



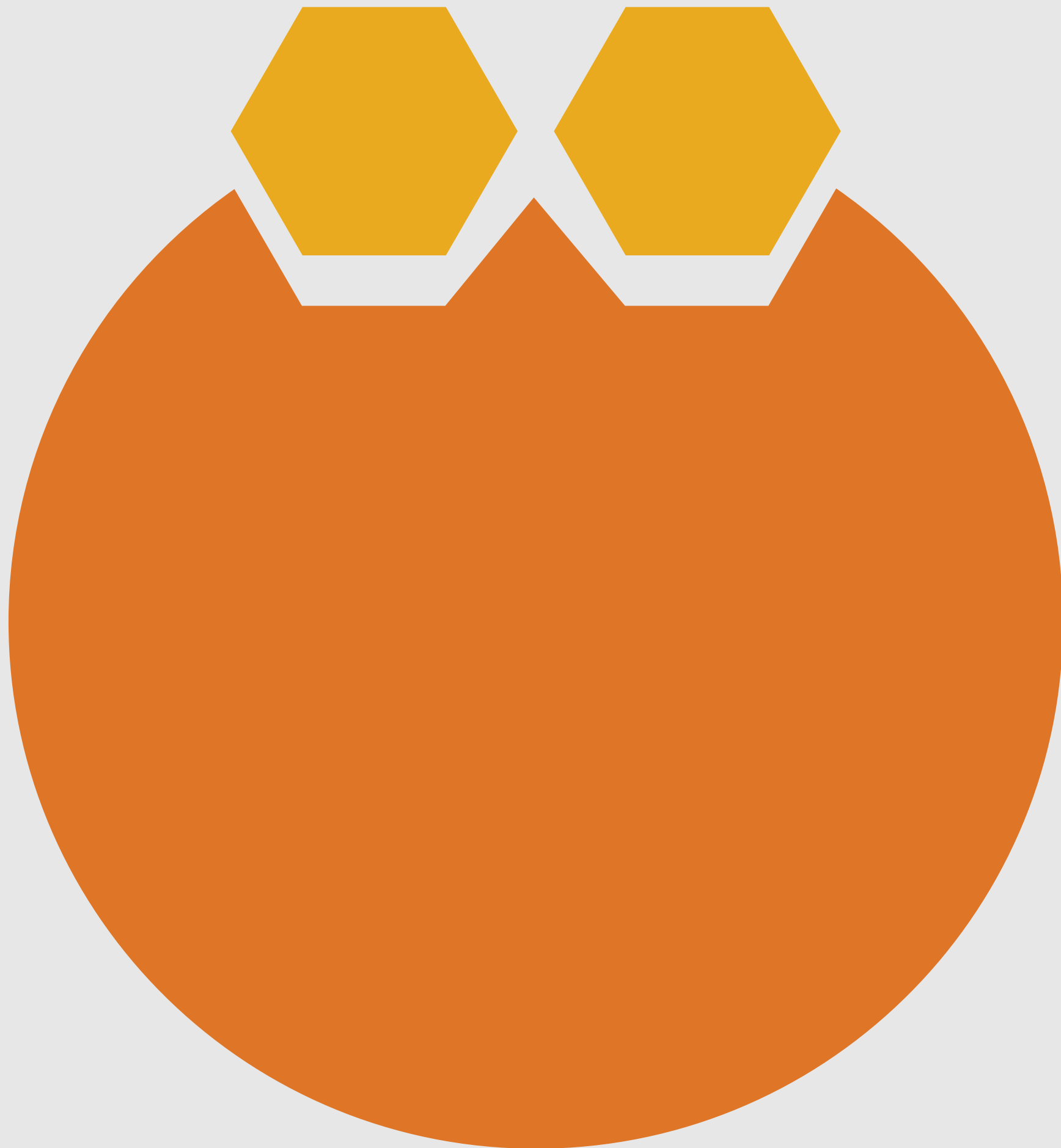
What do you **Gene**?

Alpha-Amylase1

A Potential Obesity Biomarker

WHAT IS IT?

Alpha-amylase 1 is an enzyme that in humans is **encoded by the *AMY1A* gene.**



WHAT IS IT?

Amylases are secreted proteins that **catalyze the first step in digestion** of dietary starch and glycogen.

