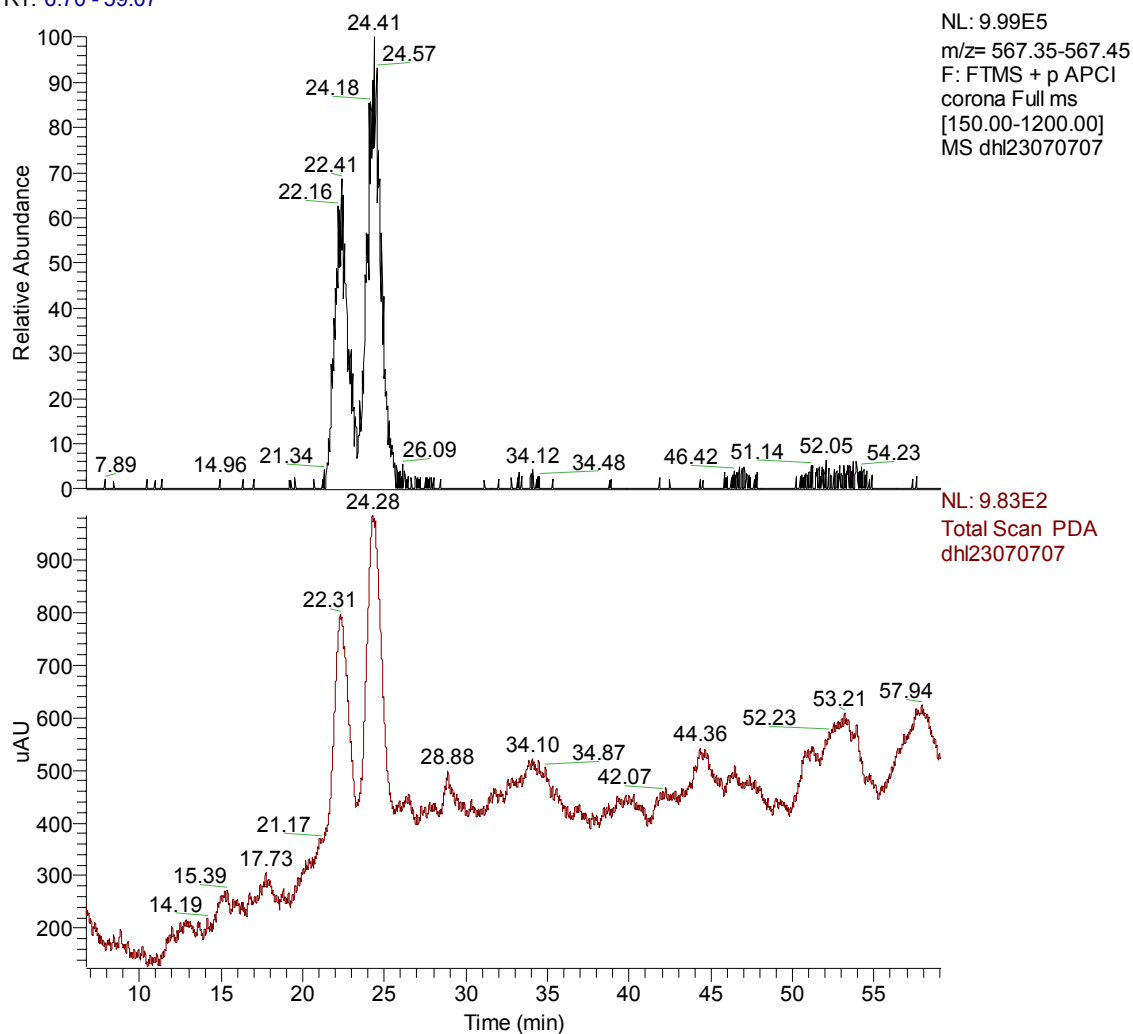


1 **Supporting material**

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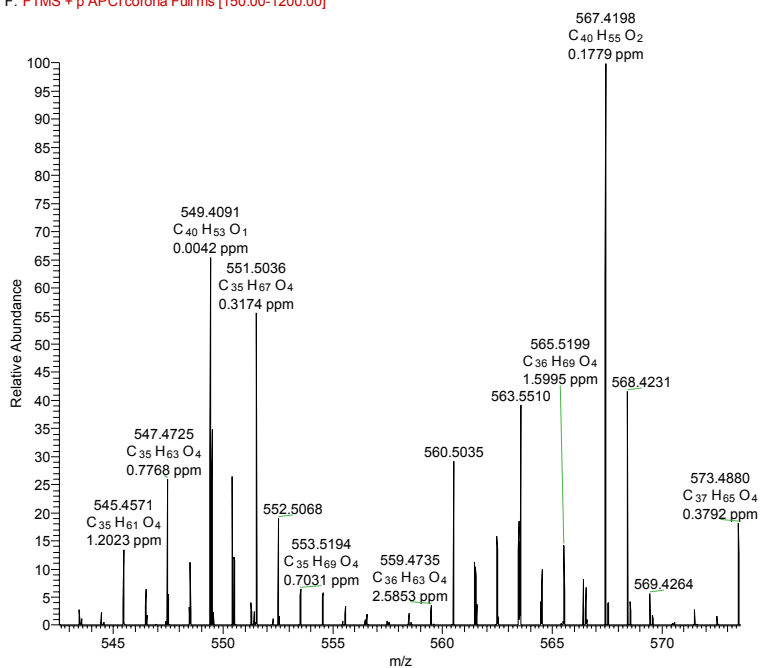
RT: 6.70 - 59.07



3
4 **Figure 1:** Chiral-phase HPLC analysis of DhL obtained from egg yolk showing the separation
5 of the two diastereomers, (3R,6'R)-DhL at 22.31 min and (3R,6'S)-DhL at 24.28 min.
6 Chromatograms with APCI⁺-HR-MS detection, scans m/z 567.35-567.55 (top), and total scan
7 photo-diode detection, 300-600 nm (bottom).

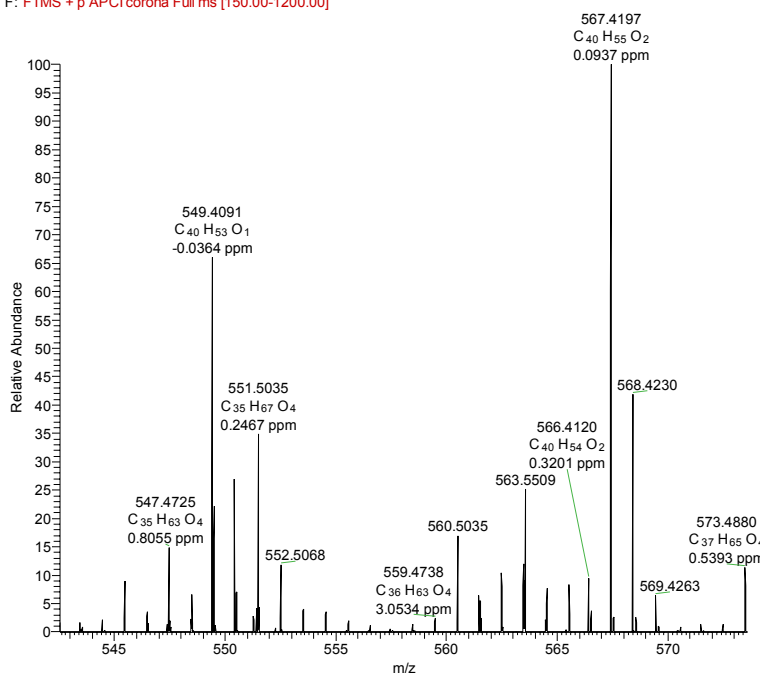
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dhl23070707 #3825-4018 RT: 21.80-22.86 AV: 48 NL: 4.30E5
 F: FTMS + p APCI corona Full ms [150.00-1200.00]



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dhl23070707 #4210-4376 RT: 23.98-24.91 AV: 42 NL: 6.79E5
 F: FTMS + p APCI corona Full ms [150.00-1200.00]



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Figure 2: High-resolution mass spectra from the peaks of the two diastereomers, (3R,6'R)-DhL, top, and (3R,6'S)-DhL, bottom, separated on chiral-phase HPLC. The molecular ions $[M+H]^+$ are detected at m/z 567.4198 and 567.4197, and a prominent fragment $[M+H-H_2O]^+$ at m/z 549.4091. All other mass peaks are from the background.

