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# Deuterated squalene and sterols from modified *Saccharomyces cerevisiae*

SUPPORTING INFORMATION: COPIES OF NMR SPECTRA

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$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Page	Compound	Nucleus
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	2	squalene- <i>d</i> <sub>50</sub> (81%- <i>d</i> )	<sup>1</sup> H
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	3		<sup>2</sup> H
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	4		<sup>13</sup> C{ <sup>1</sup> H, <sup>2</sup> H}
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	5		<sup>13</sup> C{ <sup>1</sup> H, <sup>2</sup> H} expansions
7       cholesterol- $d_{45}$ (79%- $d$ )       1H         8       1H       1H       1H         9       13       13C{1H,2H}       13C{1H,2H}         11       13C{1H,2H}       13C{1H,2H}       13C{1H,2H}         12       13C{1H,2H}       13C{1H,2H}       13C{1H,2H}         14       cholesterol- $d_{45}$ (98%- $d$ )       2H       13C{1H,2H}       13C{1H,2H}         15       16       13C{1H,2H}       13C{1H,2H}       13C{1H,2H}         16       13C{1H,2H}       13C{1H,2H}       13C{1H,2H}       13C{1H,2H}         19       20       1H       14       expansions       2H       13C{1H,2H}       13C{1H,2H	6		<sup>13</sup> C{ <sup>1</sup> H}
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	7	cholesterol- $d_{45}$ (79%- $d$ )	<sup>1</sup> H
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	8		<sup>1</sup> H expansions
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	9		<sup>2</sup> H
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	10		<sup>13</sup> C{ <sup>1</sup> H, <sup>2</sup> H}
12 $1^{3}C(^{1}H)$ $1^{3}C(^{1}H)$ 13 $1^{3}C(^{1}H)$ $1^{3}C(^{1}H)$ 14       cholesterol- $d_{45}$ (98%- $d$ ) $2^{1}H$ 15 $1^{2}C(^{1}H,^{2}H)$ $1^{3}C(^{1}H,^{2}H)$ 16 $1^{3}C(^{1}H,^{2}H)$ $1^{3}C(^{1}H,^{2}H)$ 17 $1^{3}C(^{1}H,^{2}H)$ $1^{3}C(^{1}H,^{2}H)$ 18 $O$ -TBS-22,23-dihydrobrassicasterol- $d_{47}$ (87%- $d$ ) $1^{1}H$ 19 $1^{3}C(^{1}H,^{2}H)$ $1^{3}C(^{1}H,^{2}H)$ 20 $2^{1}H$ $1^{3}C(^{1}H,^{2}H)$ $1^{3}C(^{1}H,^{2}H)$ 21 $1^{3}C(^{1}H,^{2}H)$ $1^{3}C(^{1}H,^{2}H)$ $1^{3}C(^{1}H,^{2}H)$ 22 $2^{1}C(^{1}H,^{2}H)$ $1^{3}C(^{1}H,^{2}H)$ $1^{3}C(^{1}H,^{2}H)$ 23 $2^{1}C(^{1}H,^{2}H)$ $1^{3}C(^{1}H,^{2}H)$ $1^{3}C(^{1}H,^{2}H)$ 24 $0^{-TBS-24-methylenecholesterol-d_{45} (87%-d)       1^{1}H 1^{3}C(^{1}H,^{2}H) 1^{3}C(^{1}H,^{2}H)         25       O-TBS-24-methylenecholesterol-d_{47} (87%-d)       1^{1}H 1^{3}C(^{1}H,^{2}H) 1^{3}C(^{1}H,^{2}H)         30       3^{2}C(^{1}H,^{2}H) 1^{3}C(^{1}H,^{2}H) 1^{3}C(^{1}H,^{2}H) 1^{3}C(^{1}H,^{2}H)$	11		<sup>13</sup> C{ <sup>1</sup> H, <sup>2</sup> H} expansions
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	12		<sup>13</sup> C{ <sup>1</sup> H}
14cholesterol- $d_{45}$ (98%- $d$ )2H1513C{1H,2H}1613C{1H,2H}170-TBS-22,23-dihydrobrassicasterol- $d_{47}$ (87%- $d$ )180-TBS-22,23-dihydrobrassicasterol- $d_{47}$ (87%- $d$ )1914191420142113C{1H,2H}2213C{1H,2H}2313C{1H,2H}2413C{1H,2H}250-TBS-24-methylenecholesterol- $d_{45}$ (87%- $d$ )262728242913C{1H,2H}3013C{1H,2H}3113C{1H,2H}3222,23-dihydrobrassicasterol- $d_{47}$ (87%- $d$ )1413C{1H,2H}3513C{1H,2H}3613C{1H,2H}3724-methylenecholesterol- $d_{45}$ (87%- $d$ )4114	13		<sup>13</sup> C{ <sup>1</sup> H} expansions
