

DIABETIC-FRIENDLY LOW GLYCEMIC INDEX AND HIGH PROTEIN RICE

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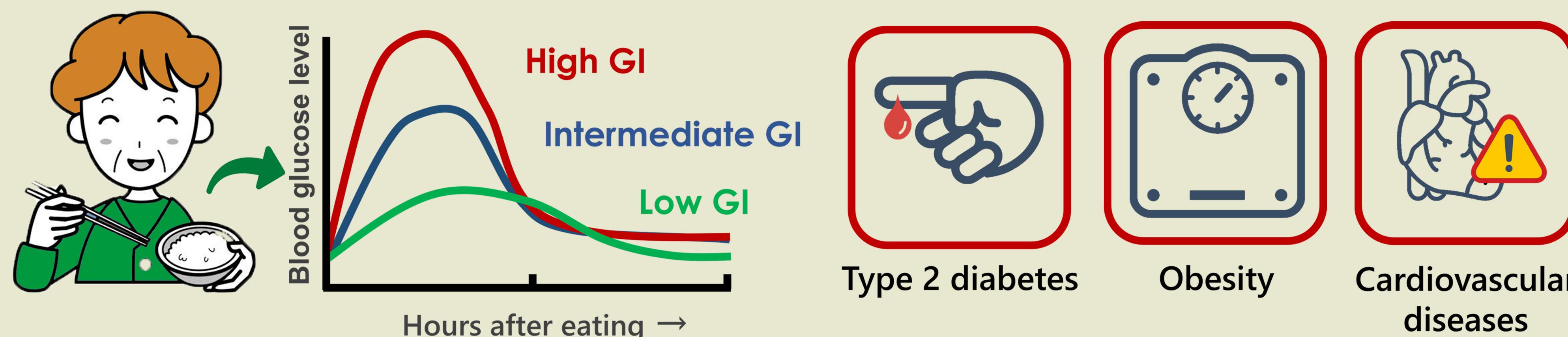
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THE PROBLEM



Glycemic index (GI) is the measure of the extent by which food increases the post-prandial blood glucose level.

HIGH-GI FOOD INCREASES THE RISKS OF:



Breeding low-GI rice varieties can boost diet-based solutions to mitigate type 2 diabetes and related diseases.

THE SOLUTION



METHODS FOR MEASURING THE GLYCEMIC INDEX OF RICE

To mainstream the low GI trait in rice breeding programs, it is essential to establish high-throughput screening methods

The *in vivo* blood glucose measurement

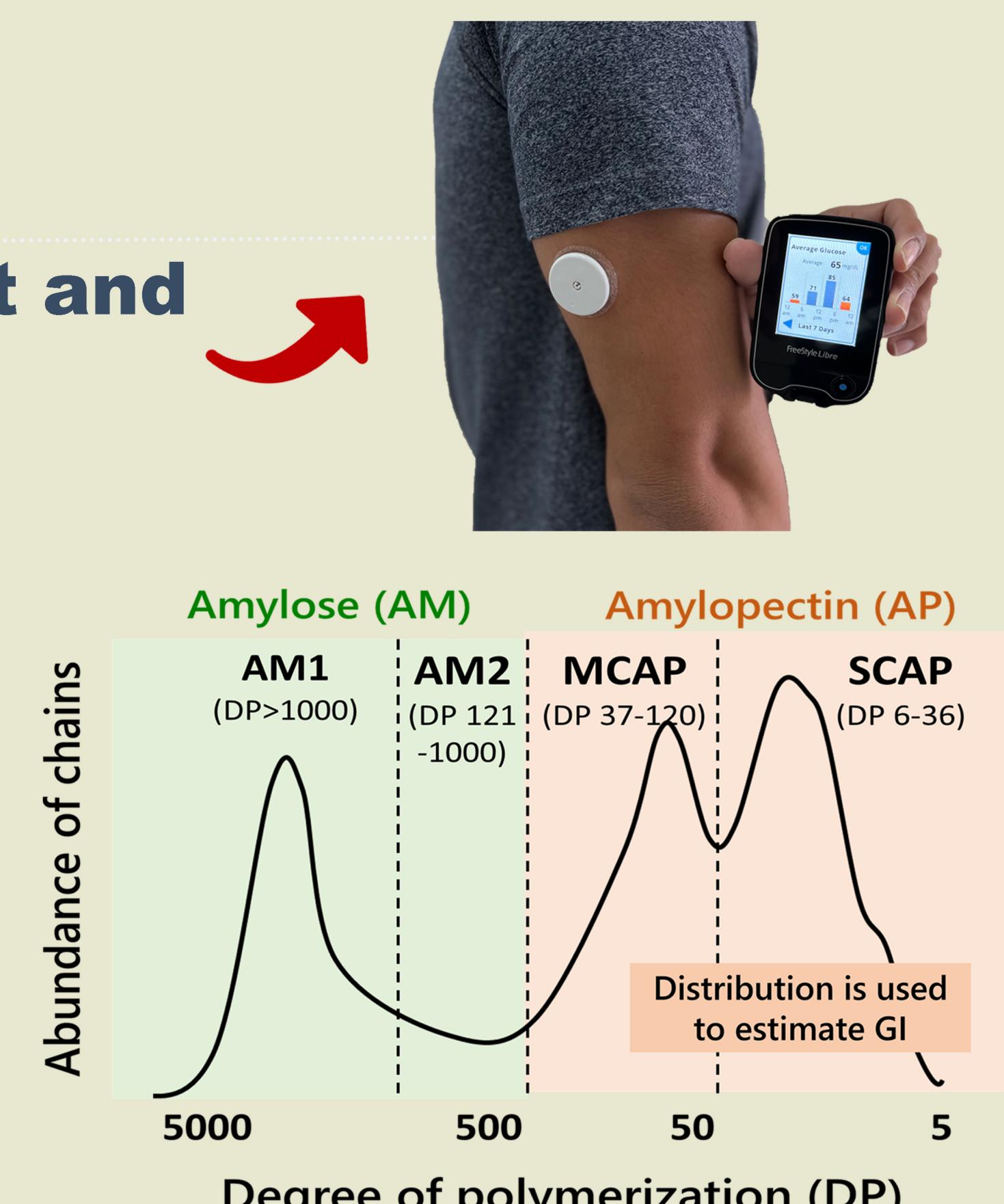
Using a continuous glucose monitoring system for a more convenient and comfortable blood glucose measurement.



