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PARENTAL GUIDANCE SUGGESTED



SOME MATERIAL MAY NOT BE SUITABLE FOR CHILDREN

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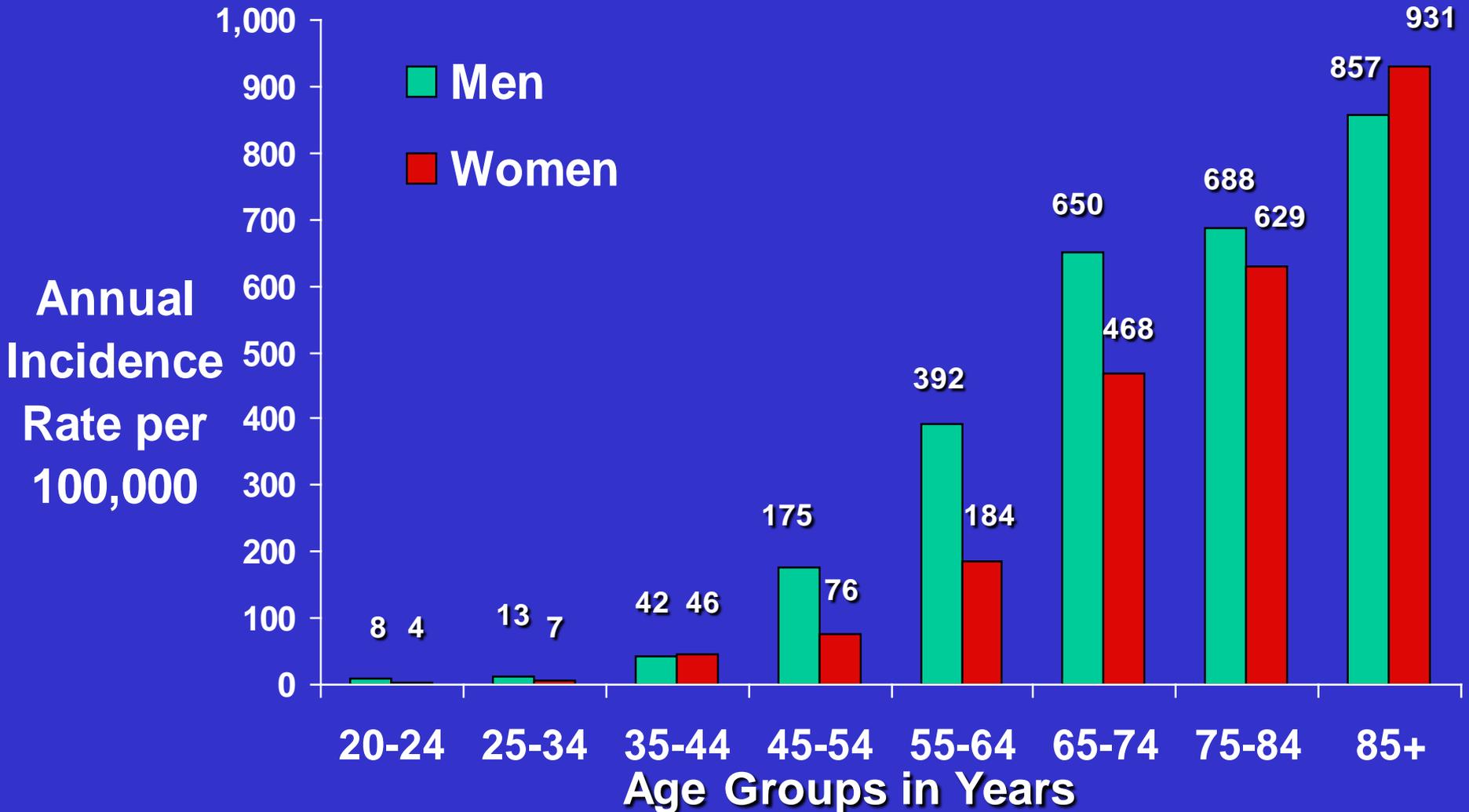
Sex in the dish: Exploring Cellular and Molecular approaches