15 $13C\{^{1}H,^{2}H\}$ 16 $1^{3}C\{^{1}H,^{2}H\}$ 17 $1^{3}C\{^{1}H,^{2}H\}$ 18 $O-TBS-22,23$ -dihydrobrassicasterol- $d_{47}$ (87%- $d$ ) $1^{1}H$ 19 $1^{3}C\{^{1}H,^{2}H\}$ 20 $2^{1}H$ 21 $1^{3}C\{^{1}H,^{2}H\}$ 22 $1^{3}C\{^{1}H,^{2}H\}$ 23 $1^{3}C\{^{1}H,^{2}H\}$ 24 $1^{3}C\{^{1}H,^{2}H\}$ 25 $O-TBS-24$ -methylenecholesterol- $d_{45}$ (87%- $d$ ) $1^{1}H$ 26 $1^{1}H$ 27 $2^{1}H$ 28 $1^{3}C\{^{1}H,^{2}H\}$ 29 $1^{3}C\{^{1}H,^{2}H\}$ 30 $1^{3}C\{^{1}H,^{2}H\}$ 31 $1^{3}C\{^{1}H,^{2}H\}$ 32 $22,23$ -dihydrobrassicasterol- $d_{47}$ (87%- $d$ ) $1^{1}H$ 34 $1^{3}C\{^{1}H,^{2}H\}$ 35 $1^{3}C\{^{1}H,^{2}H\}$ 36 $1^{3}C\{^{1}H,^{2}H\}$ 37 $24$ -methylenecholesterol- $d_{45}$ (87%- $d$ ) $1^{1}H$ 41 $1^{3}C\{^{1}H,^{2}H\}$ $1^{3}C\{^{1}H,^{2}H\}$	14	cholesterol- $d_{45}$ (98%- $d$ )	<sup>2</sup> H
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	15		<sup>13</sup> C{ <sup>1</sup> H, <sup>2</sup> H}
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	16		<sup>13</sup> C{ <sup>1</sup> H, <sup>2</sup> H} expansions
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	17		<sup>13</sup> C{ <sup>1</sup> H}
1911 <t< td=""><td>18</td><td><math>O</math>-TBS-22,23-dihydrobrassicasterol-<math>d_{47}</math> (87%-<math>d</math>)</td><td><sup>1</sup>H</td></t<>	18	$O$ -TBS-22,23-dihydrobrassicasterol- $d_{47}$ (87%- $d$ )	<sup>1</sup> H
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	19		<sup>1</sup> H expansions
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	20		<sup>2</sup> H
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	21		<sup>13</sup> C{ <sup>1</sup> H, <sup>2</sup> H}
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	22		<sup>13</sup> C{ <sup>1</sup> H, <sup>2</sup> H} expansions
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	23		<sup>13</sup> C{ <sup>1</sup> H}
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	24		<sup>13</sup> C{ <sup>1</sup> H} expansions
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	25	O-TBS-24-methylenecholesterol-d <sub>45</sub> (87%-d)	<sup>1</sup> H
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	26		<sup>1</sup> H expansions
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	27		<sup>2</sup> H
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	28		<sup>13</sup> C{ <sup>1</sup> H, <sup>2</sup> H}
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	29		<sup>13</sup> C{ <sup>1</sup> H, <sup>2</sup> H} expansions
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	30		<sup>13</sup> C{ <sup>1</sup> H}
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	31		<sup>13</sup> C{ <sup>1</sup> H} expansions
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	32	22,23-dihydrobrassicasterol- $d_{47}$ (87%- $d$ )	<sup>1</sup> H
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	33		<sup>2</sup> H
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	34		<sup>13</sup> C{ <sup>1</sup> H, <sup>2</sup> H}
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	35		<sup>13</sup> C{ <sup>1</sup> H, <sup>2</sup> H} expansions
37       24-methylenecholesterol- $d_{45}$ (87%- $d$ )       1H         38       2H         39       1 <sup>3</sup> C{ <sup>1</sup> H. <sup>2</sup> H}         40       1 <sup>3</sup> C{ <sup>1</sup> H. <sup>2</sup> H} expansions         41       1 <sup>3</sup> C{ <sup>1</sup> H. <sup>2</sup> H}	36		<sup>13</sup> C{ <sup>1</sup> H}
38     2H       39     1 <sup>3</sup> C{ <sup>1</sup> H. <sup>2</sup> H}       40     1 <sup>3</sup> C{ <sup>1</sup> H. <sup>2</sup> H} expansions       41     1 <sup>3</sup> C{ <sup>1</sup> H}	37	24-methylenecholesterol- <i>d</i> <sub>45</sub> (87%- <i>d</i> )	<sup>1</sup> H
$ \begin{array}{c}     39 \\     40 \\     41 \end{array} $ $ \begin{array}{c}     ^{13}C\{^{1}H.^{2}H\} \\     ^{13}C\{^{1}H.^{2}H\} expansions \\     ^{13}C\{^{1}H\} \end{array} $	38		<sup>2</sup> H
40 <sup>13</sup> C{ <sup>1</sup> H. <sup>2</sup> H} expansions <sup>13</sup> C{ <sup>1</sup> H}	39		<sup>13</sup> C{ <sup>1</sup> H. <sup>2</sup> H}
41 <sup>13</sup> C{ <sup>1</sup> H}	40		<sup>13</sup> C{ <sup>1</sup> H. <sup>2</sup> H} expansions
	41		<sup>13</sup> C{ <sup>1</sup> H}

