Using Novel Broccoli Lines to Understand Glucosinolate Production and Sulphur Metabolism

UKBRC MEETING

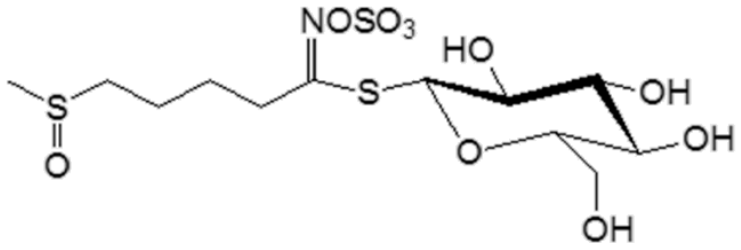
MIKHAELA NEEQUAYE

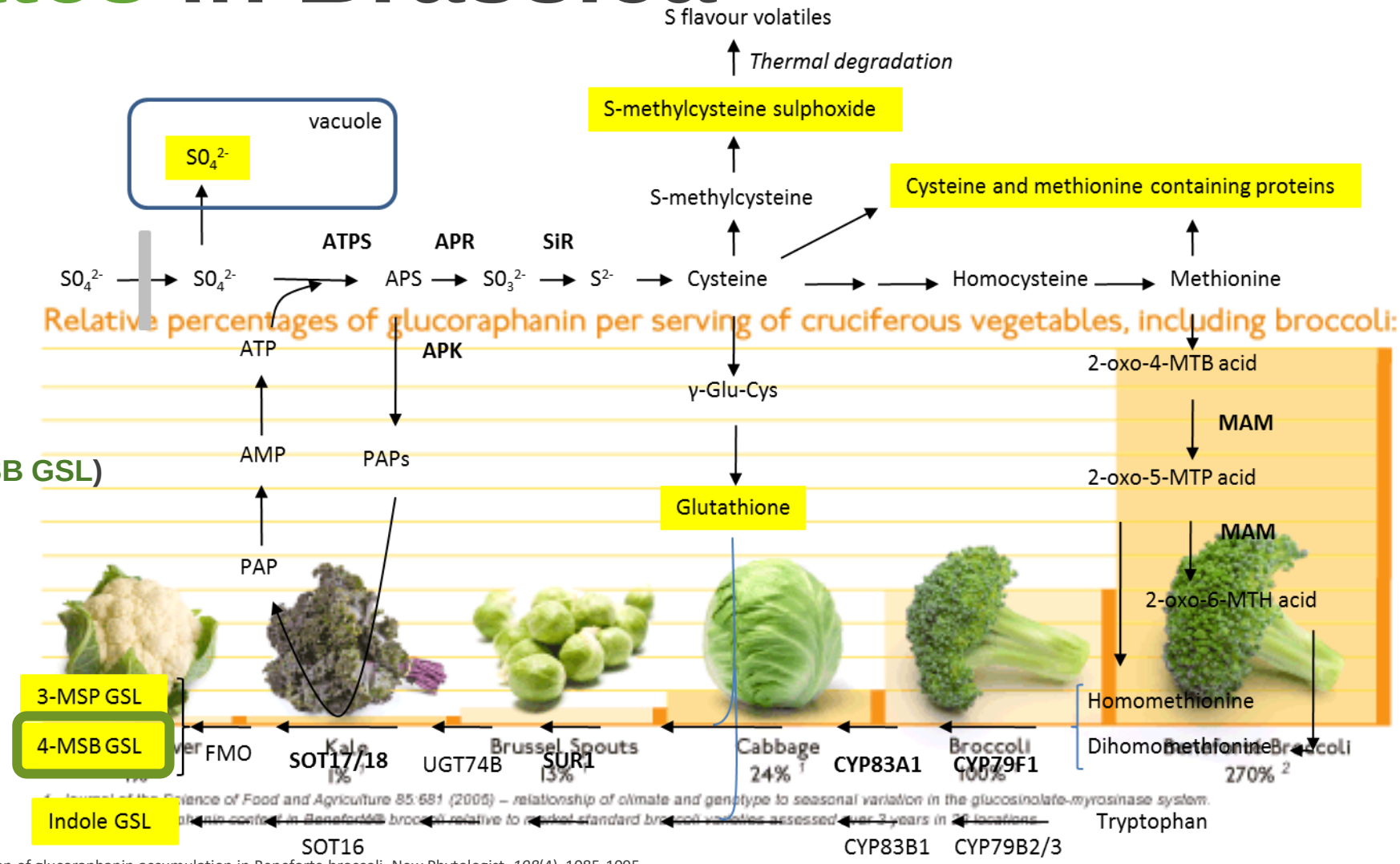
9TH MAY 2018

Glucosinolates in Brassica

Glucoraphanin

(4-methylsulphinylbutyl glucosinolate, 4-MSB GSL)