B Alternative *in vitro* methods

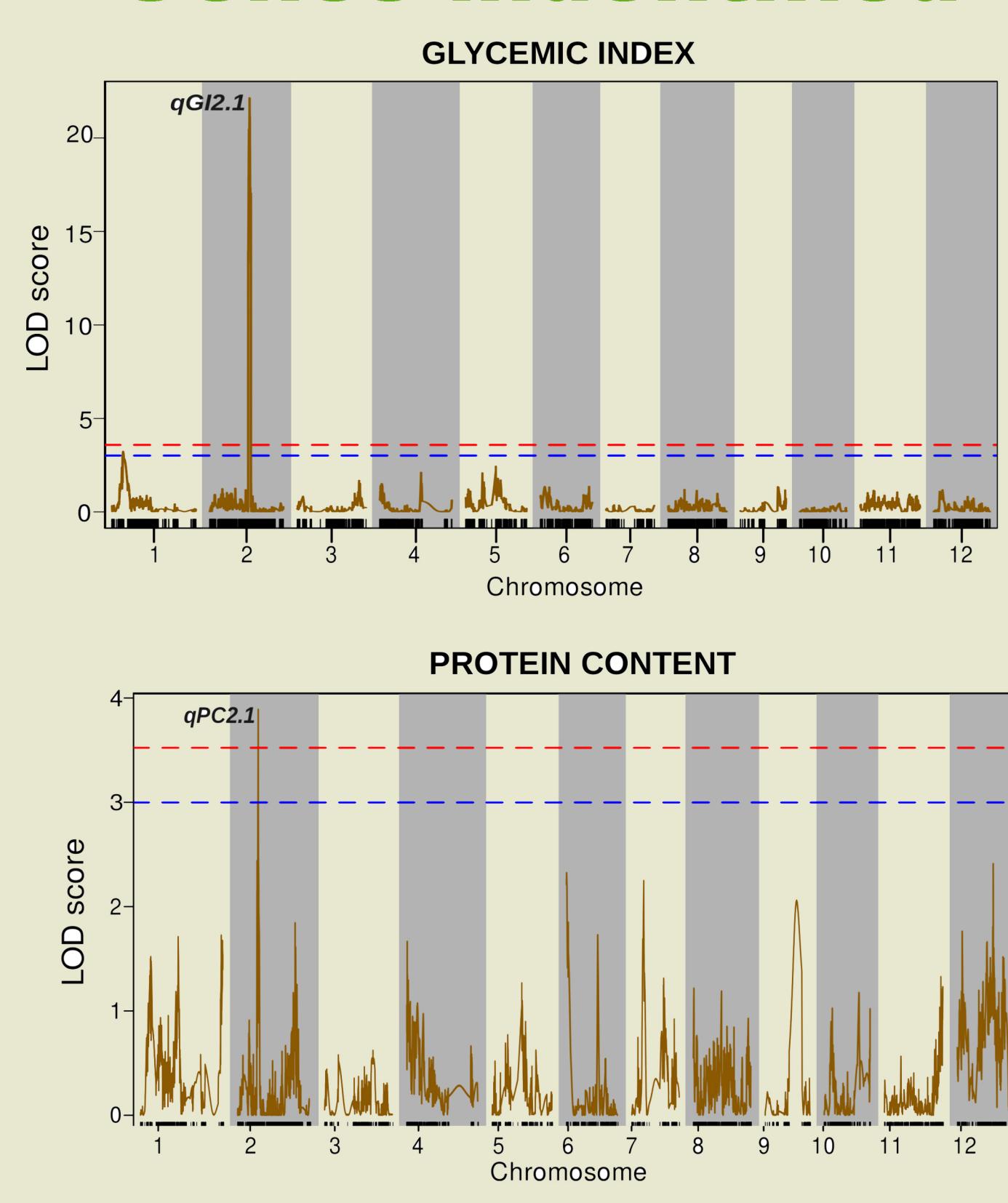
B.1 Simulated digestion of rice starch using oral and intestinal amylolytic enzymes