## squalene- $d_{50}$ (81%-d) <sup>1</sup>H NMR

F2 - Acqu Date_ Time INSTRUM PROBHD PULPROG TD SOLVENT NS	aisition Parameters 20220816 9.26 h spect 2108618_0117 ( 2g 180070 CDC13 3	7.263	5.111	2.036 1.974 1.955 1.579 1.560	
DS SWH FIDRES AQ RG DE TE D1 TD0 SF01 NUC1 P1 PLW1	6002.401 Hz 0.066667 Hz 14.9998312 sec 144 83.300 usec 16.70 usec 298.0 K 30.00000000 sec 1 400.1320007 MHz 1H 15.00 usec 14.03299999 W		$D_{3}C \xrightarrow{CD_{3}}{D} D_{2}C \xrightarrow{CD_{2}}{D}$		
F2 - Proc SI SF WDW SSB LB GB PC	cessing parameters 32768 400.1300088 MHz no 0 0 Hz 0 1.00		$\begin{array}{c} D_{3}C \\ D_{2}C \\ CD_{2} \\ D_{3}C \\ D_{2}C \\ CD_{2} \\ D_{2}C \\ CD_{3} \\ D_{2}C \\ CD_{3} \\ D_{2}C \\ CD_{3} \\ D_{2}C \\ CD_{2} \\ CD_{3} \\ D_{2}C \\ CD_{3} \\ D_{3} \\ CD_{3} \\ CD_{3}$	3	
				× steess ×	
L		9 8 7	7		ppm