How XX and XY cells respond differently to injury

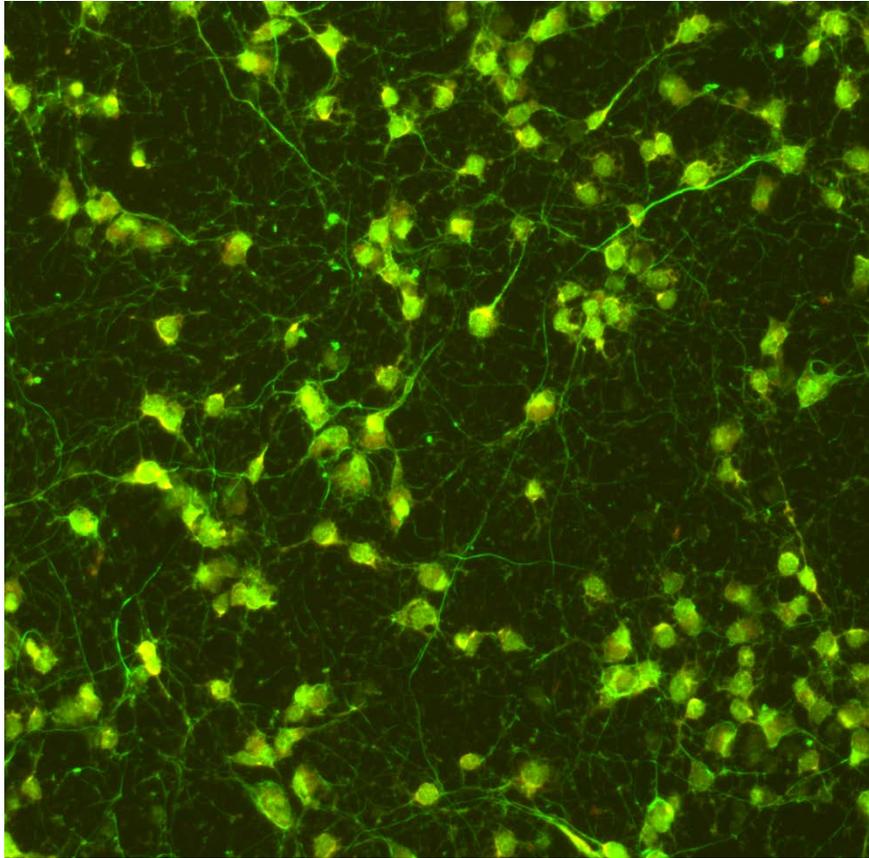
Molecular mechanisms of injury can be sex-specific

Stroke is “sexually dimorphic”

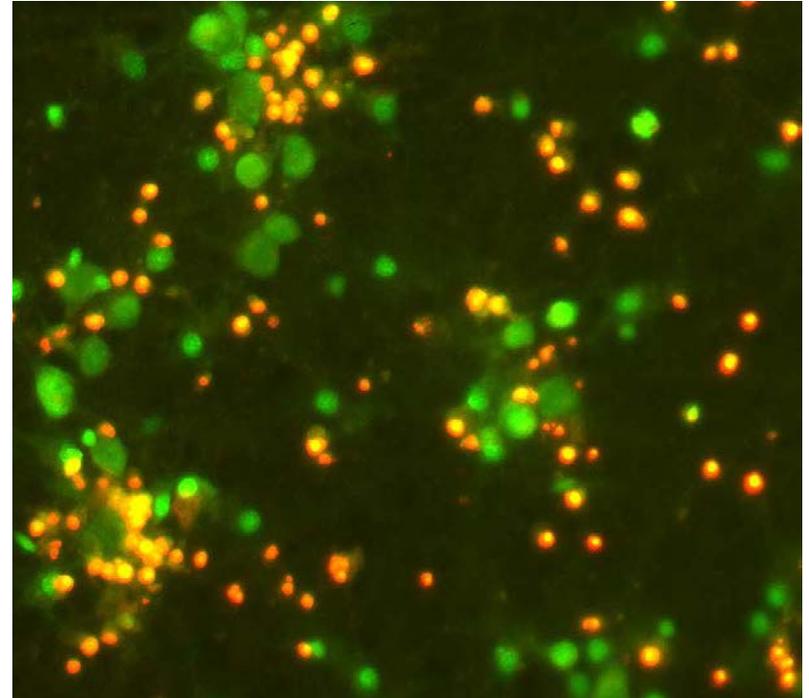
Northern Manhattan Stroke Study



Primary Cell Culture from Mouse or Rat



E16-18 Cortex: DIV 10



After ODG:
Live/Dead

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Sex in the dish...

How XX and XY cells respond differently to injury

Ano-genital distance in young albino rats of various ages

Age	Average Ano-Genital Distance	
	Male	Female
	Mn.	Mn.
Newborn.....	2.8	1.2
7 days.....	5.2	2.7
14 days.....	8.2	4.9
20 days.....	12.0	7.0
42-50 days.....	21.0	13.0

Females lack nipples at birth, but show six pairs when they are from 8-15 days old. Occasionally supernumerary nipples are present.