B.2 Using debranched-starch chain length distribution as a proxy parameter to predict GI



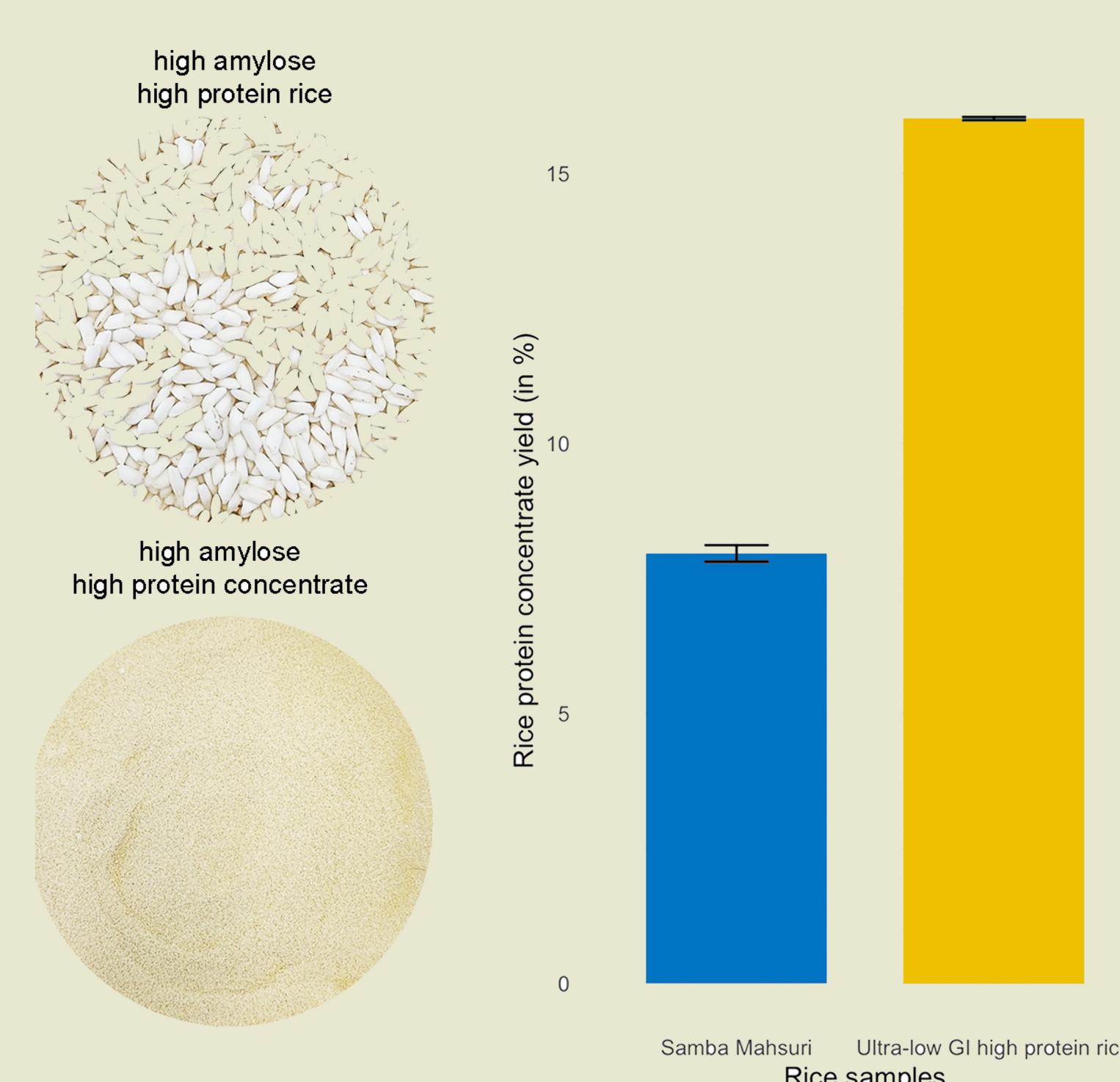
SUMMARY POINTS

Genes identified



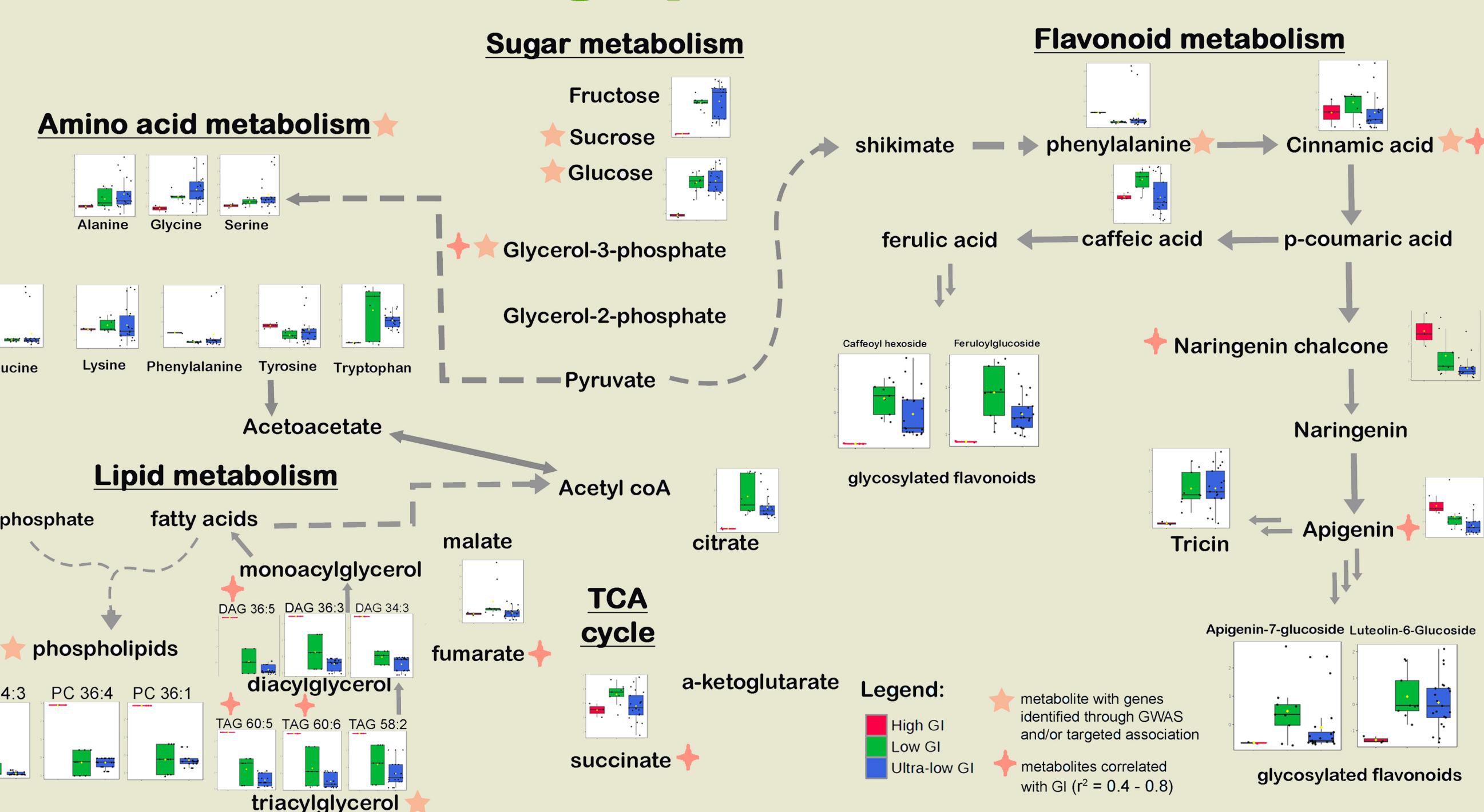
QTLs from Chromosome 2 is responsible for lowering the GI and increasing the protein of rice

High protein is developed



Rice with protein content ranging 14-16% was developed through the crossing of IR36 amylose extender mutant and Samba Mahsuri

There is a metabolic shift in low GI and high protein rice



Low GI and high protein rice tends to shift the metabolic reflux to amino acids and flavonoids whereas high GI rice has enrichment in lipids.