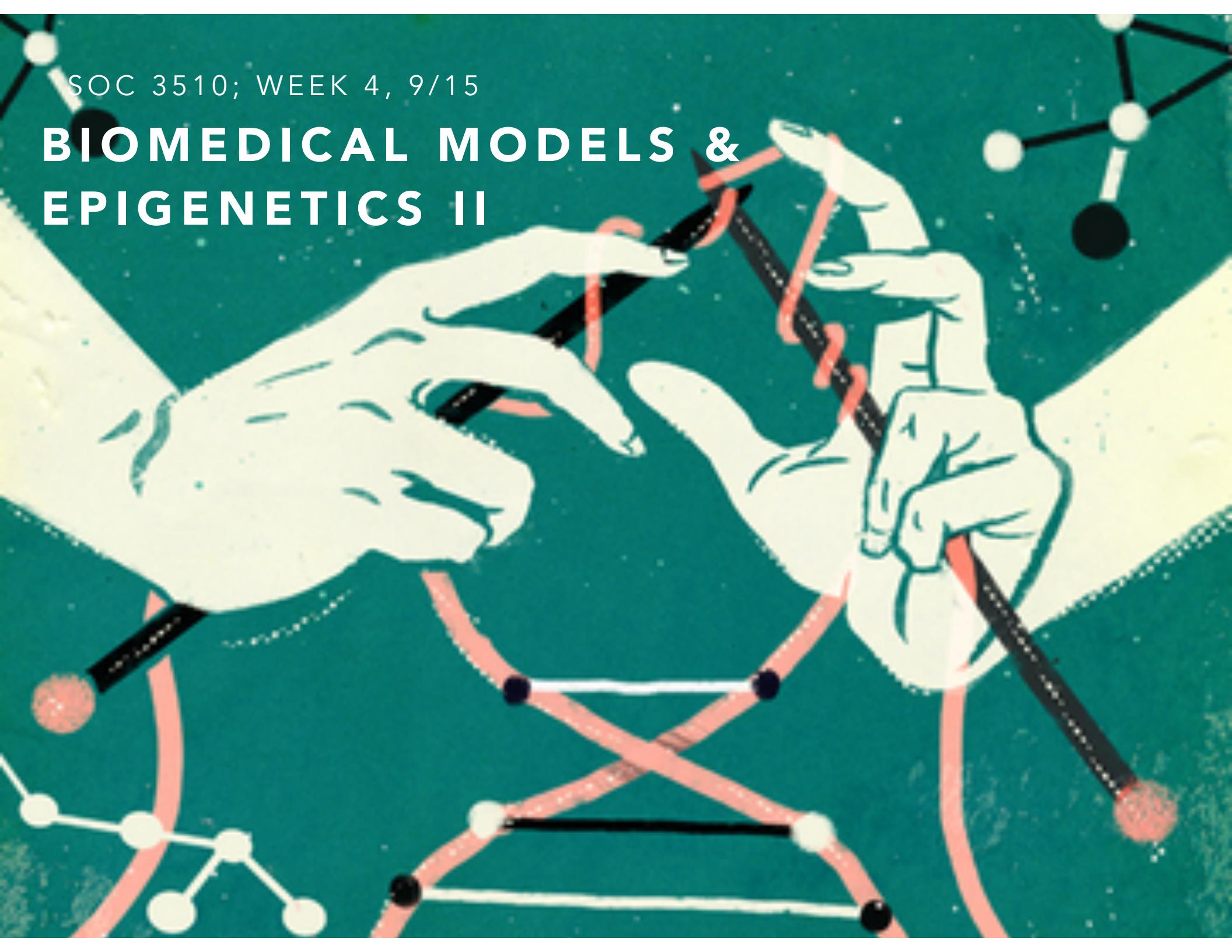


SOC 3510; WEEK 4, 9/15

BIOMEDICAL MODELS & EPIGENETICS II

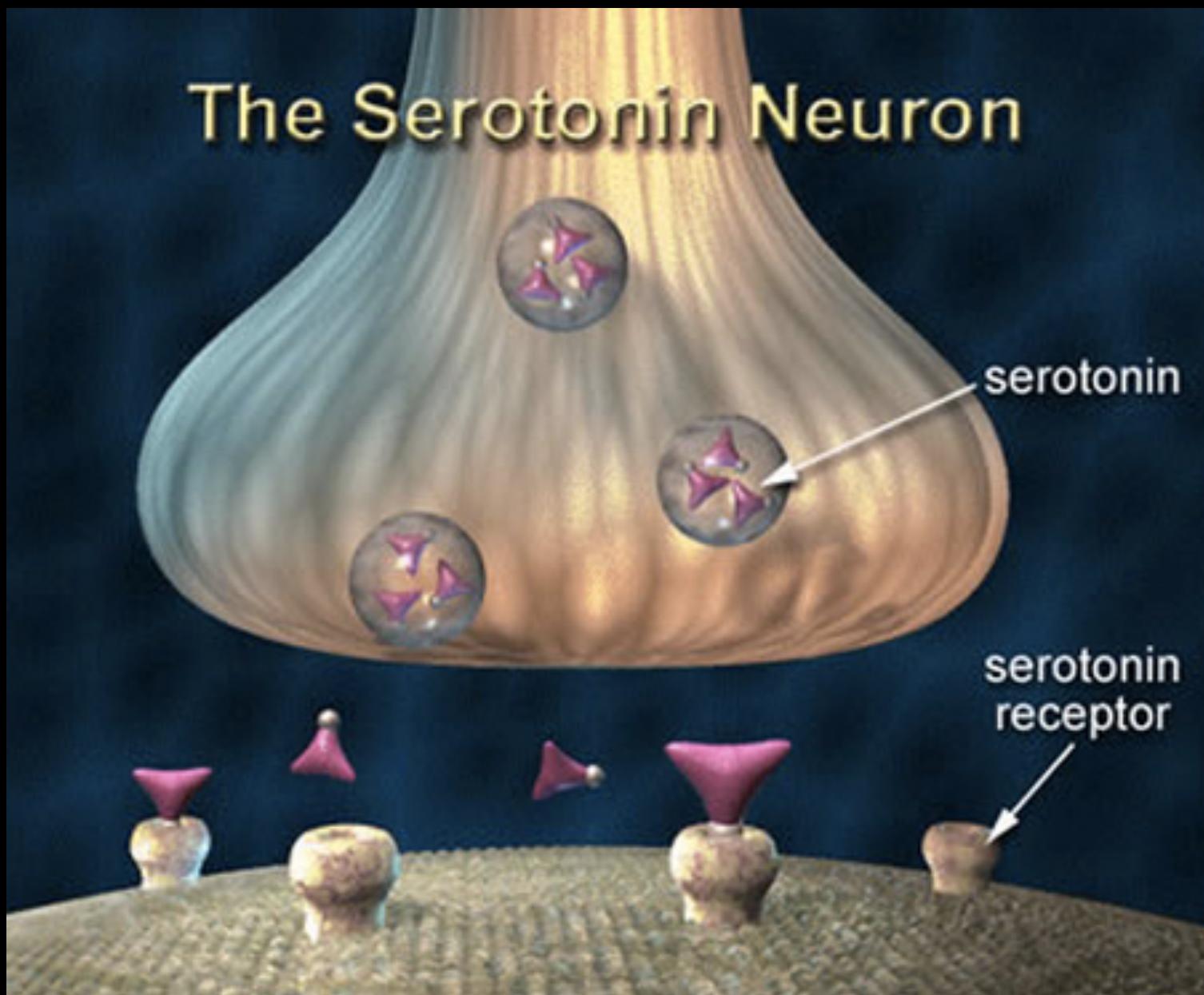


SCHIZOPHRENIA: TREATMENT

- First or second generation antipsychotic medications
 - The Dopamine Hypothesis
 - Evidence? Very little....
 - Effectiveness?
Moderately...and only on positive symptoms



