

HELP

UKBRC Talk- May 9th, 2018

Development of High Erucic and Low Polyunsaturated fatty acid lines in rapeseed

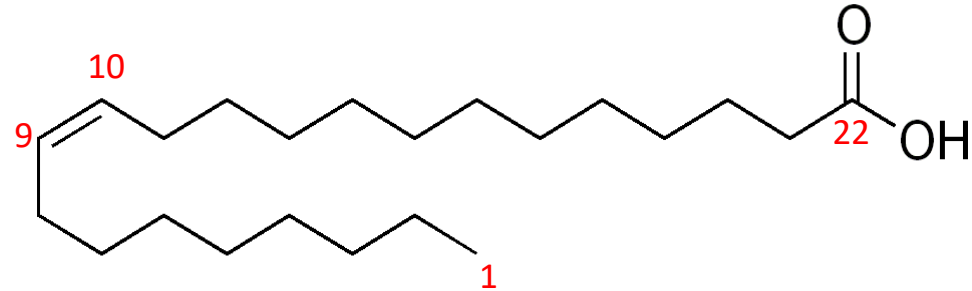
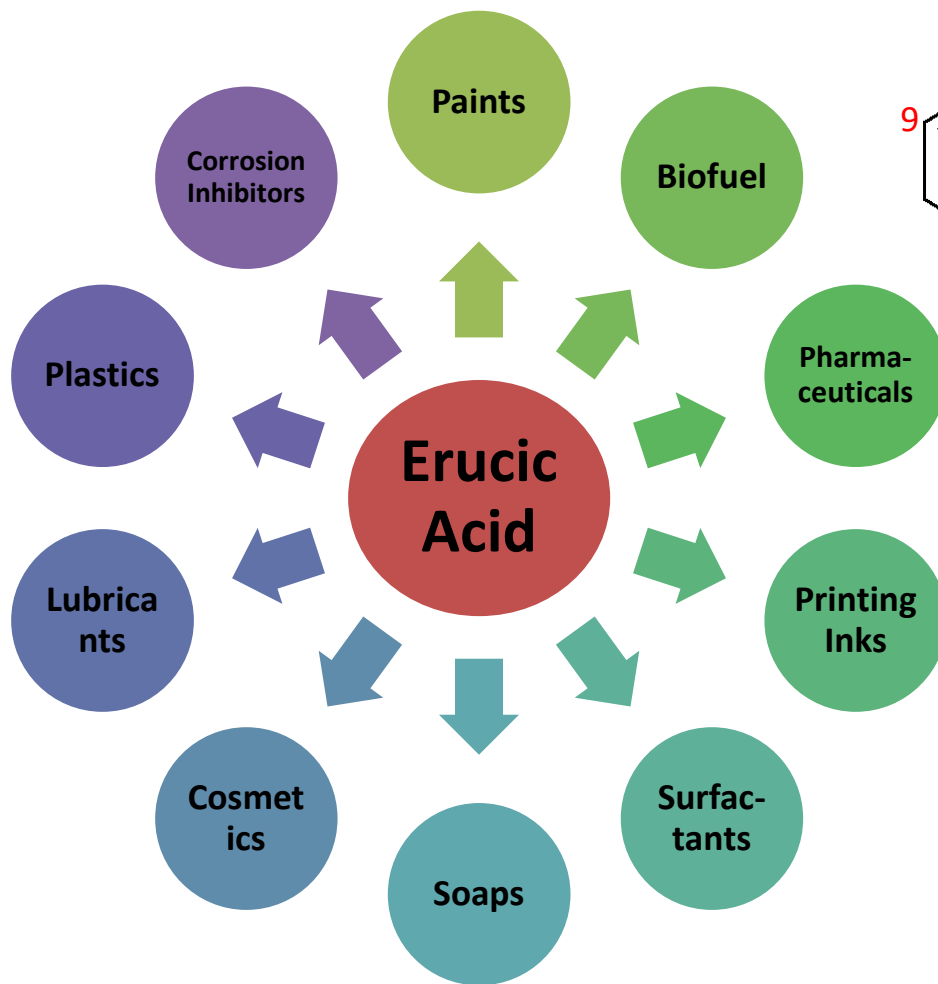
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Ph.D. Biology