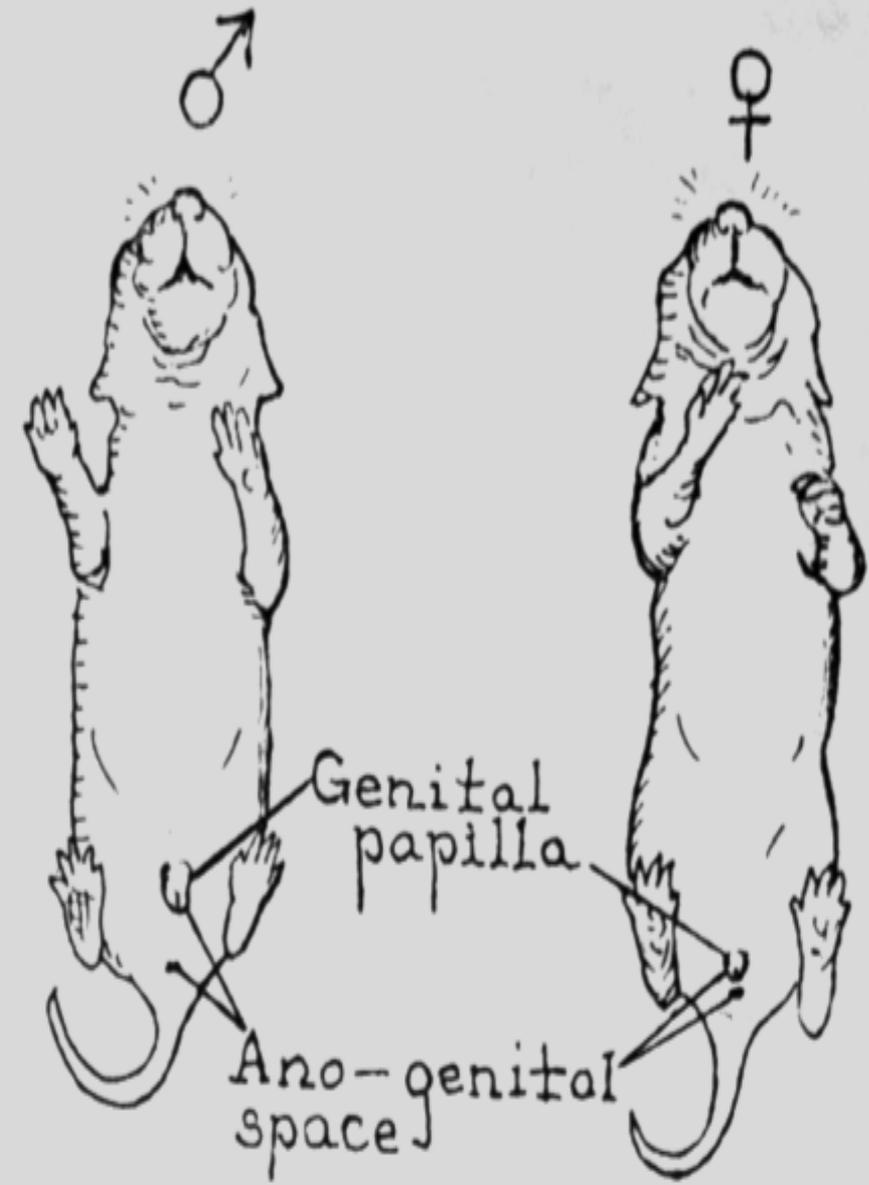
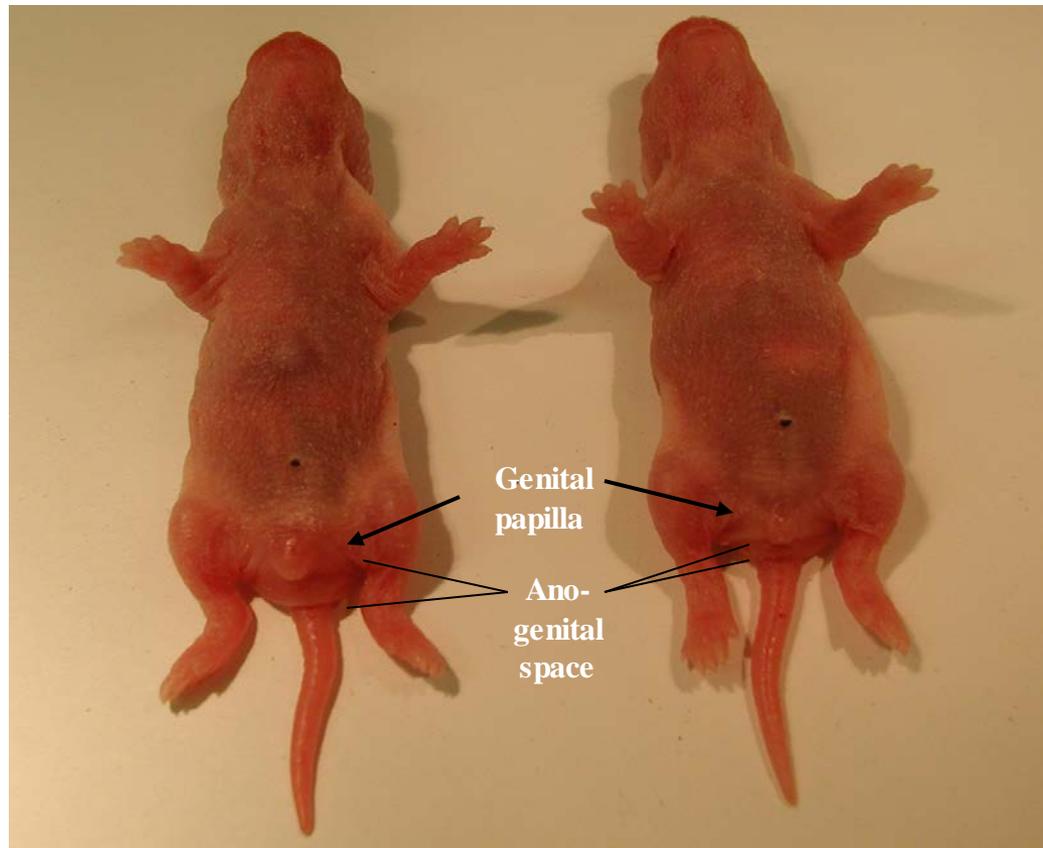


