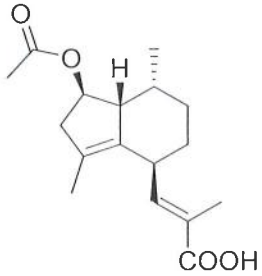



## Certificate of Analysis

<b>Name of Product:</b> 1-Acetoxyvalerenic acid		<b>Lot Number:</b> AD-11-115-02-110411
<b>Manufacture Date:</b> 11/04/11	<b>Retested On:</b> 08/09/23	<b>Next Retest Date:</b> 08/08/28
<b>Recommended Storage Conditions:</b> <input type="checkbox"/> Ambient atmosphere <input checked="" type="checkbox"/> Inert atmosphere <input type="checkbox"/> Ambient temperature <input type="checkbox"/> 0-10°C (refrigeration) <input checked="" type="checkbox"/> -20°C or below (freezer)		

<b>Structure:</b>  	<b>Molecular Formula:</b> C <sub>17</sub> H <sub>24</sub> O <sub>4</sub>
	<b>Molecular Weight:</b> 292.38
	<b>CAS Number:</b> 84638-55-1

**Appearance:** light yellow oil  
**Purity:** 95% by AUC at 210 nm (HPLC)  
**Identity:** <sup>1</sup>H-NMR - conforms to structure  
**MS(ESI-ve):** [M-H]<sup>-</sup> = 291.07 - conforms to structure

**Dalton Pharma Services hereby certifies that the above information is authentic and accurate.**

 <hr style="width: 80%; margin: auto;"/> Xuejun Liu, R&D Supervisor	Date: 08/18/23
---	----------------

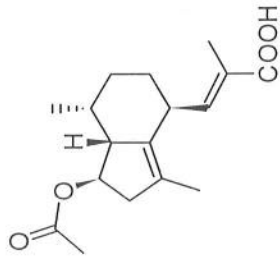
Product name: 1-Acetoxyvalerenic acid  
Lot number: AD-11-115-02-110411

RDS# 02894  
Page 1 of 1

**Research Use Only. Not for food and Drug Use**

349 Wildcat Rd., Toronto, ON M3J 2S3 • Tel: 416-661-2102 • 1-800-567-5060 • Fax: 416-661-2108  
www.dalton.com

AD-11-115-02, 1H-NMR, CDCI3, 08/09/23 Retest



C<sub>17</sub>H<sub>24</sub>O<sub>4</sub>

- 7.260
- 7.143
- 7.140
- 7.118
- 7.116
- 5.296
- 5.051
- 5.032
- 3.572
- 3.560
- 2.867
- 2.863
- 2.623
- 2.604
- 2.256
- 2.033
- 1.898
- 1.665
- 1.440
- 1.249
- 0.800