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MYB28 in Brassica

HAG1, AT5G61420, Bo2g161590

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MYB28 Allelic Variation

Standard Broccoli

MYB28$^{b/b}$

F1 Hybrid

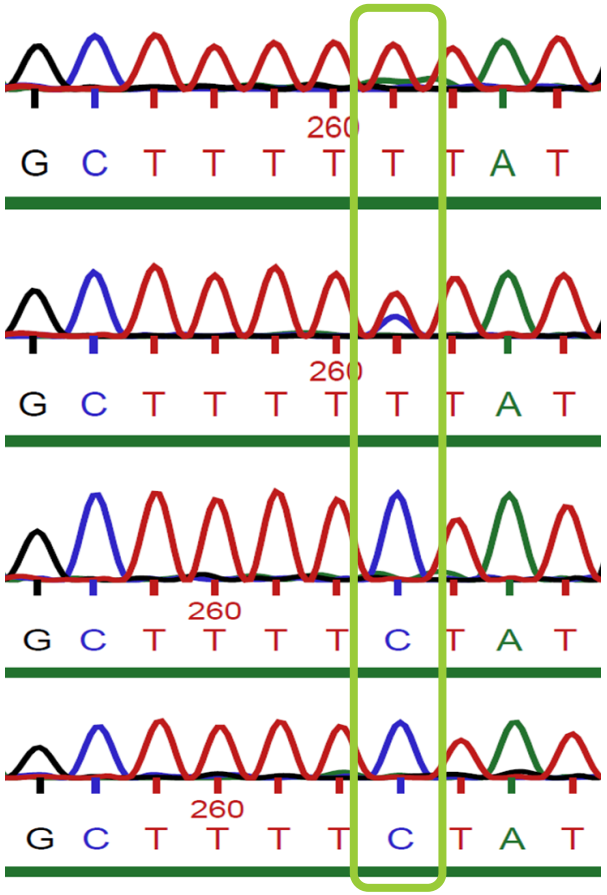