Fig. 1. External sex differences in young rats.

Visual Sexing of Rat or Mouse Pups

Male

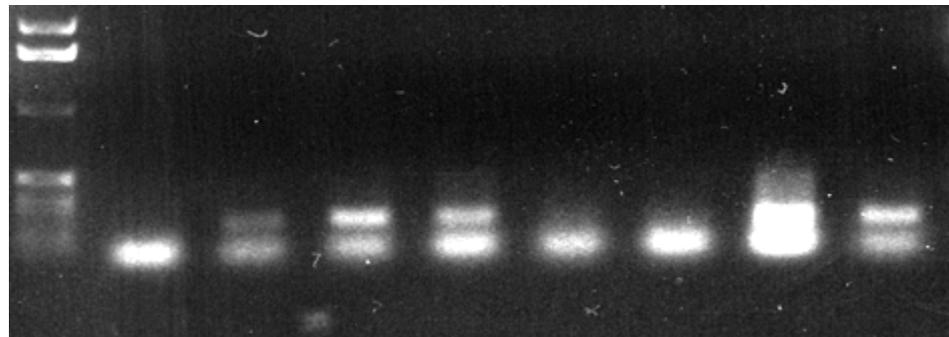
Female



Sex Determination in Culture by PCR

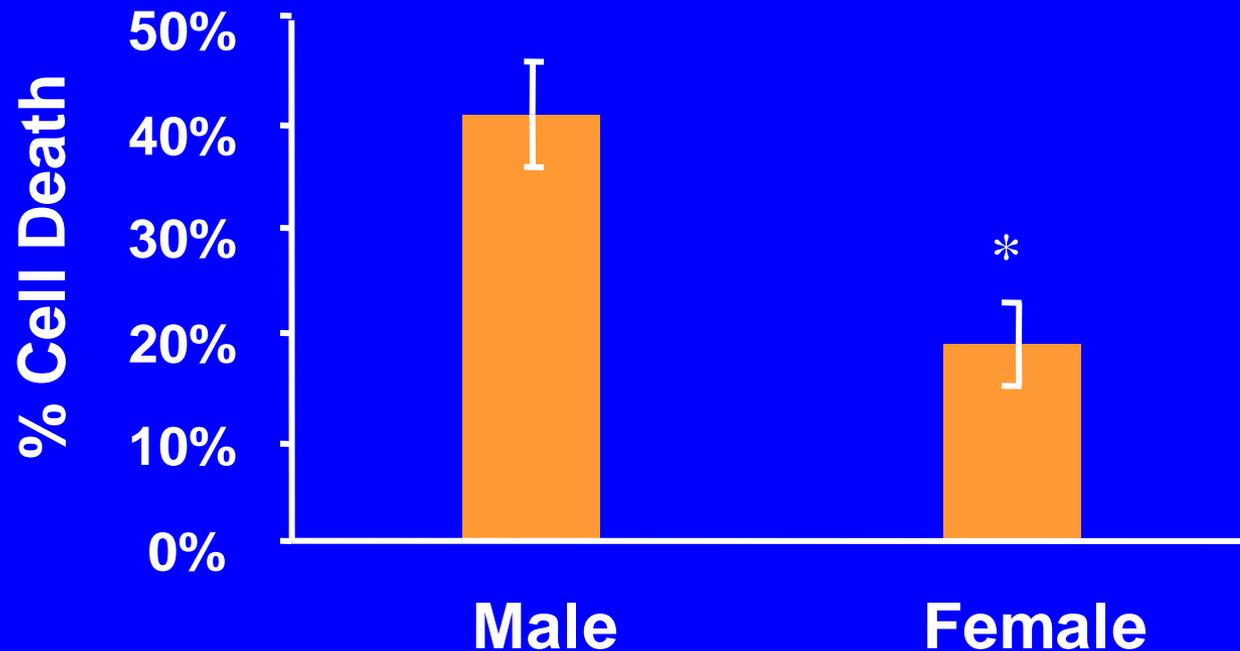
F M M M F F M M

Myog →

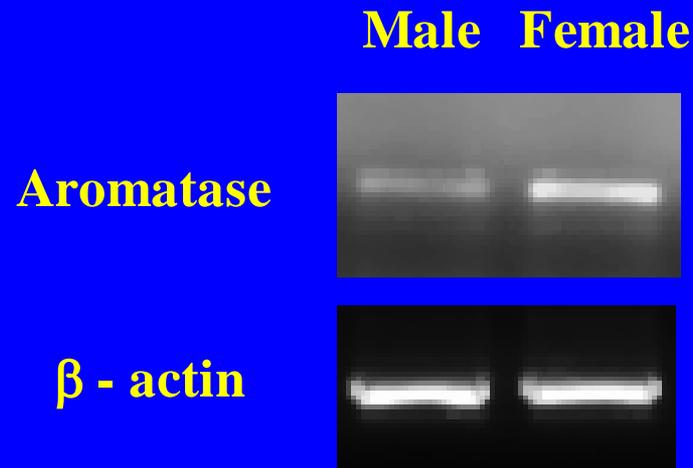


← Sry