DCM

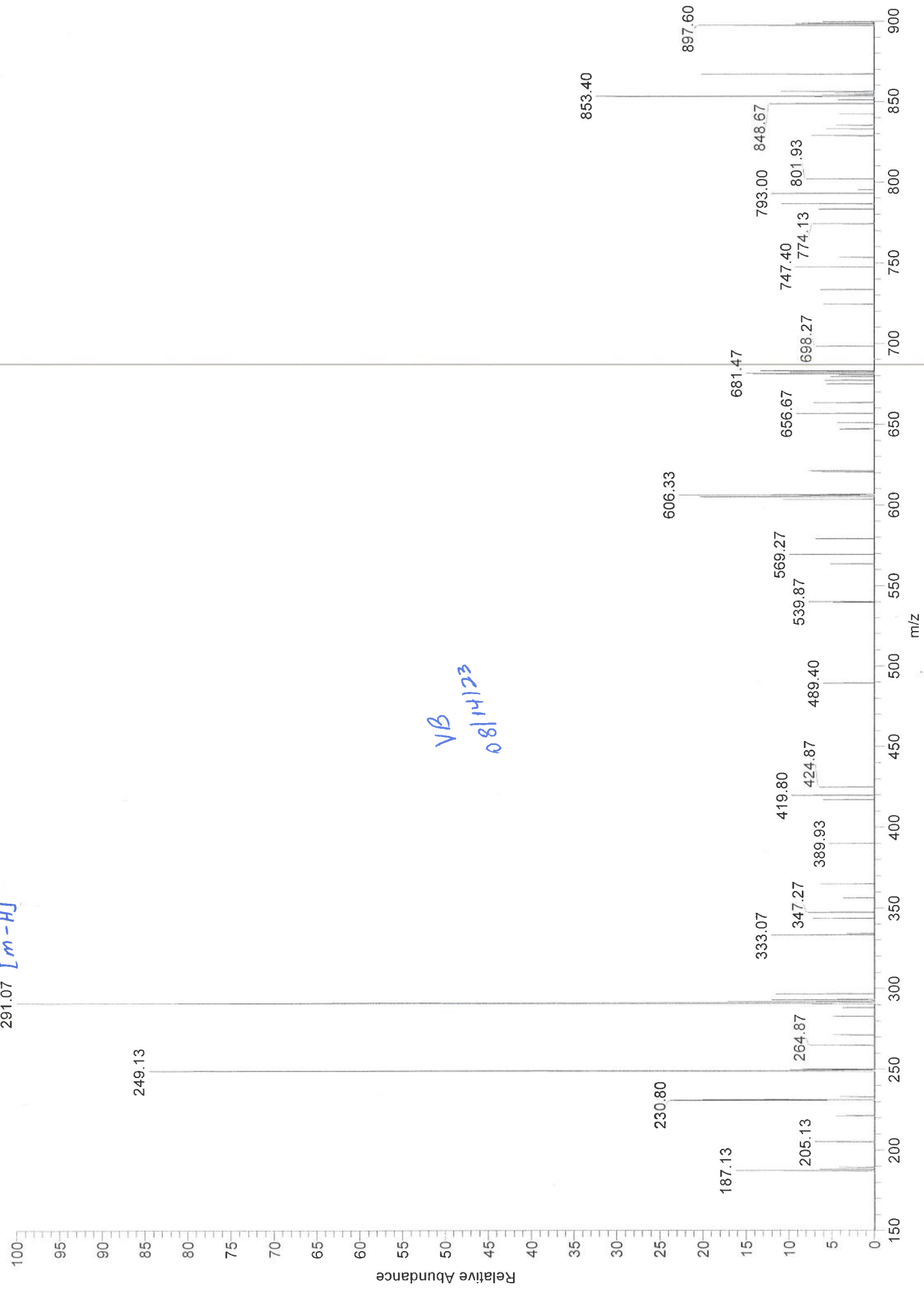
VB  
08/11/23

ppm (t1)

AD-11-115-02 #166-176 RT: 5.62-5.96 AV: 11 NL: 3.83E3  
T: - p ESI Full ms [50.00-2000.00]