MYB28$^{v/b}$

Inbred line

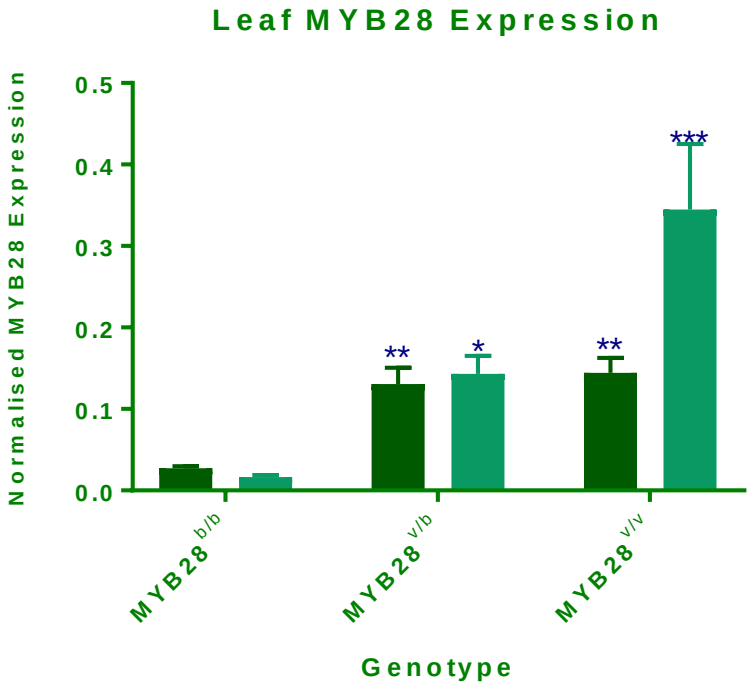
MYB28$^{v/v}$

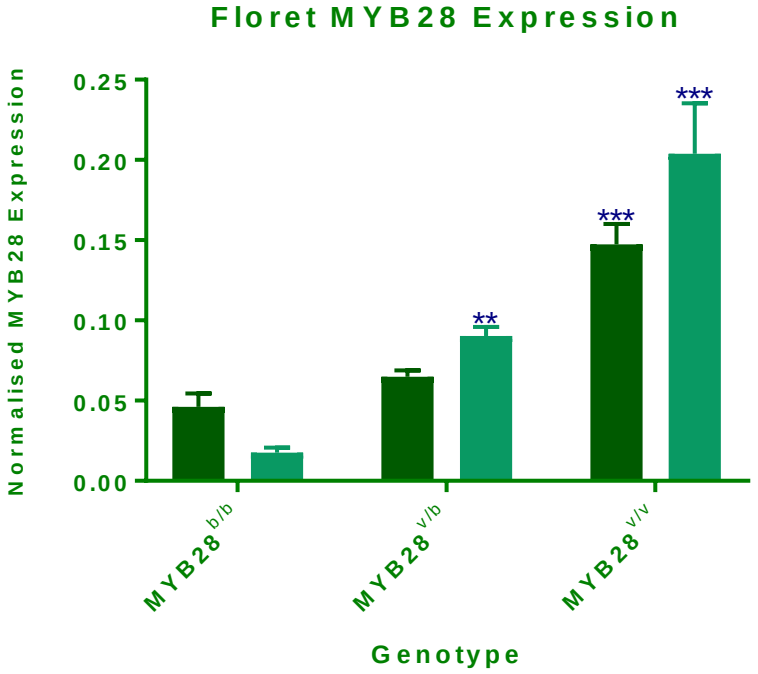
Wild Brassica

MYB28$^{v/v}$



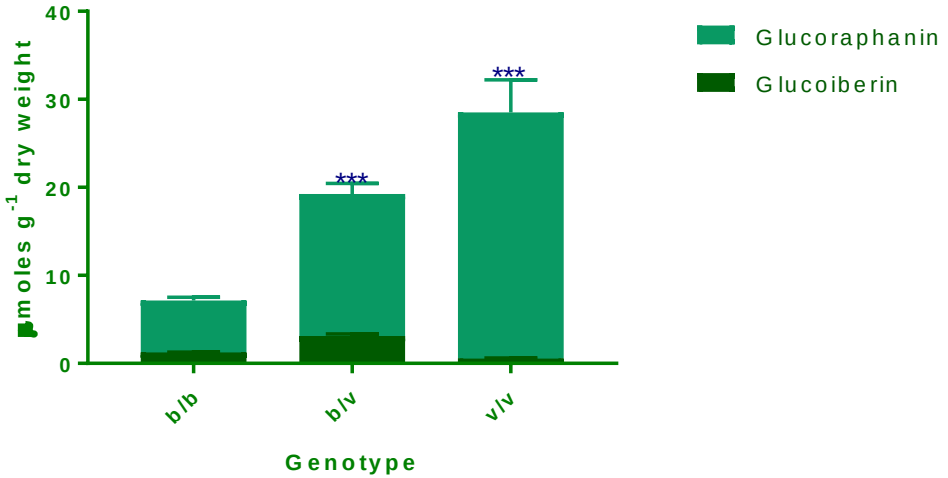
Mikhaela Neequaye, unpublished