#### squalene- $d_{50}$ (81%-d) <sup>2</sup>H NMR







#### squalene-*d*<sub>50</sub> (81%-*d*) <sup>13</sup>C{<sup>1</sup>H} NMR



## cholesterol- $d_{45}$ (79%-d) <sup>1</sup>H NMR

F2 - Acquisition Parameters         Date_       20220610         Time       17.45 h         INSTRUM       spect         PROBHD       2108618_0117 (         PULPROG       zg         TD       120046         SOLVENT       CDC13         NS       4         DS       0         SWH       6002.401 Hz         FIDRES       0.100002 Hz         AQ       9.9998322 sec         RG       18         DW       83.300 use         DE       16.70 use         TD       10.0000000 sec         TD0       1         SF01       400.1320007 MHz         NUC1       1H         P1       15.00 use         PLW1       14.03299999 W	c	—— 7.263	D <sup>3</sup> C <sup>, D</sup> -CD <sup>3</sup>		2.252 2.191 2.191 1.776 1.445 1.445 1.441 1.445 1.441 0.042	
F2 - Processing parameters SI 32768 SF 400.1300000 MHz WDW no SSB 0 LB 0 Hz GB 0 PC 1.00		$HO = D_2 C =$	$\begin{array}{c} D_{3}C_{n} & D_{2}C - CD_{2} \\ CD_{3} & D \\ CD_{2} \\ D \\ D_{2} \end{array}$			
 r	9		  6 5	4 3	I`\/\/\''W\'I'\\\ 	



cholesterol- $d_{45}$  (79%-d) <sup>1</sup>H NMR expansion

F2 - Acquisition Paramental         Date_       2021102         Time       10.4         INSTRUM       spec         PROBHD       2108618_0117         PULPROG       zg2         TD       812         SOLVENT       CDC         NS       2         DS       2         SWH       921.33         FIDRES       0.22494         AQ       4.445521         RG       11         DW       542.66         DE       23.7         TE       298         D1       2.0000000         D1       0.0300000         TD0       SF01       61.422698         NUC1       2       2         P1       124.0       2	meters 27 42 h ct ( 29 92 13 20 0 76 Hz 45 Hz 52 sec 14 67 usec 73 usec .0 K 00 sec 1 0 sec 1 88 MHz 2H 00 usec 75 W	7.205		D³C, D° ℃D°	
F2 - Processing parame SI 1633 SF 61.42239 WDW SSB 0 LB 1.0 GB 0 PC 1.0	eters 84 31 MHz EM 00 Hz 00		$\mathcal{L}_{\mathcal{L}}_{\mathcal{L}_{\mathcal{L}}_{\mathcal{L}_{\mathcal{L}}_{\mathcal{L}}_{\mathcal{L}}_{\mathcal{L}_{\mathcal{L}}_{\mathcal{L}}}}}}}}}}$	$\begin{array}{c} C = C D_3 \\ D_2 C = C D_2 \\ D_3 \\ C D_2 \\ C D_2 \\ D_2 \end{array}$	
11	10 9	8 7	6 5	4 3	2 1 0 ppm

#### cholesterol- $d_{45}$ (79%-d) <sup>13</sup>C{<sup>1</sup>H,<sup>2</sup>H} NMR





#### cholesterol- $d_{45}$ (79%-d) <sup>13</sup>C{<sup>1</sup>H} NMR







## cholesterol- $d_{45}$ (98%-d) <sup>13</sup>C{<sup>1</sup>H,<sup>2</sup>H} NMR

PLW17 3.06999993 W PLW16 5536 SF 100.6127543 MHz WDW EM SSB 0 LB 1.00 Hz GB 0 PC 1.40	F2 - Acquisition Parameters         Date_       20210519         Time       16.31 h         INSTRUM       spect         PROBHD       Z108618_0117 (         PULPROG       zgig2h1h         TD       65536         SOLVENT       CDC13         NS       483         DS       2         SWH       22058.824 Hz         FIDRES       0.673182 Hz         AQ       1.4854827 sec         RG       203         DW       22.667 usec         DE       6.50 usec         TE       298.0 K         D1       20.00000000 sec         D1       20.00002000 sec         D1       0.0300000 sec         D1       0.0300000 sec         D1       100.6223263 MHz         NUC1       13C         P1       10.00 usec         PLW1       84.53199768 W         SFO2       400.1322007 MHz         NUC2       1H         CPDPRG[2       waltz16         PCPD2       90.00 usec         PLW2       14.03299999 W         PLW12       0.38982001 W         SFO3       61.4227600 MHz	$\begin{array}{c} & & & \\ & & & & \\ & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & &$	
	PLW17 3.06999993 W F2 - Processing parameters SI 65536 SF 100.6127543 MHz WDW EM SSB 0 LB 1.00 Hz GB 0 PC 1.40		