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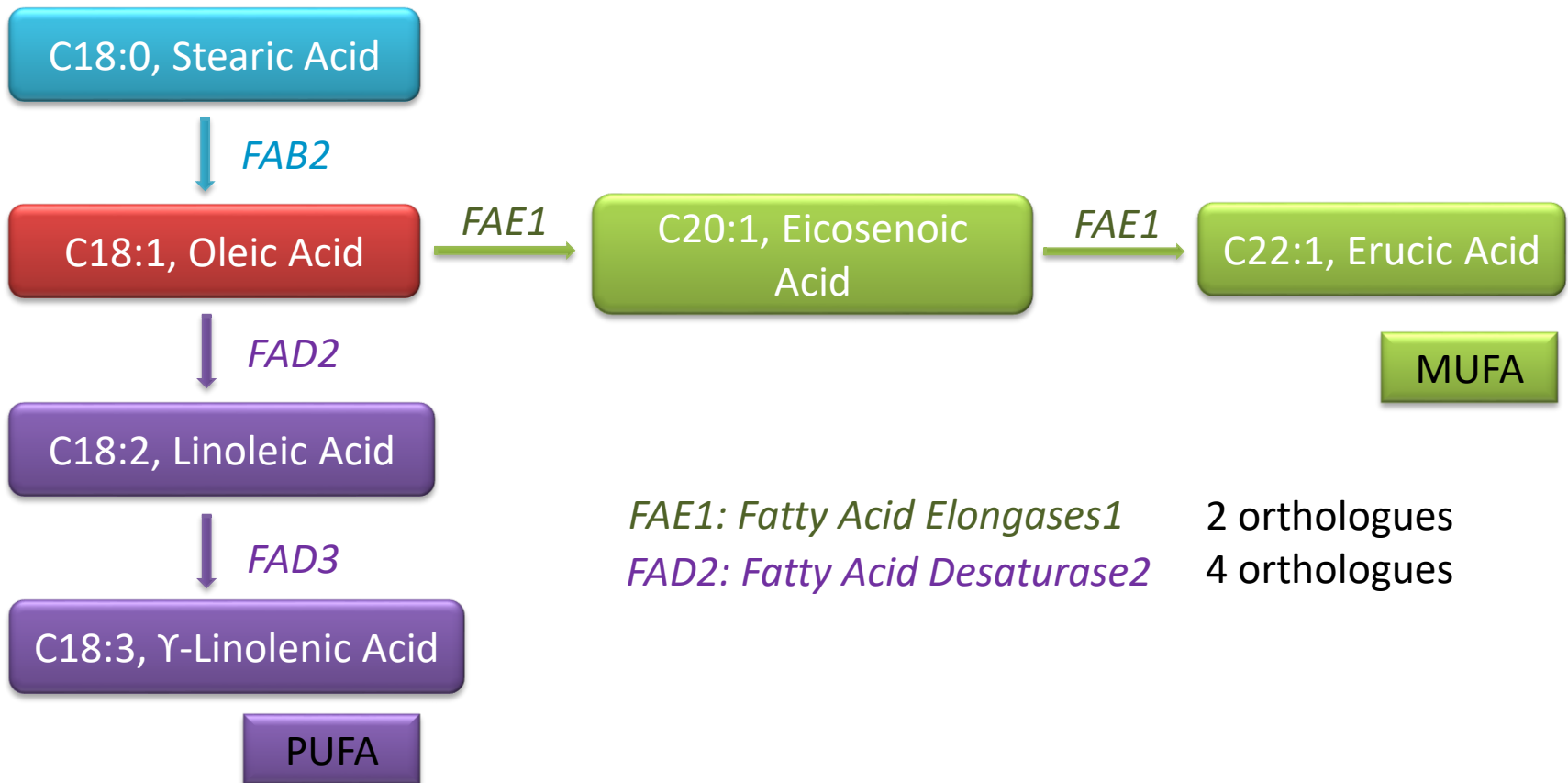