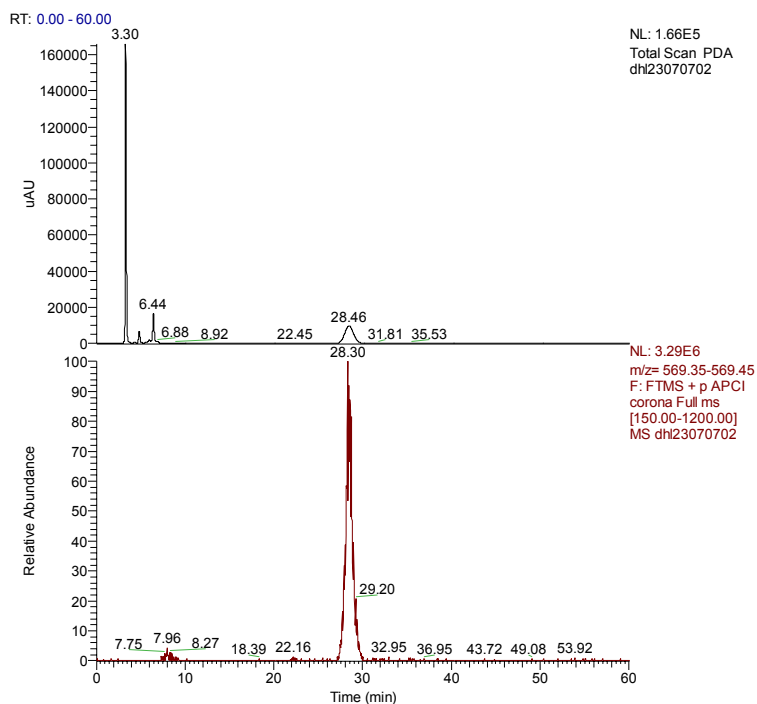
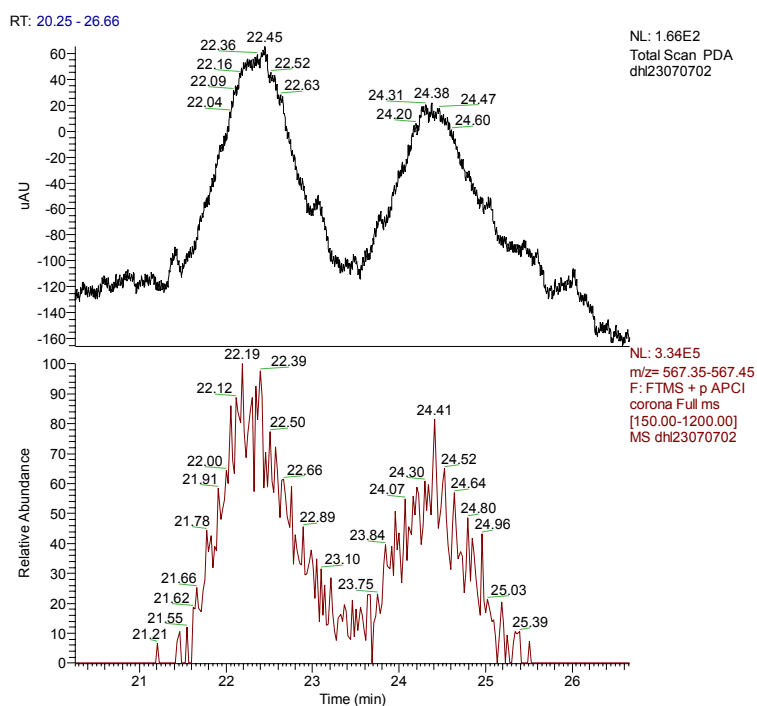
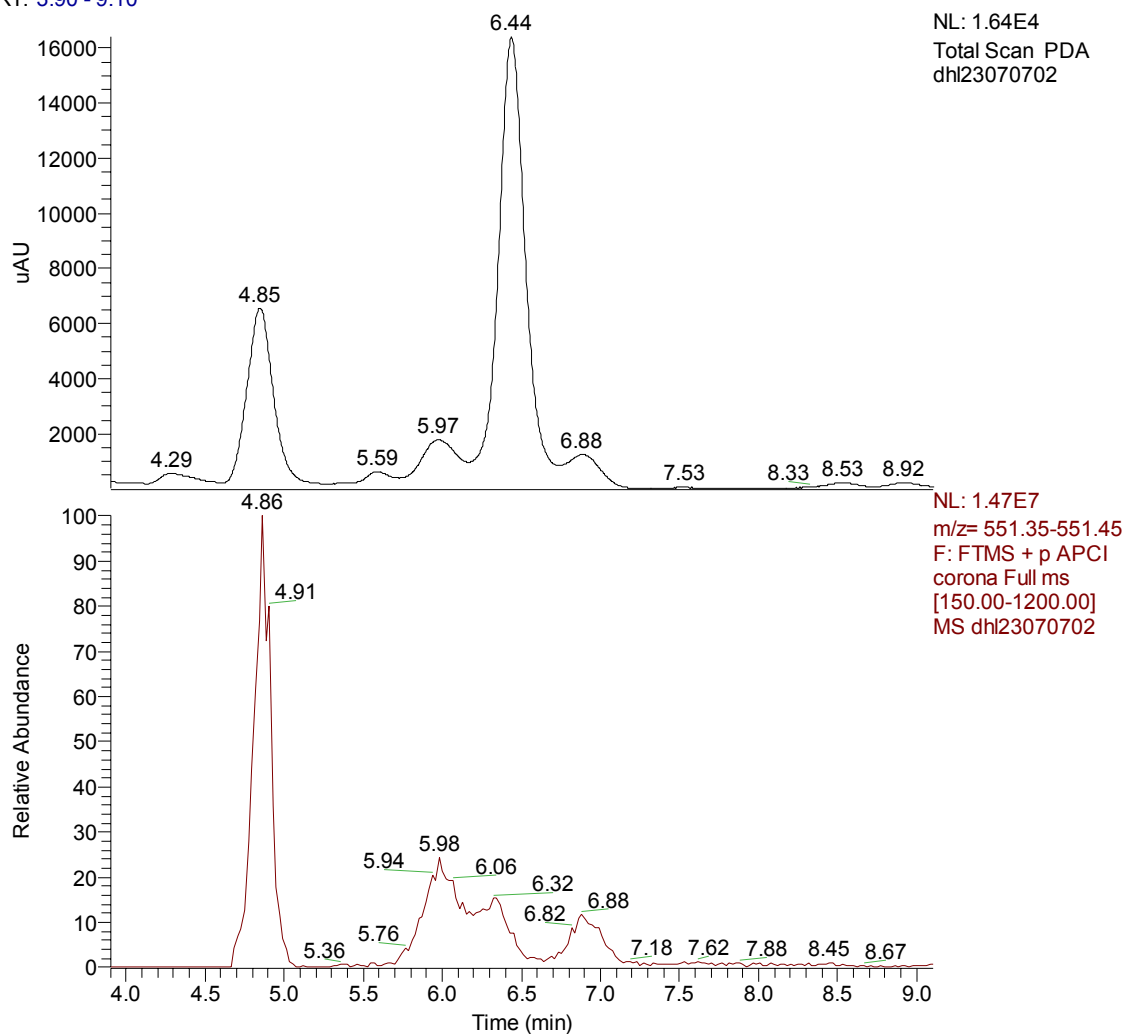
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Figure 3: Chiral-phase HPLC chromatogram of rhesus monkey plasma from Zea supplemented group. (3R,6'R)-DhL at 22.45 min, (3R,6'S)-DhL at 24.38 min and Zea at 28.46 min. Chromatograms of APCI⁺-HR-MS detection, scans m/z 569.35-56.55 and total scan photo-diode detection, 300-600 nm (top), enlargement of DhL peaks, PDA and m/z 567.35-567.55 (bottom).

RT: 3.90 - 9.10



1
2 **Figure 4:** Just as an example: enlargement of the region with the possible anhydrolutein peaks
3 at 5.97, 6.32 and 6.88 min, PDA trace (top) and HR-MS trace (bottom). Remaining peaks are
4 not due to carotenoids.
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