Sex Establishes Sensitivity to OGD Cortical Astrocytes

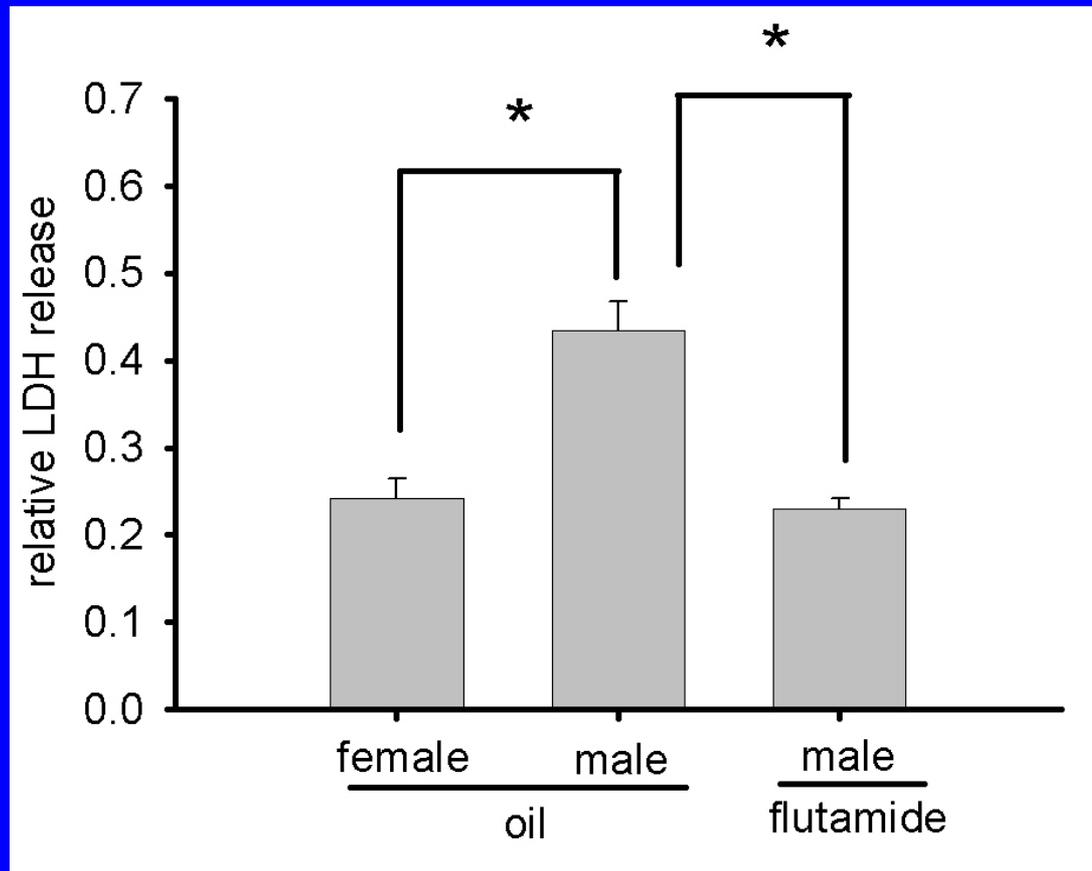


Higher *cyp19* Aromatase mRNA in Female vs. Male Astrocytes

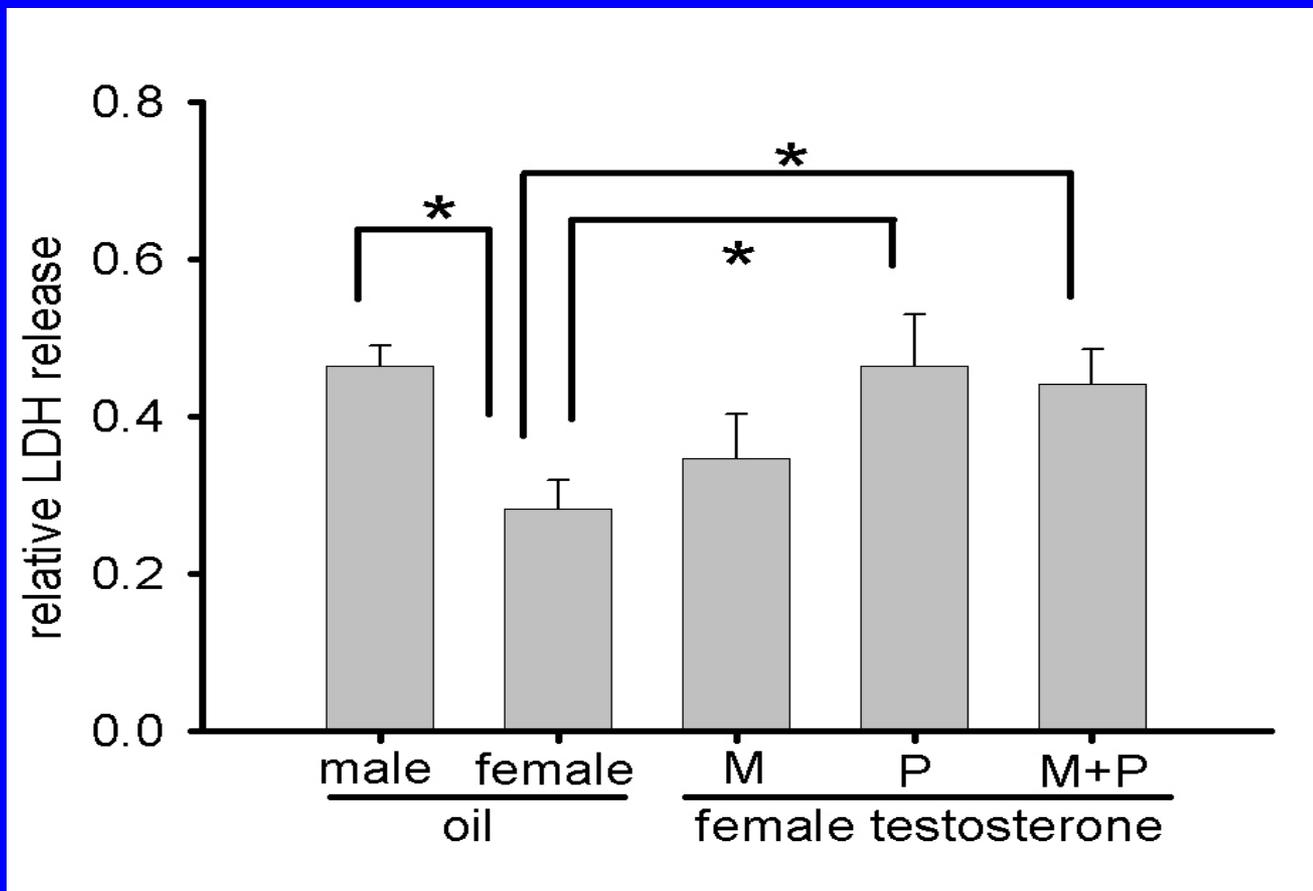


Liu et al., 2007

In male cells, *reversing the masculinization* of brain reduces sensitivity to OGD