Erucic acid & Industrial uses

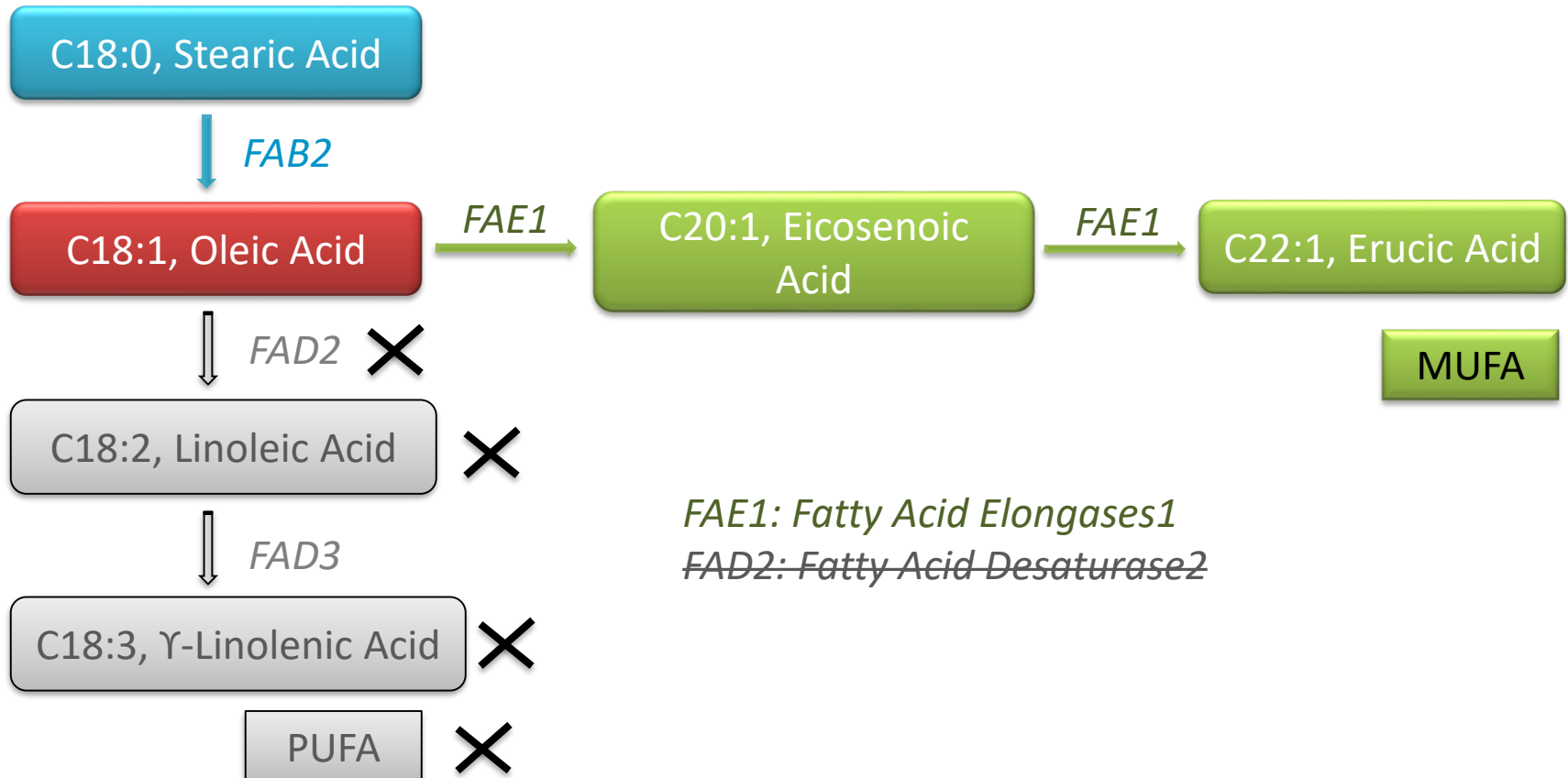


- Designated as C₂₂:1
- Chain length of 22 Carbons
- VLCFAs: Very long chain fatty acid
- MUFA (Mono Unsaturated Fatty acid)
- Omega 9 (ω 9) fatty acid
- Rapeseed is a natural source
- ~200 potential industrial uses
- Renewable source
- Low processing costs