DEPRESSION



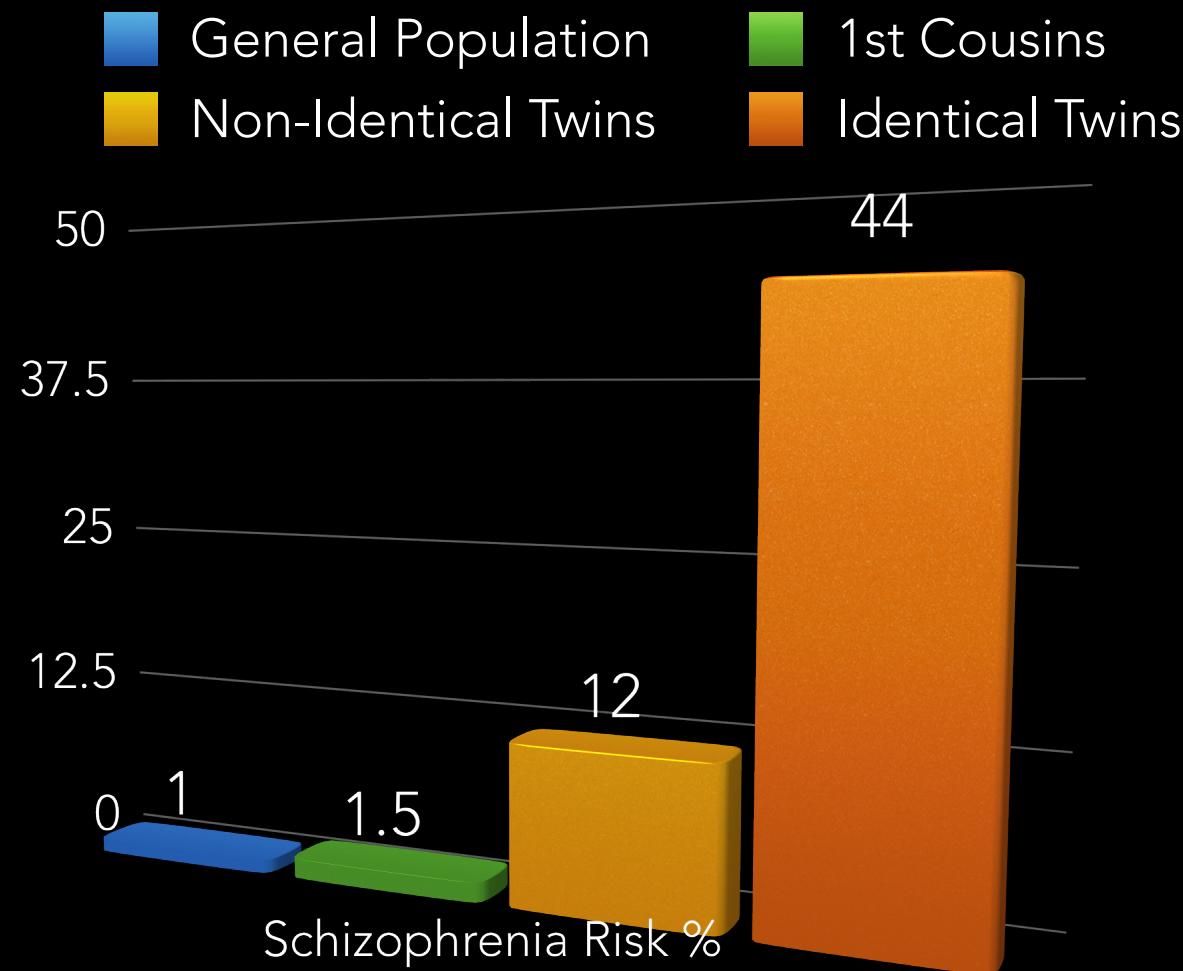
GENETIC EXPLANATIONS



GENES AND DISEASE

- Genes as factors that increase likelihoods of certain diseases and disorders
 - Heart disease, some cancers, Alzheimer's disease, diabetes....
 - Genes provide or deny opportunity for environmental factors to trigger onset
- Issues related to:
 - Genetic issues leading to social disparities in health (not equally shared)
 - Our own behavior affecting our genes and our epigenome