291.07 [m-H]<sup>-</sup>

VB  
08/14/23



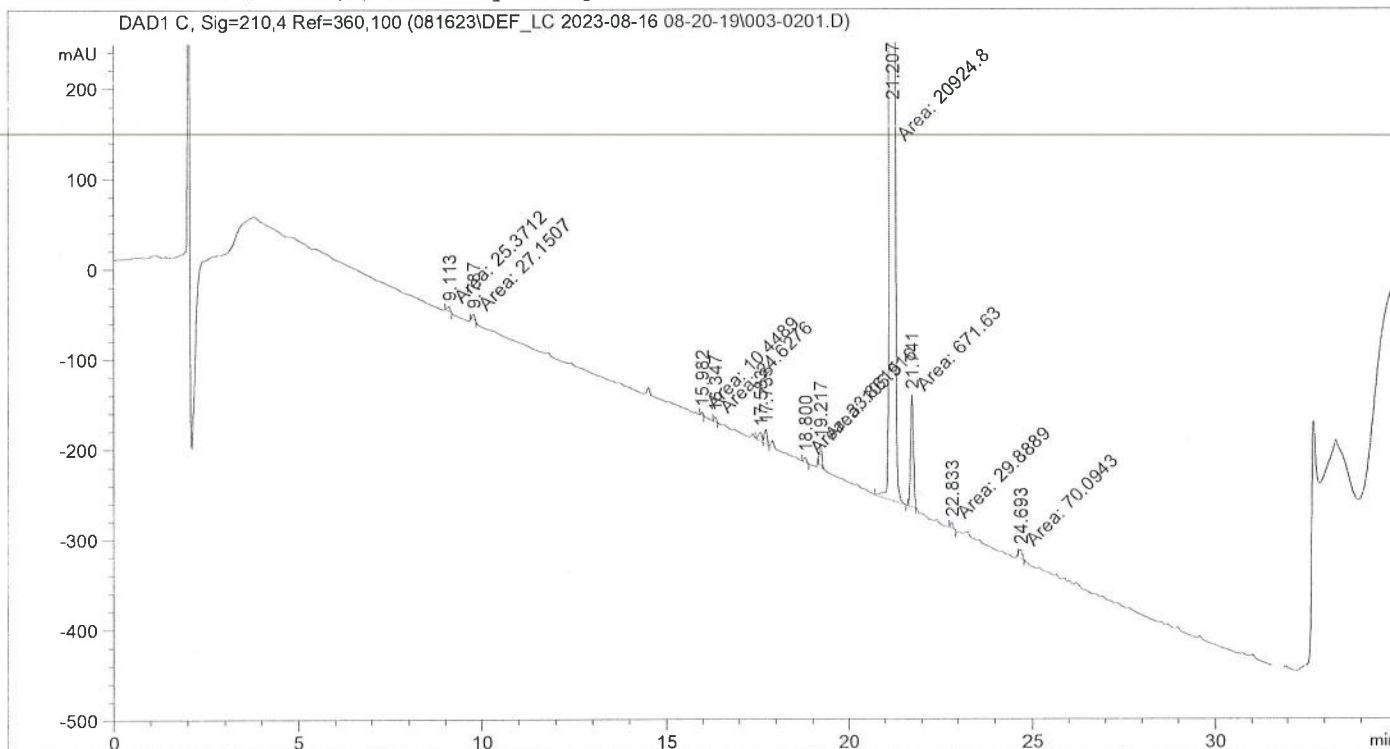
Sample Name: AD-11-115-02

```

=====
Acq. Operator   : VPR                               Seq. Line :    2
Acq. Instrument : Instrument 1                       Location  : Vial 3
Injection Date  : 08/16/23 8:57:19 AM              Inj       :    1
                                                    Inj Volume: 10.000 µl

Acq. Method    : C:\CHEM32\1\DATA\081623\DEF_LC 2023-08-16 08-20-19\OTS1.M
Last changed   : 07/26/23 8:03:06 AM by VPR
Analysis Method : C:\CHEM32\1\METHODS\OTS1.M
Last changed   : 08/16/23 10:00:03 AM by VPR
                (modified after loading)

Additional Info : Peak(s) manually integrated
    
```



Area Percent Report

```

Sorted By      :      Signal
Multiplier:    :      1.0000
Dilution:      :      1.0000
Use Multiplier & Dilution Factor with ISTDs
    
```

Signal 1: DAD1 C, Sig=210,4 Ref=360,100

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	9.113	MM	0.0908	25.37122	4.65828	0.1150
2	9.787	MM	0.0760	27.15071	5.95604	0.1230
3	15.982	MM	0.0637	10.44894	2.73187	0.0473
4	16.347	MM	0.0801	24.62764	5.12259	0.1116
5	17.583	BV	0.0913	63.72122	9.87769	0.2887
6	17.733	VB	0.0783	81.59772	16.33897	0.3697
7	18.800	MM	0.0978	33.86152	5.77015	0.1534

