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NUTRIGENOMI 

Session 2: Innovative Methodologies and Technologies

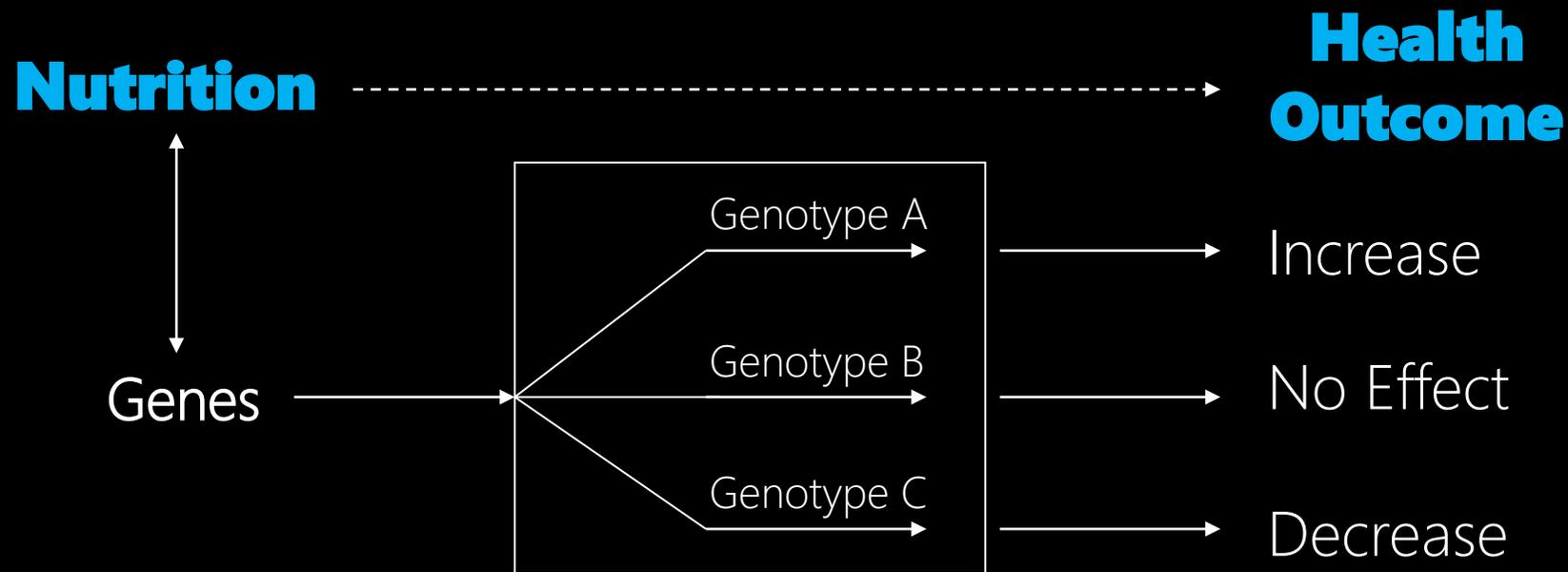
The Genetic Scale

Disclosure Statement

Founder & CSO and hold shares in Nutrigenomix Inc.



Why are genetic differences important for nutrition?