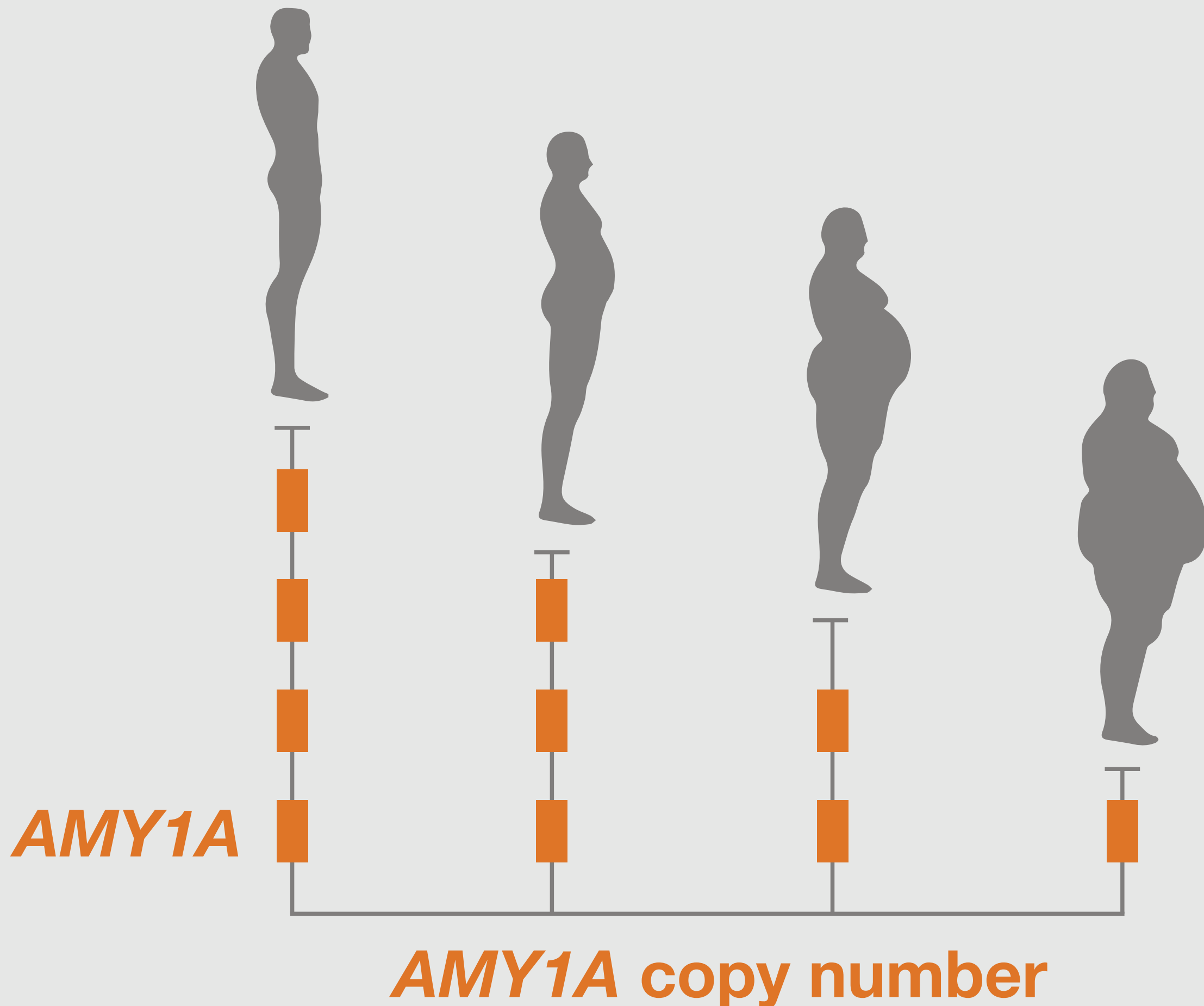
Individuals from populations with traditionally high-starch diets tend to have more AMY1A copies than those with low-starch diets.

The human genome has a cluster of several amylase genes that are **expressed at high levels in either the salivary gland or pancreas.**



ALPHA-AMYLASE 1 AND OBESITY

Recent research shows that there is a **genetic link between obesity and the copy number of the salivary amylase gene.**



ALPHA-AMYLASE 1 AND OBESITY

The risk of obesity is **approximately eight times higher for individuals with less than four copies** of the *AMY1A* gene than for individuals with nine copies.



ALPHA-AMYLASE 1 AND OBESITY

Researchers estimate that with every additional copy of *AMY1A*, there is an approximately **20% decrease** in the odds of becoming obese.

20%
↓



DROPLET DIGITAL PCR (ddPCR) IN AMY1A RESEARCH

- A relationship between AMY1 and adiposity was identified due to absolute quantification, thus advancing the treatment of obesity.
- ddPCR has helped identify the relationship between salivary amylase and body mass index (BMI).

ddPCR was used to confirm and refine the CNV genotype analysis in a cohort of 358 Boer goats.

Visit [bio-rad.com/digital-assays](https://www.bio-rad.com/digital-assays) for more information on ddPCR assays. For research use only.

References

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Falchi M et al. (2014). Low copy number of the salivary amylase gene predisposes to obesity. *Nat Genet* 46, 492–497.

Perry GH et al. (2007). Diet and the evolution of human amylase gene copy number variation. *Nat Genet* 39, 1256–1260.

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