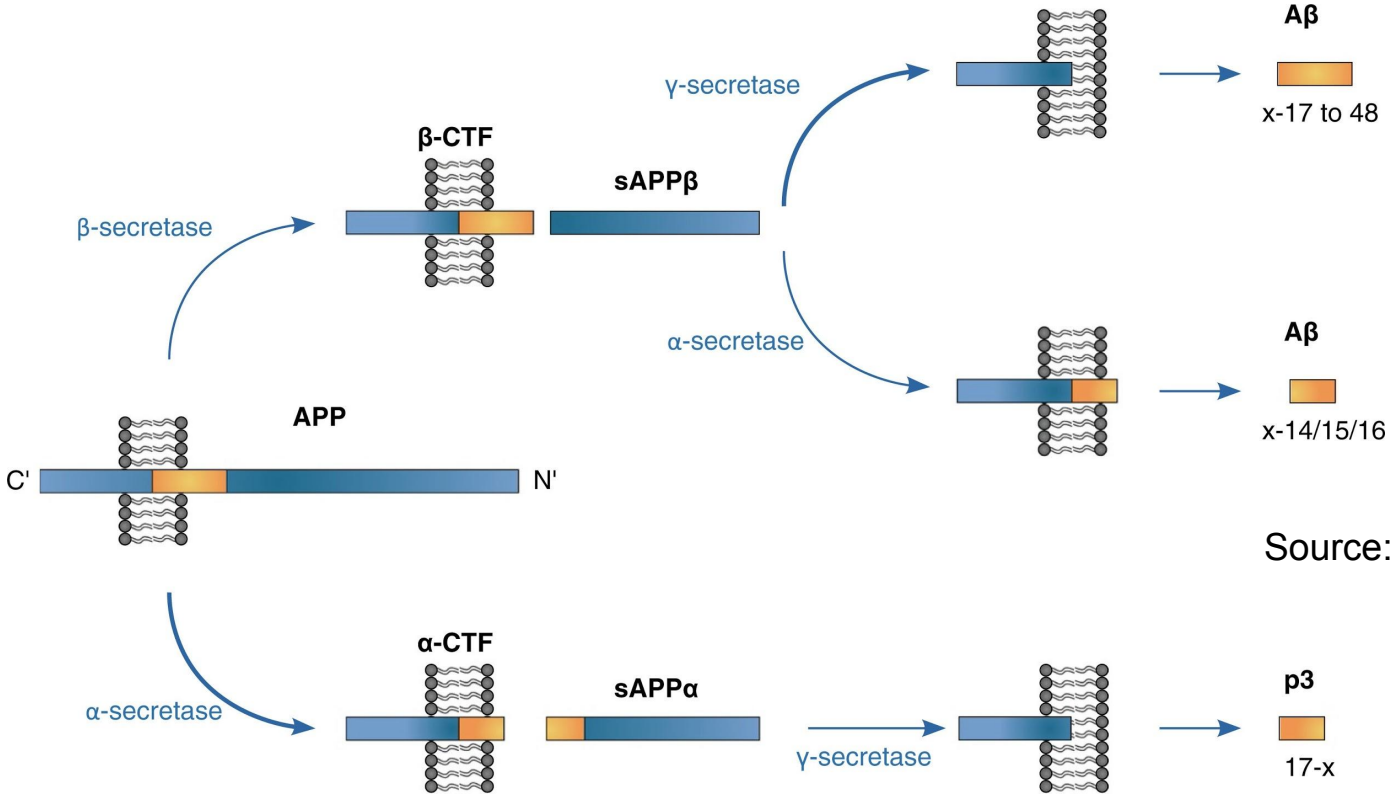
Background

Healthy Brain

Brain with Advanced AD



Molecular Biology of Disease



Source: Biomed Central

Genes Involved in AD

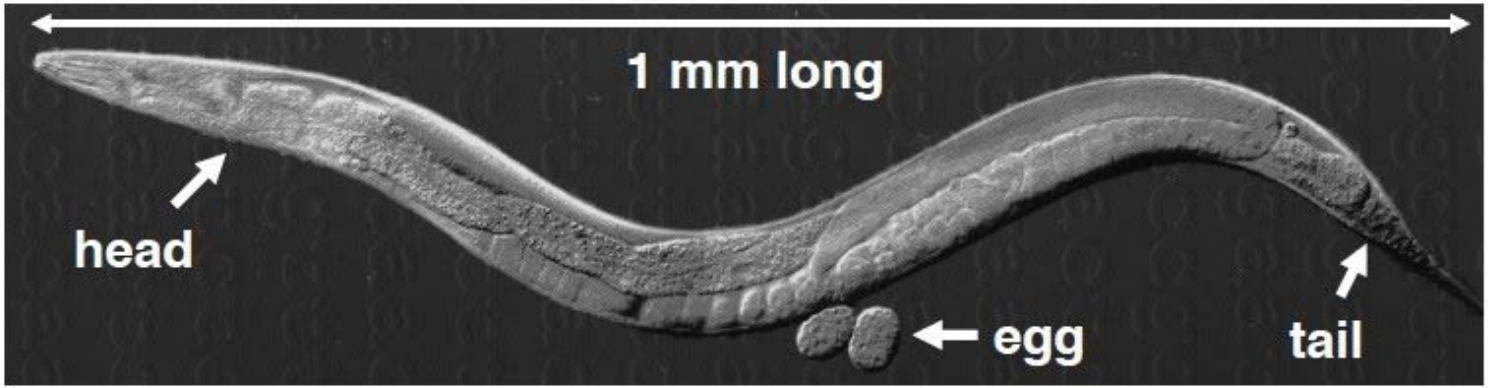
The following genes are known to have an effect on Alzheimers:

ADAM10, CELF1, FERMT2, HLA-DRB5, INPP5D, MEF2C, NME8, **APP**, PTK2B, SORL1, ZCWPW1, SLC24A4, CLU, PICALM, CR1, BIN1, MS4A, **ABCA7**, **PLAU**, EPHA1, **PSEN1, PSEN2**, and CD2AP

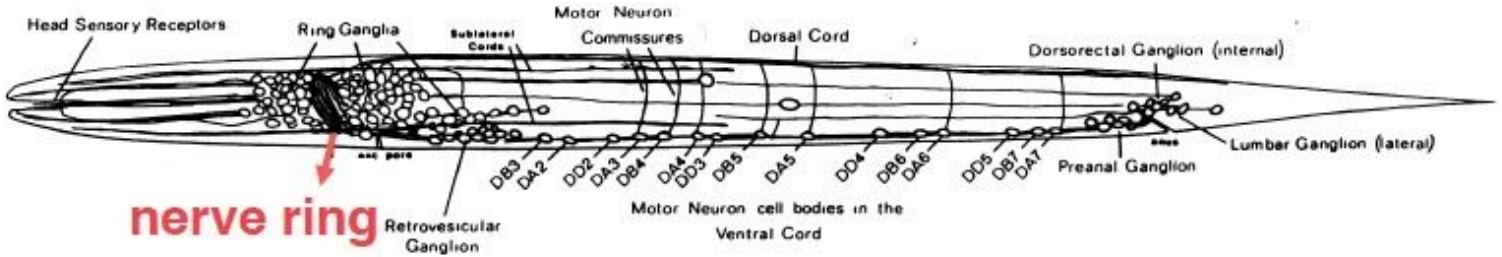
Worm Orthologs

(according to Ortholist)

Why Worms?