F2 - Acq Date_ Time INSTRUM PROBHD PULPROG	uisition 2 Z108618	Parame 0210521 11.12 spect _0117 ( zgpg30	h									77.160	71.276 71.042	56.128		41.861	7 36.085 34.990 34.990 30.989 29.847				
TD SOLVENT NS DS SWH	22	65536 CDC13 3000 4 058.824	Hz																		
FIDRES AQ RG DW	0 1.	.673182 4854827 203 22.667	Hz sec usec																		
DE TE D1 D11	2.0	8.02 298.0 0000000 3000000	usec K sec sec																		
TD0 SF01 NUC1 P1	100.	1 6223248 13C 10.00	MHz usec						C	0 <sub>3</sub> С, п											
PLW1 SFO2 NUC2 CPDPRG[2	84.5 400.	3199768 1320007 1H waltz16	W MHz					Da	C, D <sub>2</sub> C	C = C C = C C = C C = C	D <sub>3</sub>										
PCPD2 PLW2 PLW12 PLW13	14.0 0.3 0.1	90.00 3299999 8982001 9607000	usec W W W							D <sub>2</sub>											
F2 - Pro SI SF WDW	cessing 100.	paramet 65536 6127546 EM	ers MHz						-C D <sub>2</sub>												
SSB LB GB PC	0	1.00	Hz				Ď <sub>2</sub>	D													
u	at contact at	16			•			 	. Liberate del						ι.			. whad t			
	a lin la blatta an a' An la blatta an a'	<sup>(11</sup> 10 balanta kadi Kalenta paliti ya	, na shekarar	Linkeriddenie Heritzeriddenie	n that four da		d and could which t	an a	anna chailteadh Igeadailteach	alan dalardan Tanggapatan	n an		hinn Hidden Tanri Niperea	halldada an an linn Malldada an linn					poposis <sup>di</sup> stabilis va pingo <sup>n d</sup> u singo	<sup>la</sup> lladd ddalaet "Yl Ymyn y llyn	na párta de talenda na potencia de talenda
200	190	180	170	160	150	140	130	120	110	100	90	80	70	60	50	4 C	30	20	10	0	ppm

cholesterol-d<sub>45</sub> (98%-d)

<sup>13</sup>C{<sup>1</sup>H} NMR

#### O-TBS-22,23-dihydrobrassicasterol-*d*<sub>47</sub> (87%-*d*)

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#### O-TBS-22,23-dihydrobrassicasterol-*d*<sub>47</sub> (87%-*d*)

<sup>2</sup>H NMR







-TBS-22,23-dihydrobrassicasterol- <i>d</i> <sub>47</sub> (87%- <i>d</i> )	<sup>13</sup> C{ <sup>1</sup> H} NMR			
F2 - Acquisition Parameters         Date20230214         Time       13.42 h         INSTRUM       spect         PROBHD       Z108618_0117 (         PULPROG       zgpg30         TD       65536         SOLVENT       CDC13         NS       1284			55.730	 -4.414
NS 1284 DS 0 SWH 22058.824 Hz FIDRES 0.673182 Hz AQ 1.4854827 sec RG 203 DW 22.667 usec DE 8.02 usec TE 298.0 K D1 2.0000000 sec D1 0.0300000 sec D1 1 0.0300000 sec TD0 1 SF01 100.6223248 MHz NUC1 13C P1 10.00 usec PLW1 84.53199768 W SF02 400.1320007 MHz NUC2 1H CPDPRG[2 waltz16 PCPD2 90.00 usec PLW2 14.0329999 W PLW12 0.38982001 W PLW12 0.38982001 W PLW13 0.19607000 W F2 - Processing parameters SI 65536 SF 100.6127540 MHz WDW EM SSB 0 LB 1.00 Hz GB 0 PC 1.40	$S_{i} = \begin{bmatrix} D_{2} C D_{3} \\ D_{2} C $	$D_{3}C, D_{-}CD_{3}$ $D_{2}C, D_{-}CD_{3}$ $D_{2}C, D_{-}CD_{3}$ $D_{-}CD_{2}$ $D_{-}CD_{2}$		