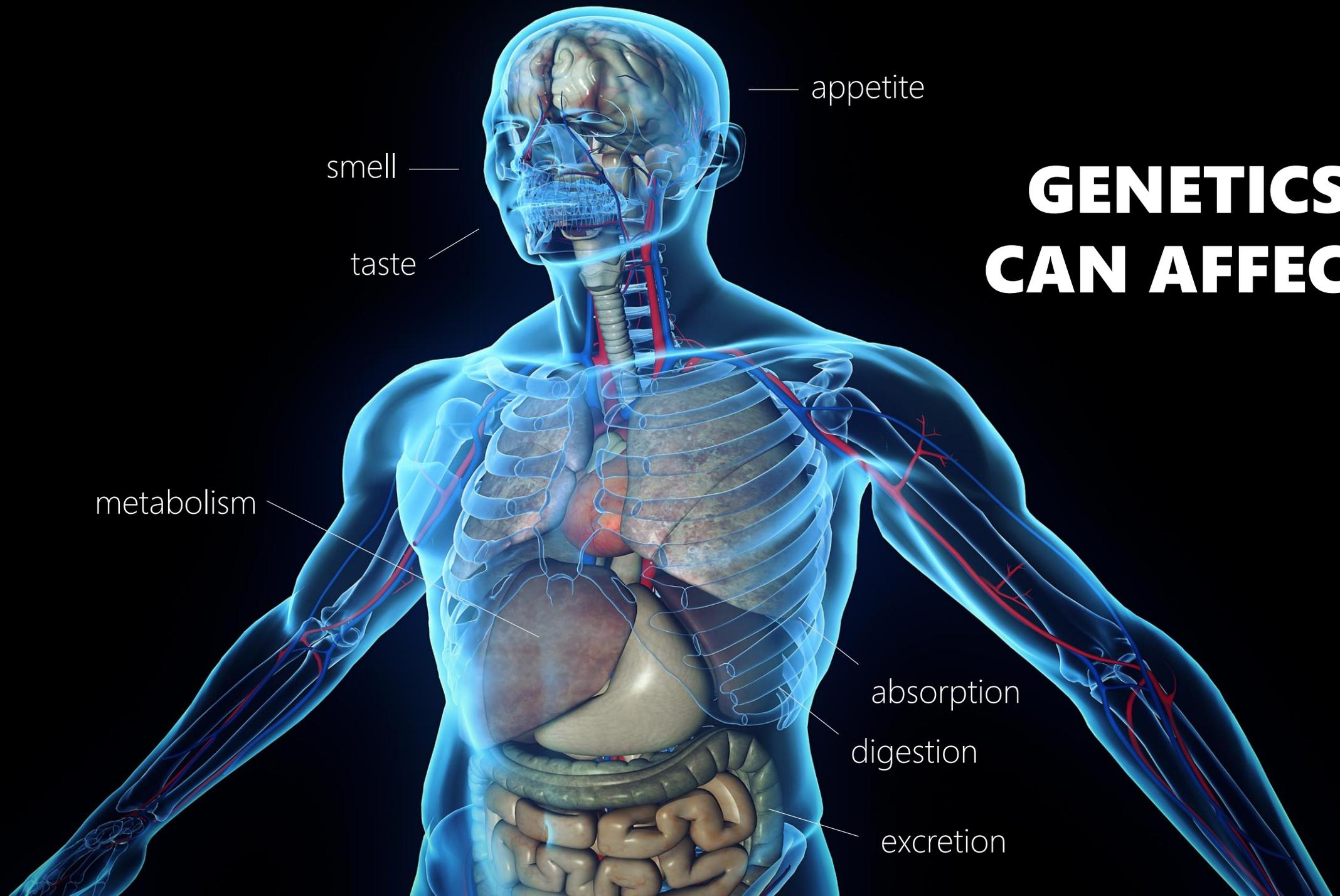


One size does not fit all



One man's food is another man's poison

- Lucretius (99-55 BC)