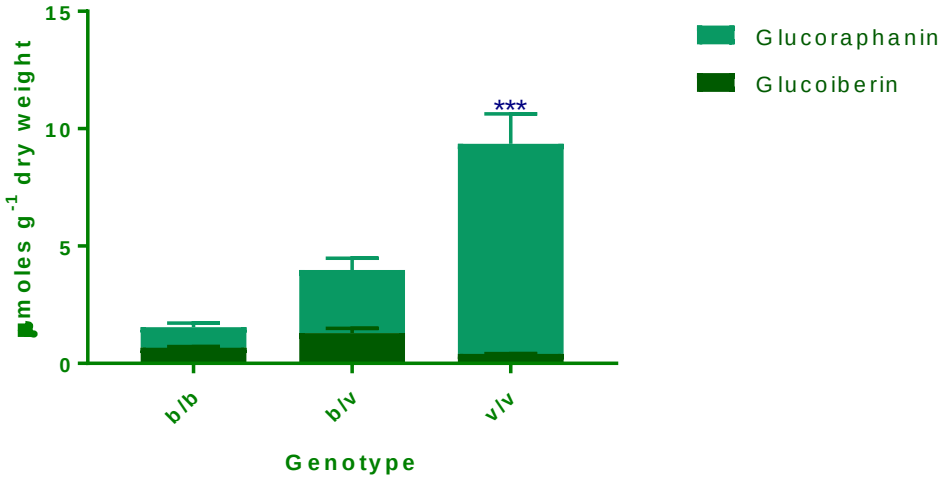


Methionine Derived Glucosinolates

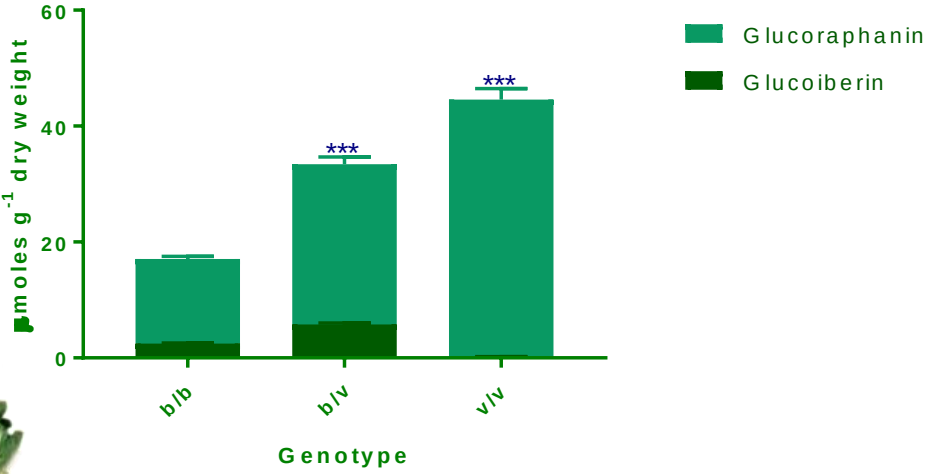
Leaf Methionine-Derived Glucosinolates 2016



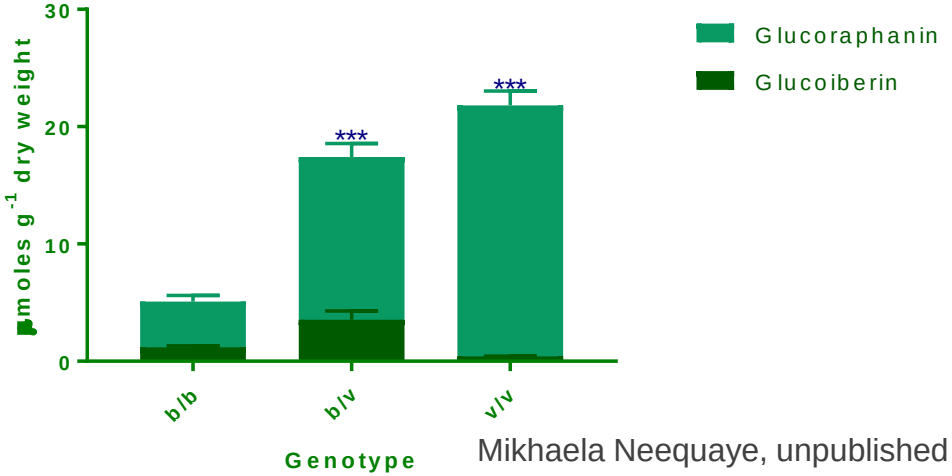
Leaf Methionine-Derived Glucosinolates 2017