VPR  
08/16/23

Sample Name: AD-11-115-02

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
8	19.217	MM	0.0760	105.91614	23.23914	0.4799
9	21.207	MM	0.1351	2.09248e4	2580.80957	94.8149
10	21.741	MM	0.0901	671.62952	124.21329	3.0433
11	22.833	MM	0.0769	29.88891	6.47645	0.1354
12	24.693	MM	0.1163	70.09433	10.04165	0.3176

Totals : 2.20691e4 2795.23569

=====  
\*\*\* End of Report \*\*\*

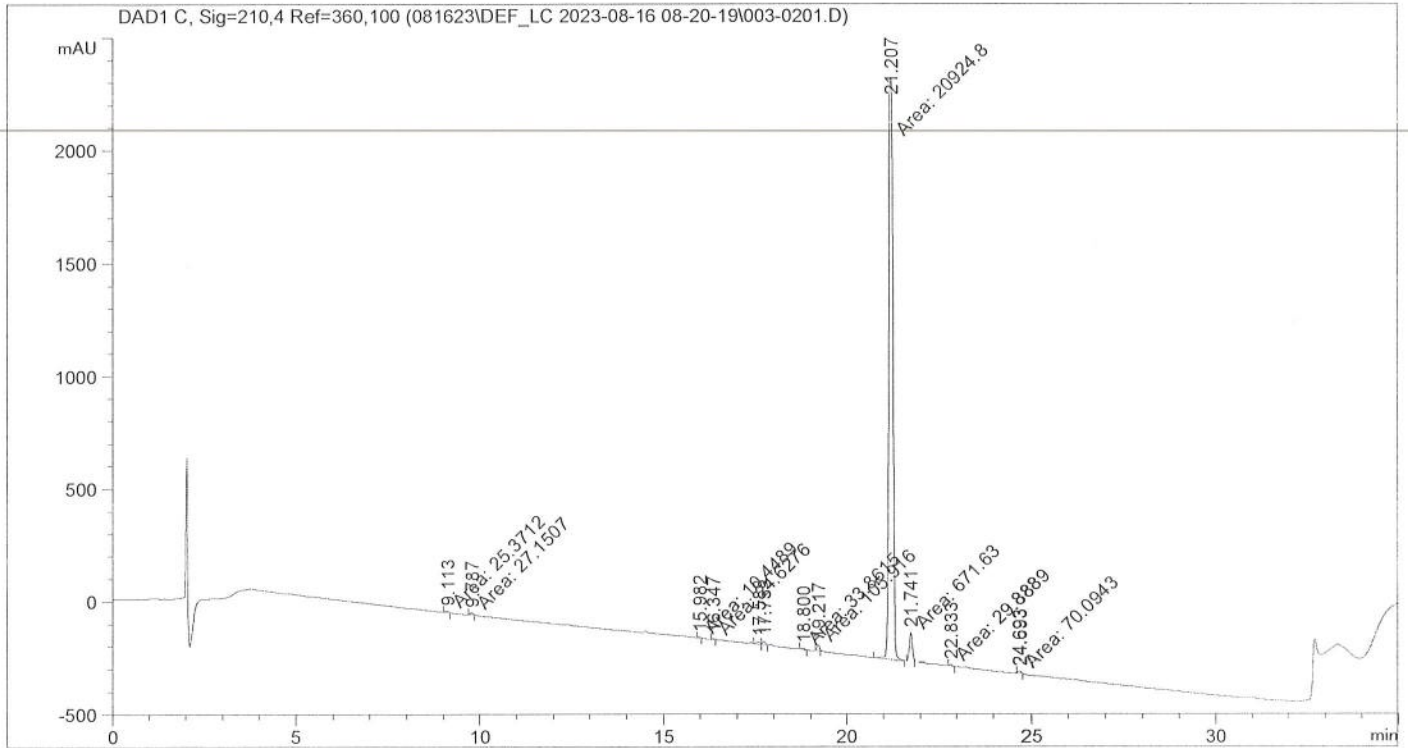
VPR  
08/16/23

Sample Name: AD-11-115-02

```

=====
Acq. Operator   : VPR                               Seq. Line :    2
Acq. Instrument : Instrument 1                     Location  : Vial 3
Injection Date  : 08/16/23 8:57:19 AM              Inj       :    1
                                                    Inj Volume: 10.000 µl

Acq. Method     : C:\CHEM32\1\DATA\081623\DEF_LC 2023-08-16 08-20-19\OTS1.M
Last changed    : 07/26/23 8:03:06 AM by VPR
Analysis Method : C:\CHEM32\1\METHODS\OTS1.M
Last changed    : 08/16/23 9:59:24 AM by VPR