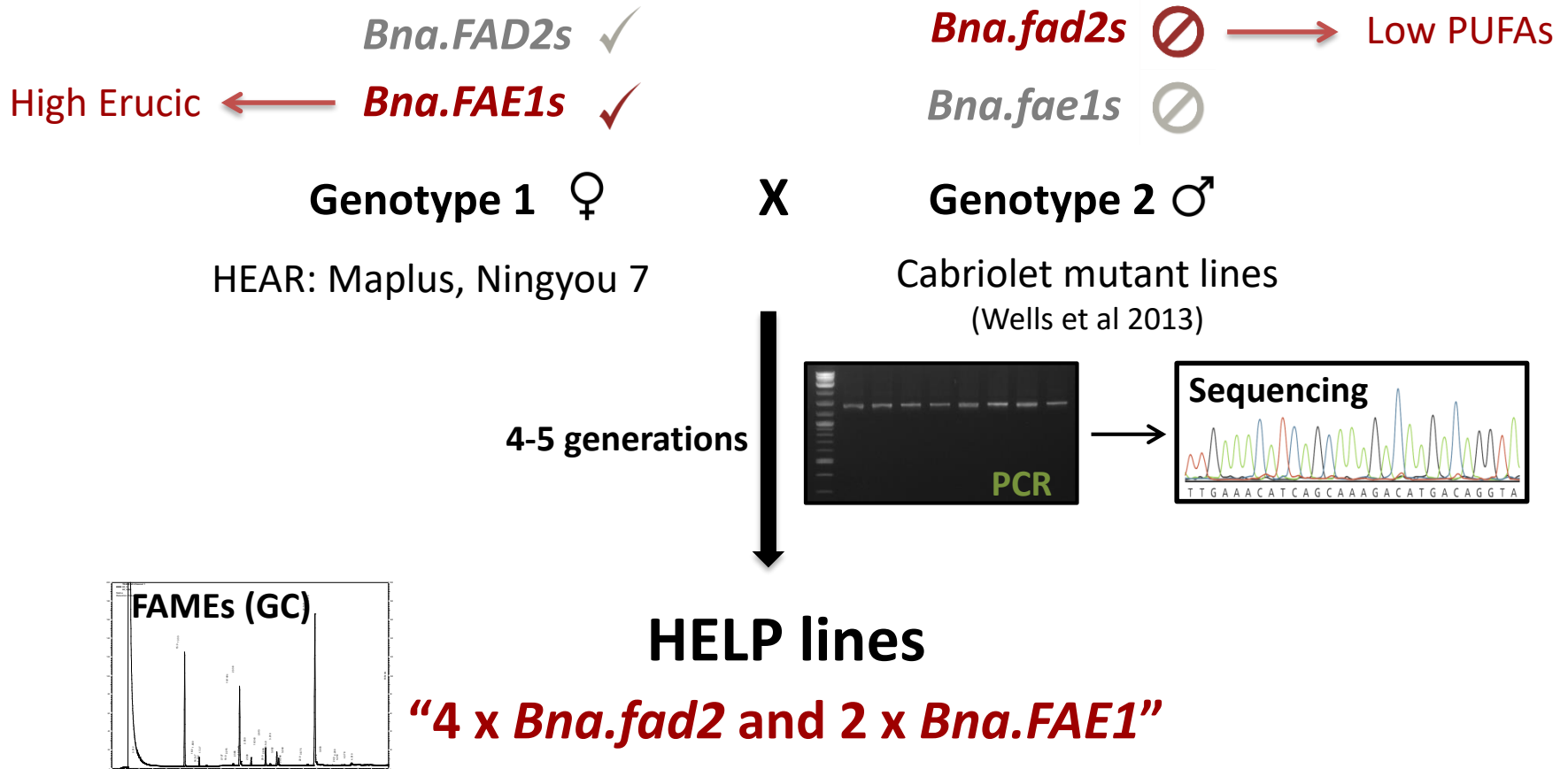
Fatty Acid Biosynthesis (An overview)