Floret Methionine-Derived Glucosinolates 2016

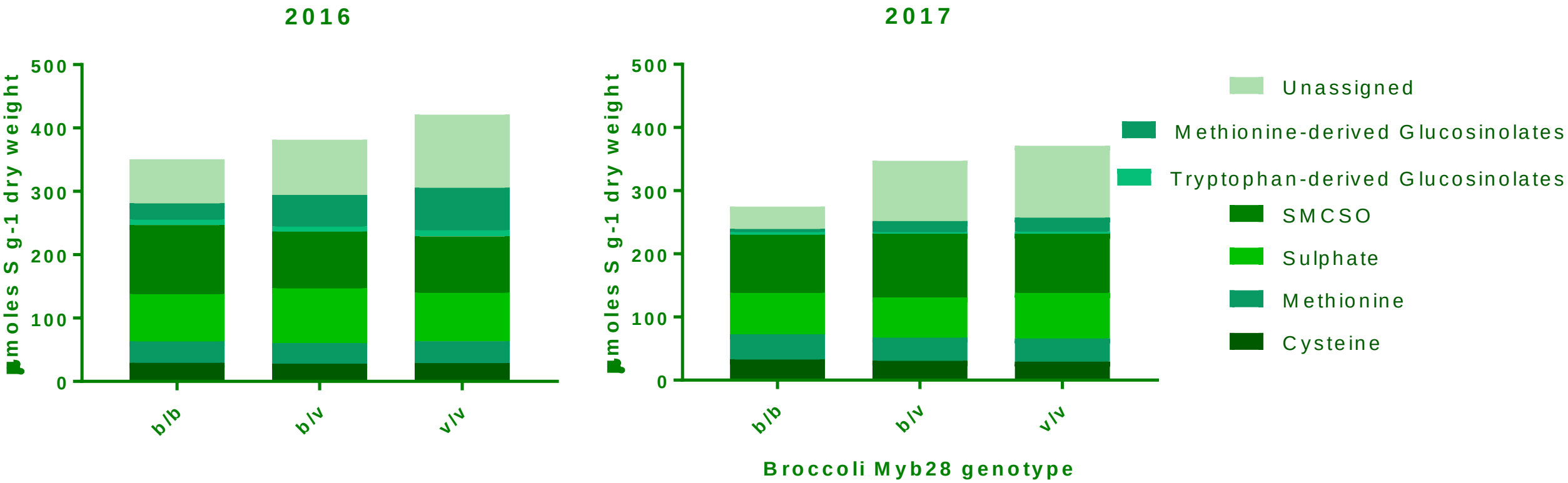


Floret Methionine-Derived Glucosinolates 2017



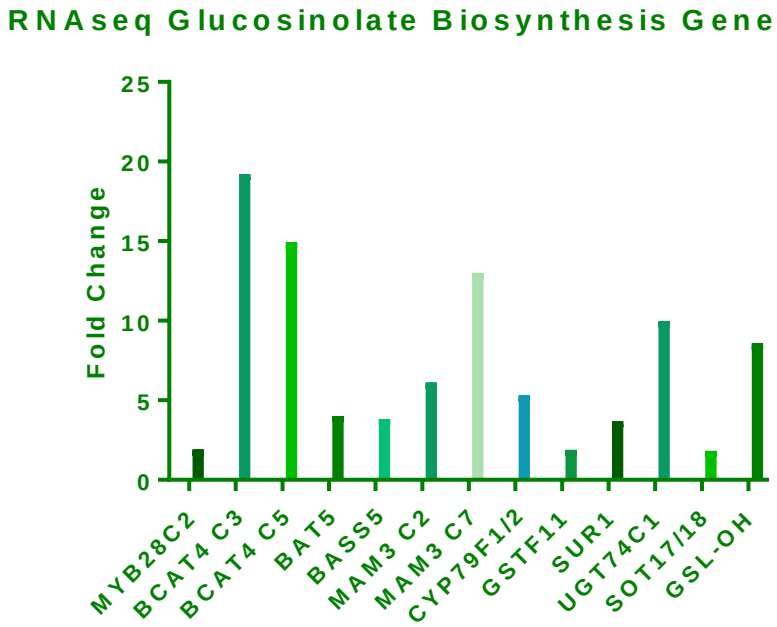
Mikhaela Neequaye, unpublished

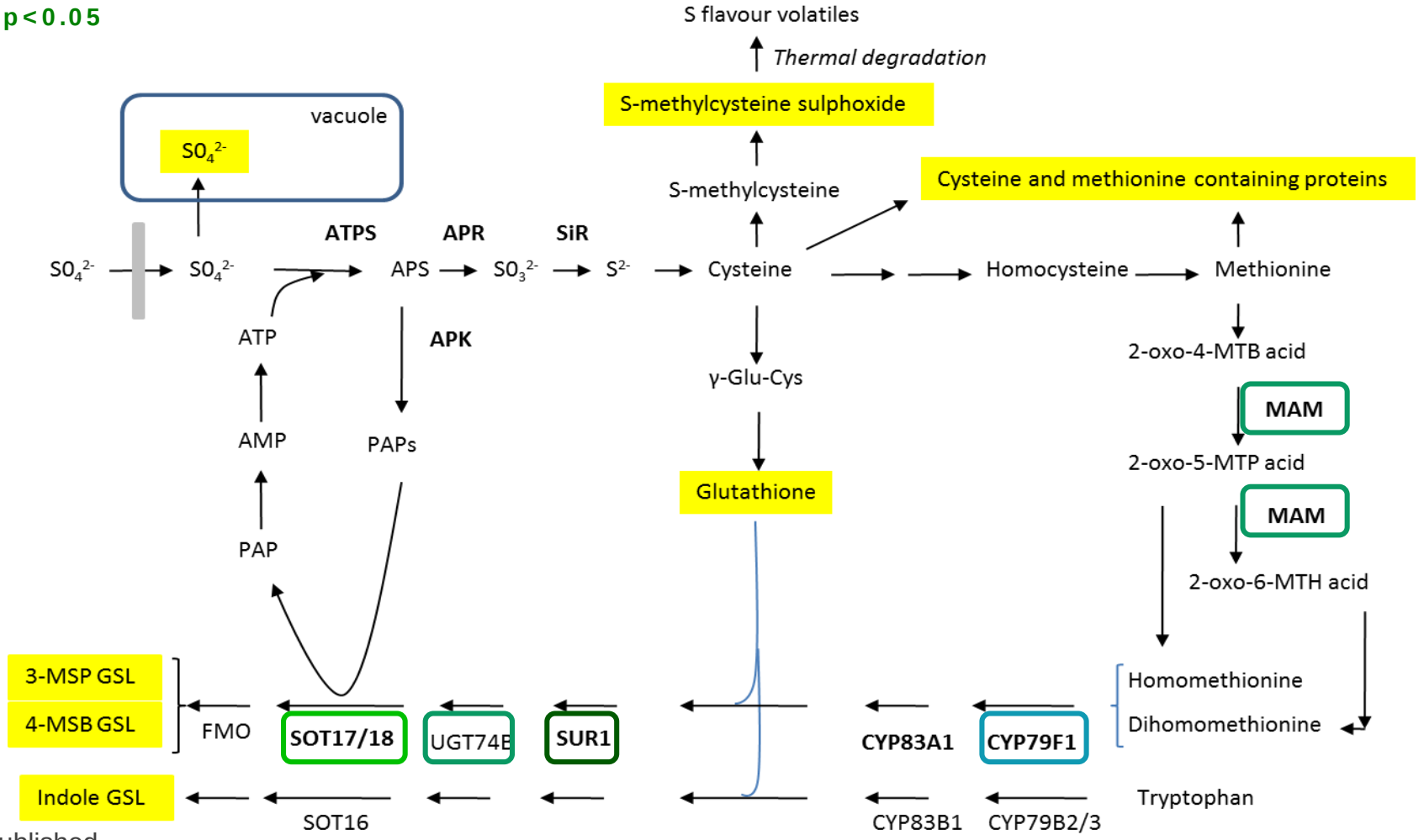
Sulphur Partitioning



Mikhaela Neequaye, unpublished

Glucosinolate Biosynthesis Genes



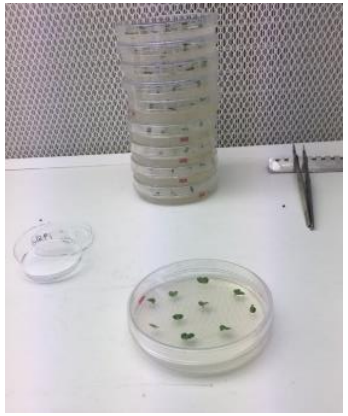


Mikhaela Neequaye, unpublished

CRISPR Mutants (BRACT)

Construct Design

- 2 Constructs
- 2 guides per construct



Transformation

- 182 Transformants

Screening & Selection

- 14 Positive Plants
- Allelic series of mutations

Acknowledgements

BBSRC bioscience for the future

Quadram Institute Science Health Food Innovation

John Innes Centre Unlocking Nature's Diversity

Seminis grow forward

Professor Richard Mithen & the Mithen Lab

Professor Lars Østergaard& the Østergaard lab

Lionel Perkins, Cathy Mumford

Judith Irwin, Rachel Wells

Penny Hundleby, Tom Lawrenson

Graham Teakle – Warwick University

Martin Trick