                  (modified after loading)
Additional Info  : Peak(s) manually integrated
    
```



Area Percent Report

```

=====
Sorted By      :      Signal
Multiplier:    :      1.0000
Dilution:      :      1.0000
Use Multiplier & Dilution Factor with ISTDs
    
```

Signal 1: DAD1 C, Sig=210,4 Ref=360,100

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	9.113	MM	0.0908	25.37122	4.65828	0.1150
2	9.787	MM	0.0760	27.15071	5.95604	0.1230
3	15.982	MM	0.0637	10.44894	2.73187	0.0473
4	16.347	MM	0.0801	24.62764	5.12259	0.1116
5	17.583	BV	0.0913	63.72122	9.87769	0.2887
6	17.733	VB	0.0783	81.59772	16.33897	0.3697
7	18.800	MM	0.0978	33.86152	5.77015	0.1534

*VPR  
08/16/23*

Sample Name: AD-11-115-02

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
8	19.217	MM	0.0760	105.91614	23.23914	0.4799
9	21.207	MM	0.1351	2.09248e4	2580.80957	94.8149
10	21.741	MM	0.0901	671.62952	124.21329	3.0433
11	22.833	MM	0.0769	29.88891	6.47645	0.1354
12	24.693	MM	0.1163	70.09433	10.04165	0.3176