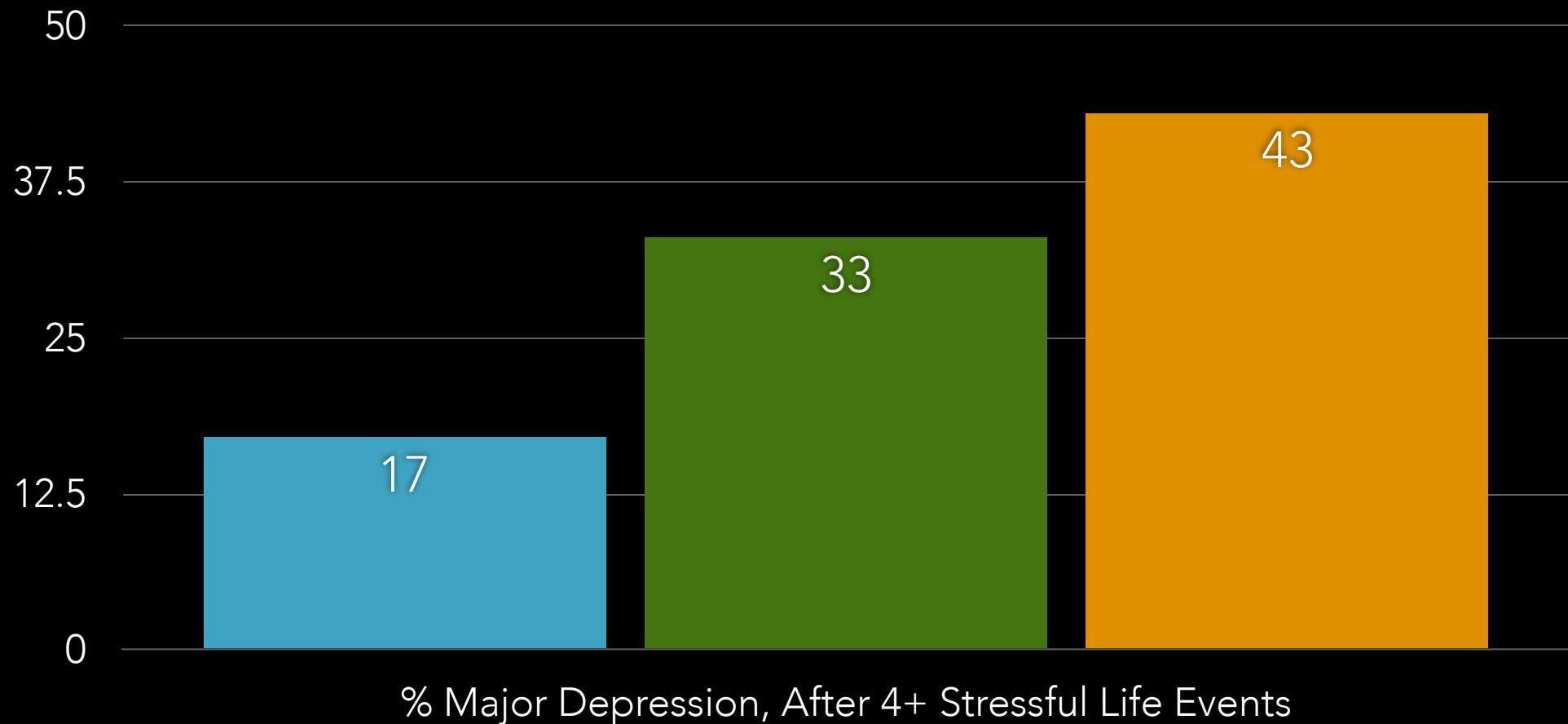
TWIN STUDIES



Gottesman et al 1987

5-HTT GENE AND DEPRESSION (CAPSI ET AL. 2003)

■ 2 Long Alleles ■ 1 Short Allele ■ 2 Short Alleles



Study finds new genetic risk markers in pancreatic cancer

August 03, 2014 | Tags: PancreaticCancer

Discovery could lead to future screening tests

A large DNA analysis of people with and without pancreatic cancer has identified several new genetic markers that signal increased risk of developing the highly lethal disease, report scientists from Dana-Farber Cancer Institute.

The markers are variations in the inherited DNA code at particular locations along chromosomes. Several of these variations in the DNA code were identified that influence an individual's risk for pancreatic cancer.

The discovery of these markers – along with four that were previously identified is important for several reasons, said [Brian Wolpin, MD, MPH](#), first author of the report published online by *Nature Genetics*. One is that further study of these DNA variants may help explain on the molecular level why some people are more or less susceptible to pancreatic cancer than the average person. A second is the potential to identify people at increased risk who then might be candidates to undergo MRI or ultrasound scanning to look for early, treatable pancreatic tumors.