In female cells, *masculinizing* the developing brain creates sensitivity to OGD



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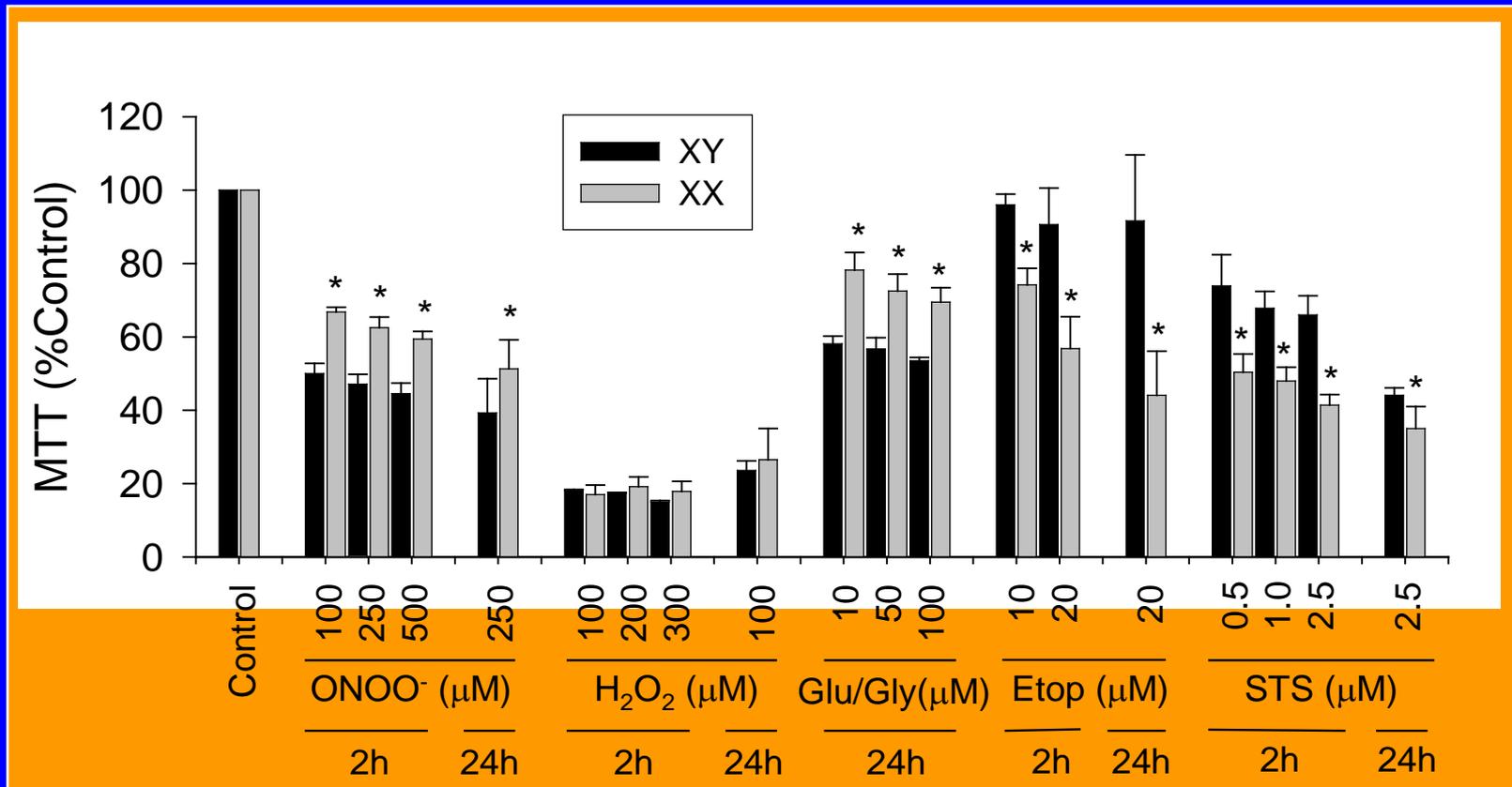
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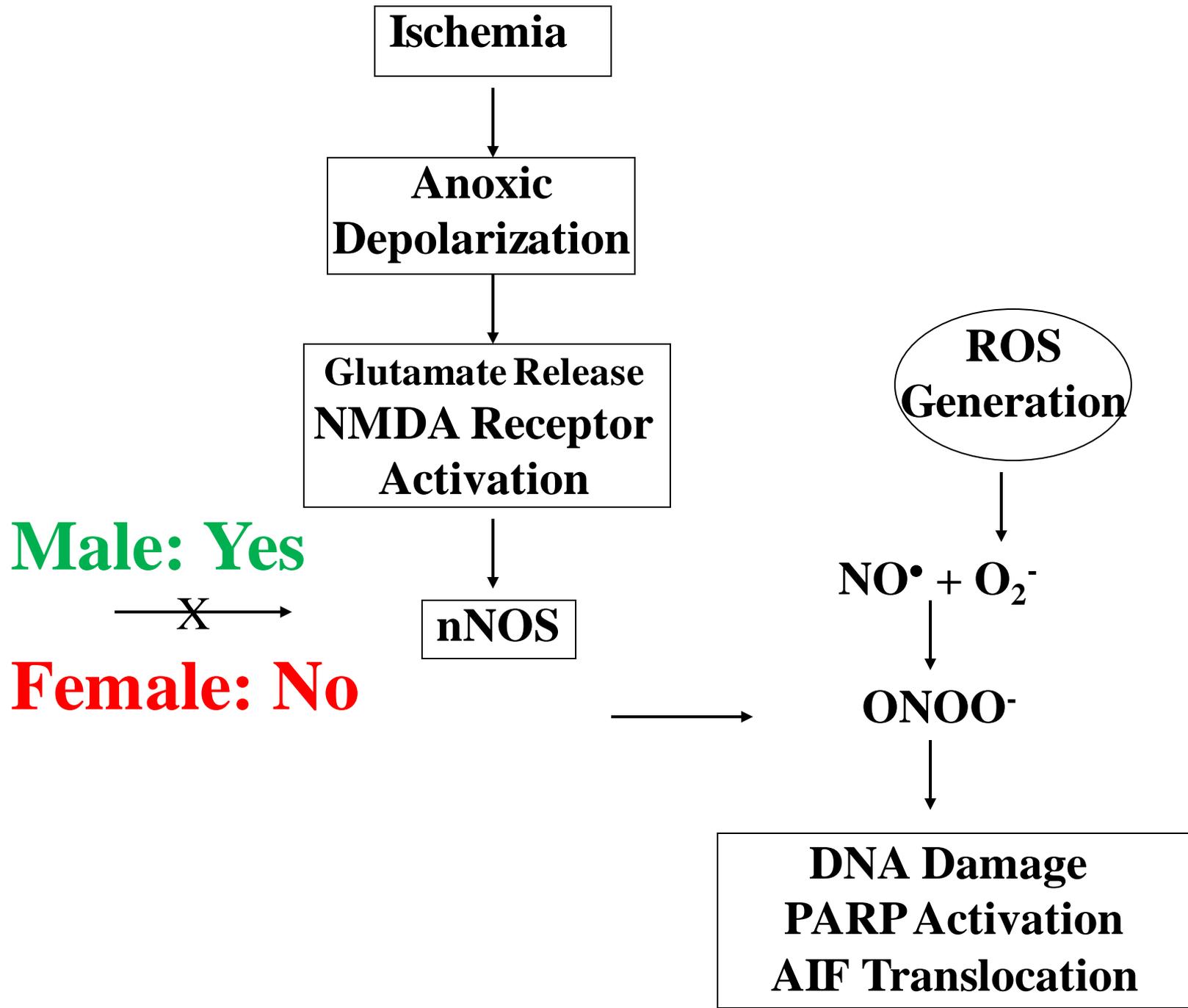
Sex in the dish...