C. elegans hermaphrodite adult



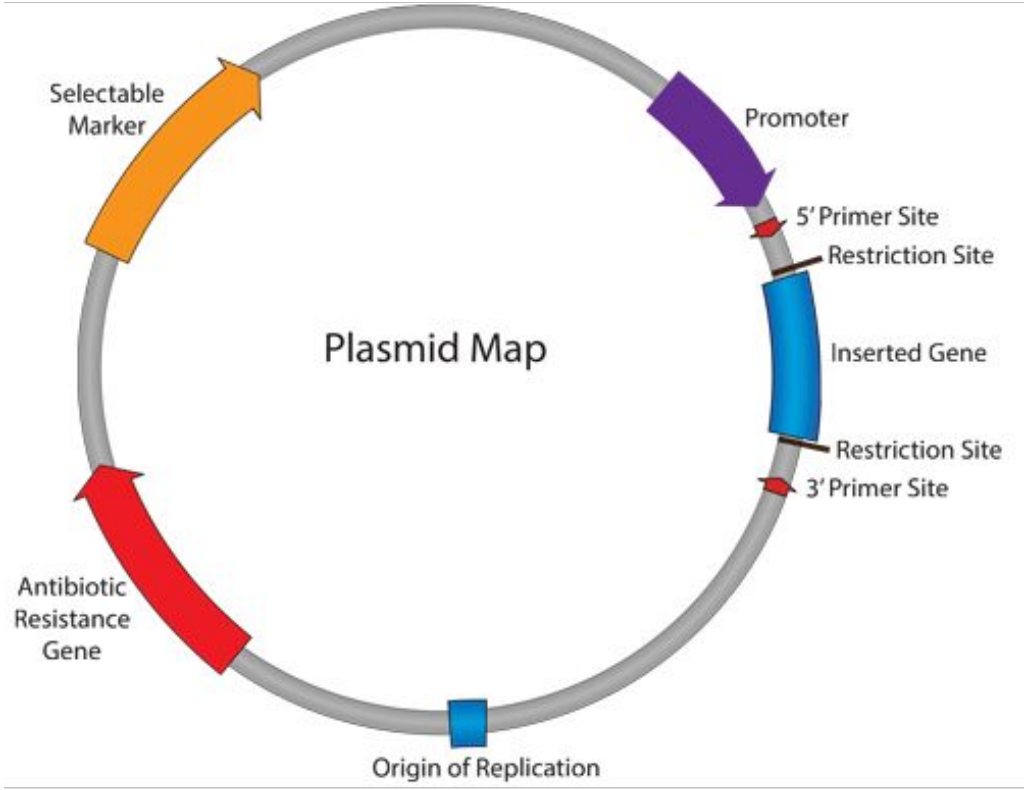
Methods

Developing Plasmids

RNAi

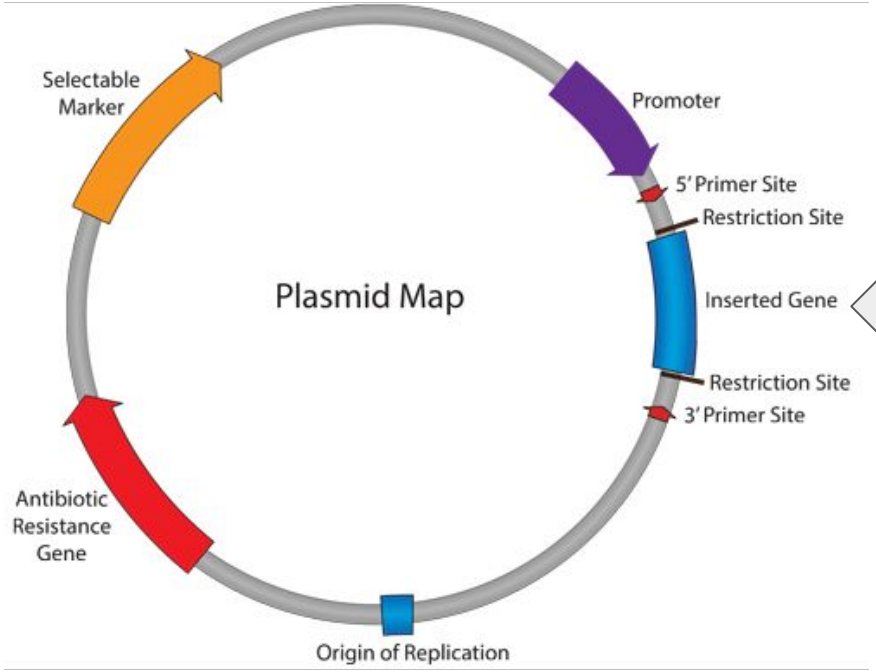
Observing Phenotypes

Drawing Conclusions



Genes to be studied

RNAi Plasmid



abt-2, abt-4, abt-5, sel-12

Grow the Worms, Observe Phenotypes

Preliminary Results (Still Investigating)

Worms in Solution:

Control: 15%

Abt-2: 8%

Abt-4: 54%

Abt-5: 28%

Sel-12: 20%

Results

Worms in Solution:

Control: 15%

Abt-2: 8%

Abt-4: 54%

Abt-5: 28%

Sel-12: 20%

Roughly 12 worms per test.

This Week:

Tuesday: Worms Grown, stress in M9 solution.

Thursday: Count worms, run statistical analysis to see if significant difference.

Conclusions/Significance

Abt-4 and abt-5 expressed in neurons?

A useful model for studying alzheimer’s disease

Future directions