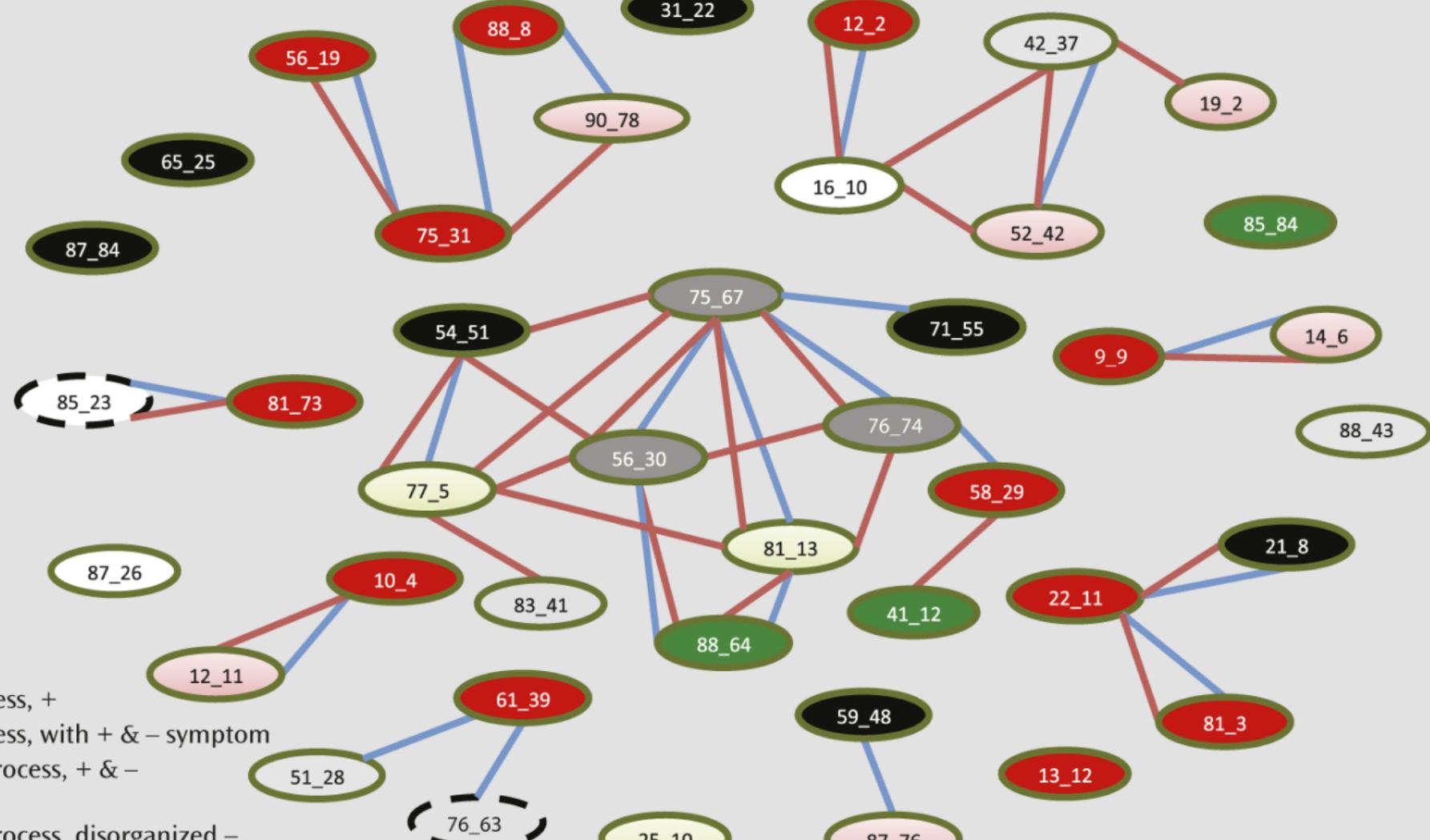
Brian Wolpin, MD, MPH

- Shared SNPs
- Shared subjects



UNCOVERING THE HIDDEN RISK ARCHITECTURE OF THE SCHIZOPHRENIAS

B



- Shared SNPs
- Shared subjects

PHENYLKUTONURIA (PKU)

- Autosomal recessive genetic variant on chromosome 12
- Cannot break down the amino acid phenylalanine
- Causing progressive, irreversible cognitive impairments
- Genetic disorder controlled by...?

PKU: the Problem

1

Phe is in most of the foods you eat



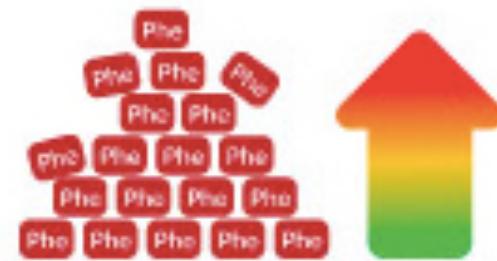
2

A defective enzyme (PAH) in the body fails to process the Phe



3

This leads to high Phe levels in the blood



4

This can lead to problems in thinking and behavior



INDOOR TANNING

- 76,100 cases of melanomas in 2014 (ACS predictions)
- Young/adult women especially at risk; 1.75x's greater odds of developing skin cancer from indoor tanning prior to age 35
- How does the body tan?
- Common link between tanning and skin cancer?
- FDA now requiring black box warnings on indoor tanning devices saying they are not to be used by those under the age of 18