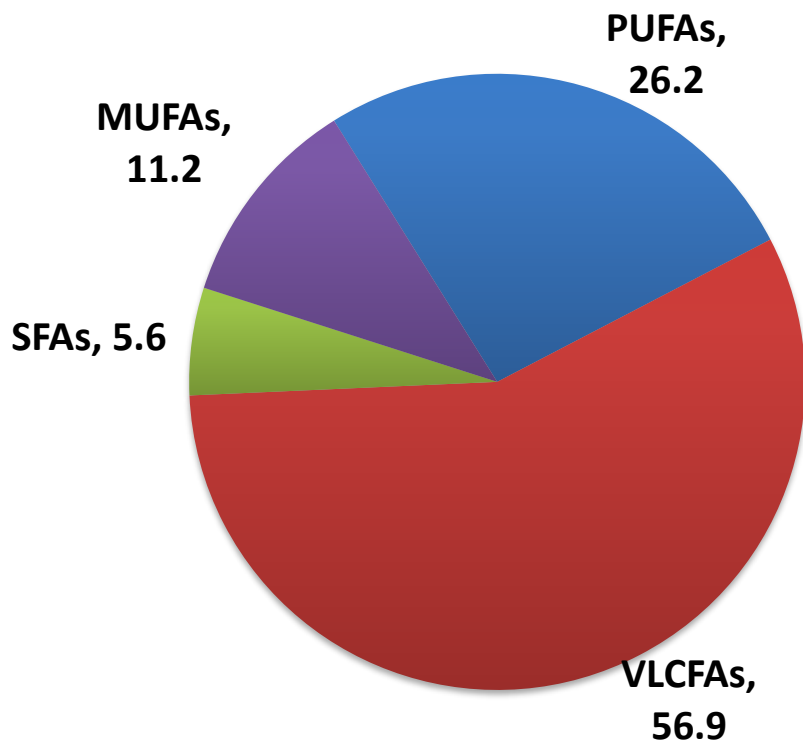
Hypothesis



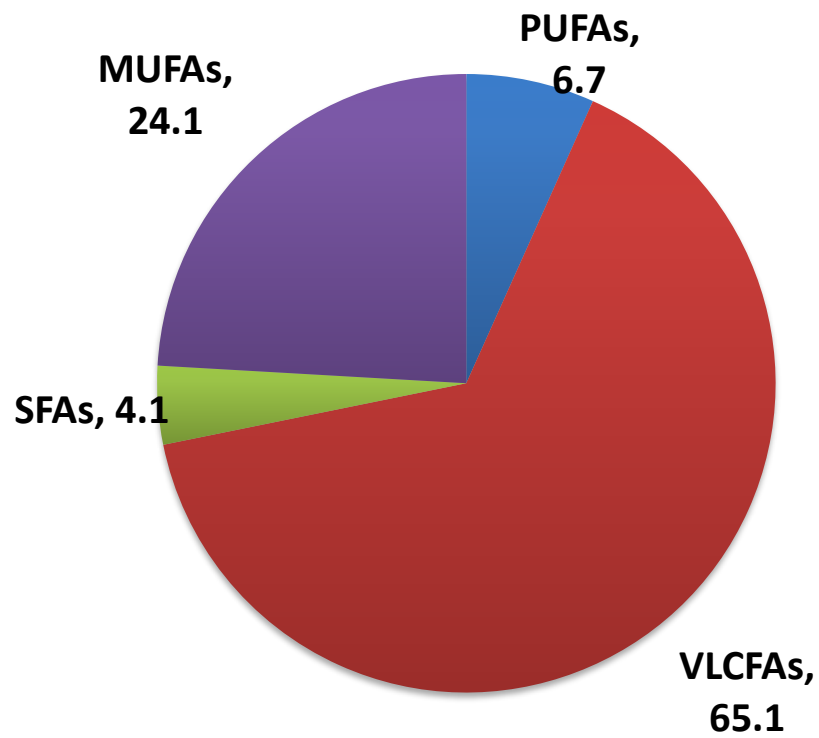
HELP Development



Fatty Acid Analysis



HEAR (Maplus)



HELP (Maplus x K0472)

Summary

- HELP lines have the **highest erucic acid levels** (theoretical possible) using non-GM technology
- Up to **66% very long chain fatty acid levels** were reported in the HELP lines
- Overall, HELP oil has more than **90% MUFA** content
- Ultra low **PUFA levels of 3-7%** were reported in the HELP lines
- **High erucic and low glucosinolates** lines have been identified
- Higher EA combined with low PUFA would be an **ideal combination for the industry**

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