GENETICS CAN AFFECT

— appetite

smell —

taste —

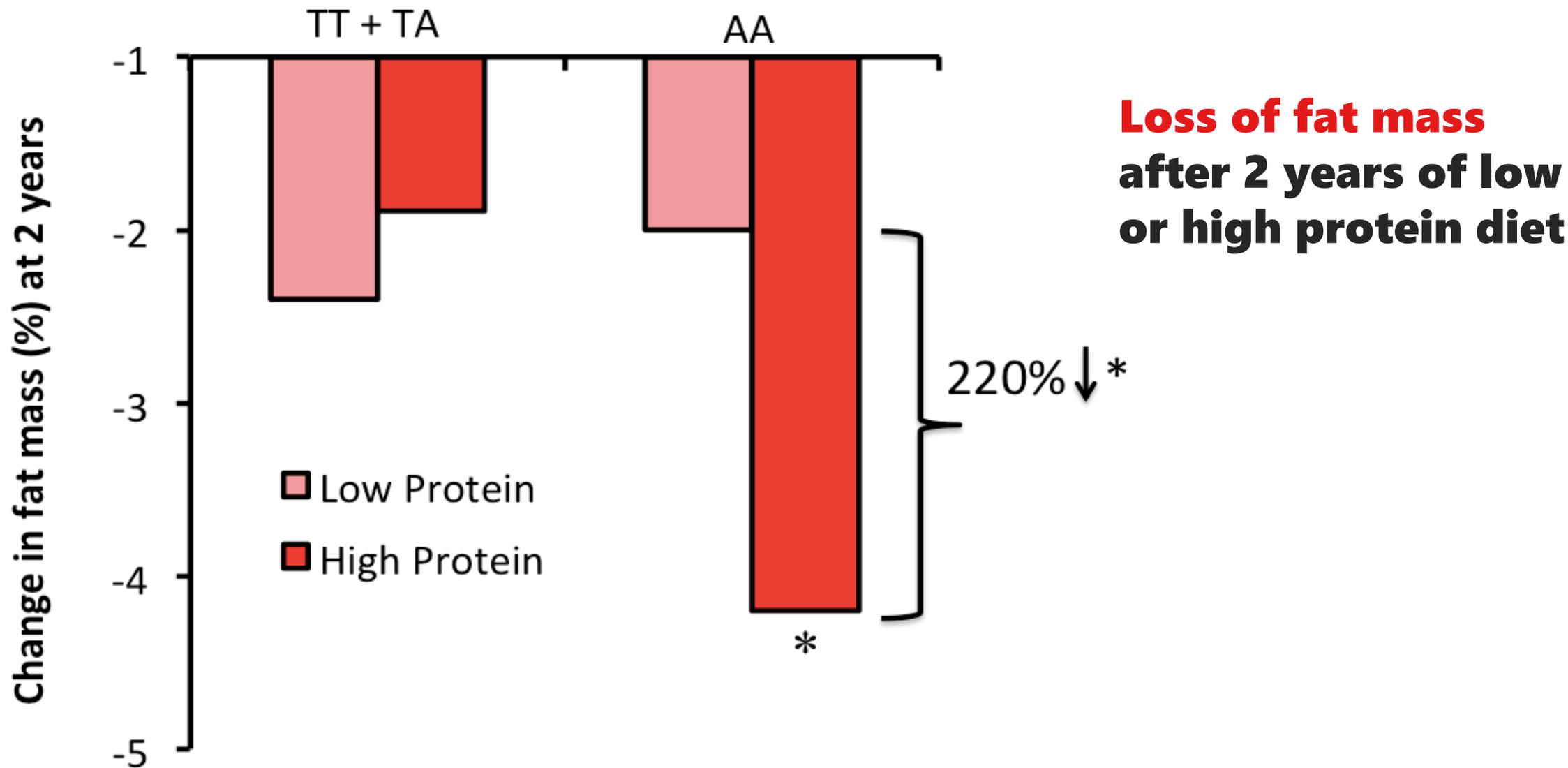
metabolism —

absorption

digestion

excretion

FTO Genotype, rs1558902



Replication

Effects of a High-Protein/Low-Carbohydrate Diet versus a Standard Hypocaloric Diet on Weight and Cardiovascular Risk Factors: Role of a Genetic Variation in the rs9939609 *FTO* Gene Variant

Daniel Antonio de Luis Rocío Aller Olatz Izaola David Primo
Silvia Urdiales Enrique Romero

J Nutrigenet Nutrigenomics 2015;8:128–136

Antonio *et al.* *Journal of the International Society of Sports Nutrition* (2019) 16:36
<https://doi.org/10.1186/s12970-019-0307-6>

Journal of the International
Society of Sports Nutrition

RESEARCH ARTICLE

Open Access

Assessment of the *FTO* gene polymorphisms (rs1421085, rs17817449 and rs9939609) in exercise-trained men and women: the effects of a 4-week hypocaloric diet



Jose Antonio^{1*}, Sarah Knafo², Madaline Kenyon¹, Alina Ali², Cassandra Carson¹, Anya Ellerbroek¹, Cailey Weaver², Justin Roberts³, Corey A. Peacock¹ and Jaime L. Tartar²

Merritt *et al.* *Genes & Nutrition* (2018) 13:4
<https://doi.org/10.1186/s12263-018-0593-7>

Genes & Nutrition

RESEARCH

Open Access

FTO genotype, dietary protein intake, and body weight in a multiethnic population of young adults: a cross-sectional study



David C. Merritt[†], Joseph Jamnik[†] and Ahmed El-Soheemy^{*}

What the skeptics say...which is false

- Single SNPs are useless.
- People won't change their behaviors.
- We need more evidence. From RCTs.
- Results from genetic tests are too complex.
- Family history is more informative.
- Just follow recommendations for healthy eating.



Recent advances and current controversies in genetic testing for personalized nutrition

Bibiana Garcia-Bailo and Ahmed El-Soheemy

Do genetic differences contribute to interindividual responses to diet?

Are single genetic variants as useful as genetic risk scores?

Controversies

Does DNA-based personalized nutrition elicit greater behavior change than general advice?

Does genetic information make a difference on the type of dietary advice provided?

Is DNA-based Dietary Advice Ready for Prime Time? **Yes**

- Scientific evidence is robust (for some markers)
- Independent of ethnic background
- Improved compliance (evidence from RCT)
- Information is actionable and “personalized”
- Increasing consumer awareness and demand
- More effective through HCPs, rather than DTC