EPIGENETICS

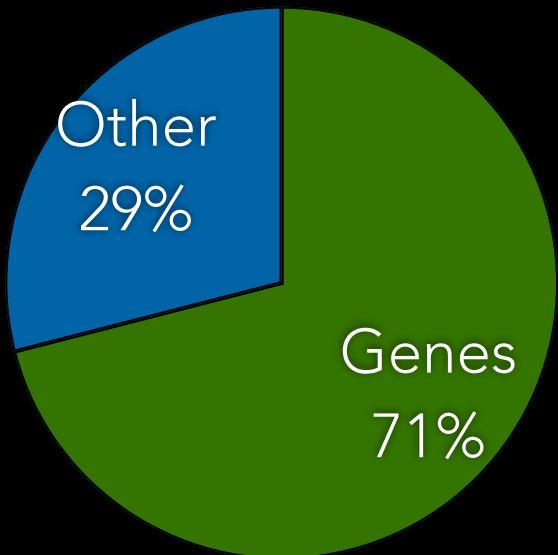
My favorite flavor of Hot Pockets by far is ham. And cheese I'm not sure what to make of. This "Limited Edition" Spicy Hawaiian Style Pizza? But I'll try, almost. Anything! Once!

GIVEN WHAT WE'VE BEEN DISCUSSING AND READING, DRAWING PARTICULARLY ON THE BEARMAN AND SHOSTAK/FREESE PIECES, WHAT ARE SOME OF THE SOCIAL CONSEQUENCES OF THIS HEIGHTENED PRESENCE OF GENETICS RESEARCH IN THE MEDIA?

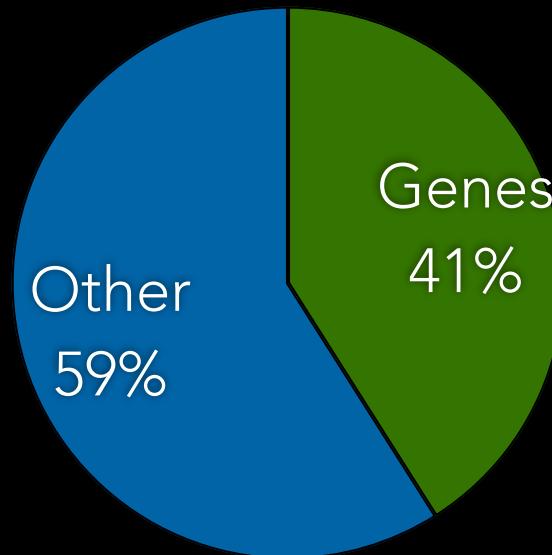
WHAT TYPES OF RESEARCH WOULD YOU LIKE TO SEE PERFORMED ON THE LINKS BETWEEN GENES AND THE ENVIRONMENT?

PUBLIC UNDERSTANDINGS OF GENES

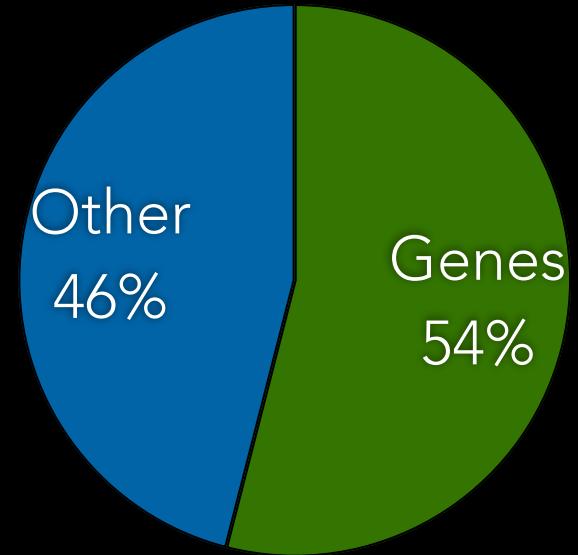
HEIGHT



WEIGHT



BREAST/
PROSTATE
CANCER



Parrott et al. 2003

NEGATIVE SOCIAL IMPLICATIONS OF GENETICIZATION

- Genetic reductionism/essentialism
- Genetic determinism/fatalism