0.730

9.180

000

## O-TBS-24-methylenecholesterol-*d*<sub>45</sub> (87%-*d*)



#### O-TBS-24-methylenecholesterol- $d_{45}$ (87%-d) <sup>2</sup>H

<sup>2</sup>H NMR







-TBS-24-methylenecholesterol-d <sub>45</sub> (87	7%- <i>d</i> )	<sup>13</sup> C{ <sup>1</sup> H} NMR				
F2 - Acquisition Parameters         Date_       20230217         Time       10.35 h         INSTRUM       spect         PROBHD       Z108618_0117 (         PULPROG       zgpg30         TD       65536         SOLVENT       CDC13         NS       16975	156.960 156.875 156.780	141.780	120.821	106.069	 	 -4.416
DS 0 SWH 22058.824 Hz FIDRES 0.673182 Hz AQ 1.4854827 sec RG 203 DW 22.667 usec DE 8.02 usec TE 298.0 K D1 2.0000000 sec D1 0.03000000 sec D1 0.03000000 sec TD0 1 SF01 100.6223248 MHz NUC1 13C P1 10.00 usec PLW1 84.53199768 W SF02 400.1320007 MHz NUC2 1H CPDPRG[2 waltz16 PCPD2 90.00 usec PLW2 14.0329999 W PLW12 0.38982001 W PLW13 0.19607000 W F2 - Processing parameters SI 65536 SF 100.6127538 MHz			$D_{2}CD_{3}$ $D_{2}CD_{3}$ $D_{2}CD_{3}$ $D_{2}CD_{2}$ $D_{2}CD_{2}$ $D_{2}CD_{2}$ $D_{2}CD_{2}$	$D_{3}C, D_{2}C - CD_{3}$ $D_{2}C, D_{2}C - D_{2}$ $D_{3}C, D_{2}C - D_{2}$ $D_{2}C - D_{2}$ $D_{2}C - D_{2}$ $D_{2}C - D_{2}$		
WDW EM SSB 0 LB 1.00 Hz GB 0 PC 1.40						



### 22,23-dihydrobrassicasterol-d<sub>50</sub> (87%-d)

<sup>1</sup>H NMR



<sup>2</sup>H NMR





## 22,23-dihydrobrassicasterol-*d*<sub>50</sub> (87%-*d*)







ppm

#### <sup>13</sup>C{<sup>1</sup>H} NMR 22,23-dihydrobrassicasterol-*d*<sub>50</sub> (87%-*d*)

## 24-methylenecholesterol- $d_{45}$ (87%-d) <sup>1</sup>H

<sup>1</sup>H NMR

F2 - Acquisition Parameters         Date_       20230303         Time       18.38 h         INSTRUM       spect         PROBHD       Z108618_0117 (         PULPROG       zg         TD       120046         SOLVENT       CDC13         NS       2         DS       0         SWH       6002.401 Hz         FIDRES       0.100002 Hz         AQ       9.9998322 sec         RG       203         DW       83 300 Usec	7.263	5.340 4.703 4.703 4.702 4.702 4.690 4.690 4.636 4.636 4.636 4.636	2.265 1.801
DE 16.70 usec TE 297.8 K D1 10.0000000 sec TD0 1 SF01 400.1320007 MHz NUC1 1H P1 15.00 usec PLW1 14.03299999 W F2 - Processing parameters SI 32768 SF 400.1300085 MHz WDW no SSB 0 LB 0 Hz GB 0 PC 1.00		4.7 pppm	$\begin{array}{c} D_2C \\ D_$

D<sub>3</sub>C<sub>D</sub>CCD<sub>3</sub>

D

-----

ppm

0

 $D_2C$ 

^C D<sub>2</sub>

\* erease

1

- ĆD<sub>2</sub>

#### 24-methylenecholesterol- $d_{45}$ (87%-d) <sup>2</sup>

<sup>2</sup>H NMR





<sup>13</sup>C{<sup>1</sup>H,<sup>2</sup>H} NMR expansions