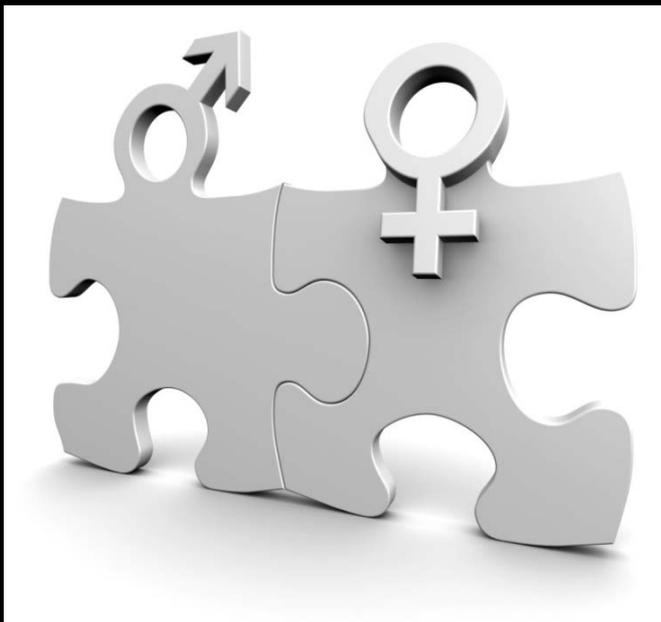
**Molecular mechanisms of injury can
sex-specific**

Sensitivity of cortical neurons to cytotoxic probes is dependent on XX vs. XY



(Du et al., 2004)





Gender Selective Research to promote Women's Health

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Sex Differences in Brain Endothelial Cell Survival After OGD