Totals : 2.20691e4 2795.23569

=====  
\*\*\* End of Report \*\*\*

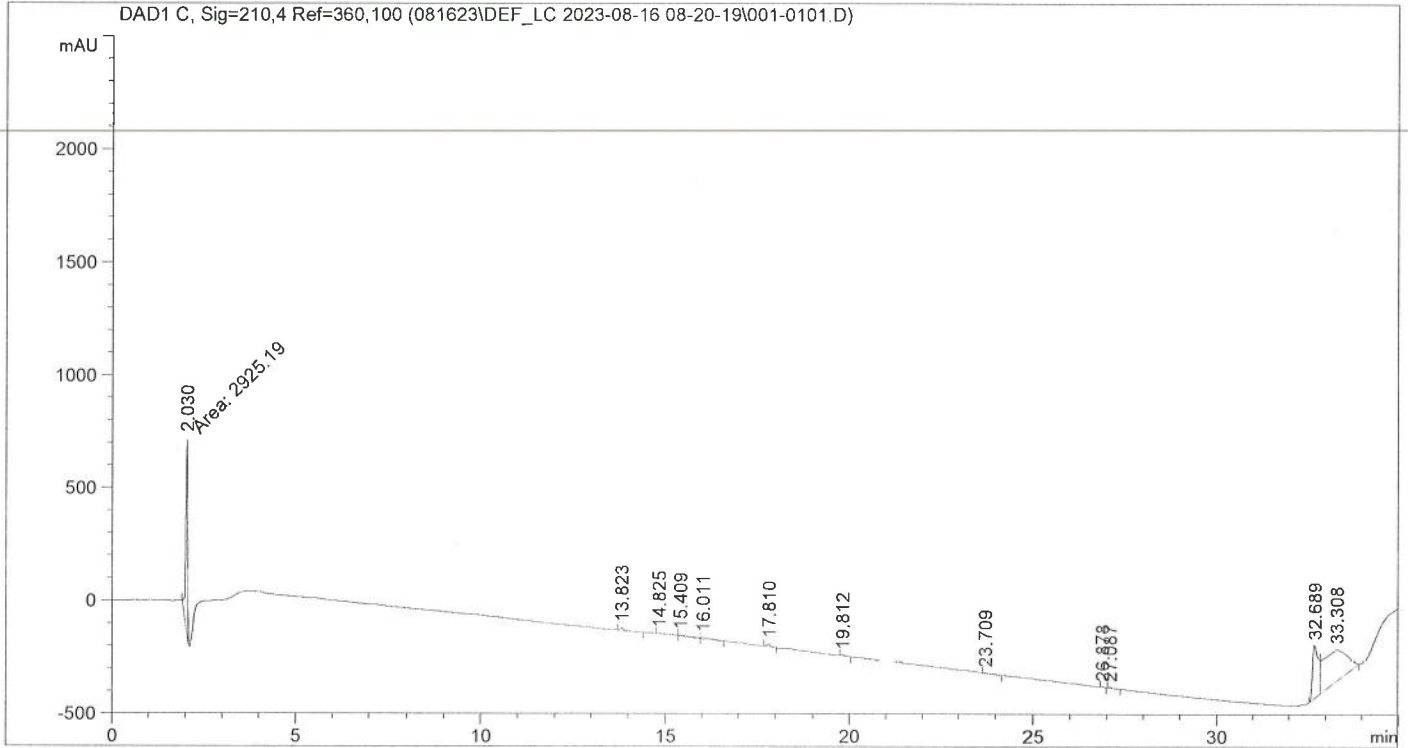
VPR  
08/16/23

Sample Name: BLANK

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=====
Acq. Operator   : VPR                               Seq. Line :    1
Acq. Instrument : Instrument 1                       Location  : Vial 1
Injection Date  : 08/16/23 8:21:19 AM              Inj       :    1
                                                    Inj Volume: 10.000 µl

Acq. Method     : C:\CHEM32\1\DATA\081623\DEF_LC 2023-08-16 08-20-19\OTS1.M
Last changed    : 07/26/23 8:03:06 AM by VPR
Analysis Method : C:\CHEM32\1\METHODS\OTS1.M
Last changed    : 08/16/23 10:03:19 AM by VPR
                  (modified after loading)
Additional Info : Peak(s) manually integrated
    
```



Area Percent Report

```

Sorted By      :      Signal
Multiplier:    :      1.0000
Dilution:      :      1.0000
Use Multiplier & Dilution Factor with ISTDs
    
```

Signal 1: DAD1 C, Sig=210,4 Ref=360,100

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	2.030	MM	0.0557	2925.18872	874.64258	23.1468
2	13.823	BB	0.1087	92.58273	12.46255	0.7326
3	14.825	BV	0.3638	77.26454	2.62201	0.6114
4	15.409	VV	0.2481	99.84616	5.10673	0.7901
5	16.011	VB	0.2856	104.23348	4.68505	0.8248
6	17.810	BB	0.0924	79.38966	13.15681	0.6282
7	19.812	BB	0.1288	18.50355	2.22932	0.1464

*VP R  
08/16/23*



Sample Name: BLANK

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
8	23.709	BB	0.1522	20.52450	1.83952	0.1624
9	26.878	BB	0.0912	8.31459	1.48695	0.0658
10	27.087	BB	0.1299	23.38317	2.57613	0.1850
11	32.689	BV	0.1658	2749.49927	236.14798	21.7565
12	33.308	VB	0.5546	6438.84424	141.04102	50.9500

Totals : 1.26376e4 1297.99664

\*\*\* End of Report \*\*\*

VPR  
08/16/23

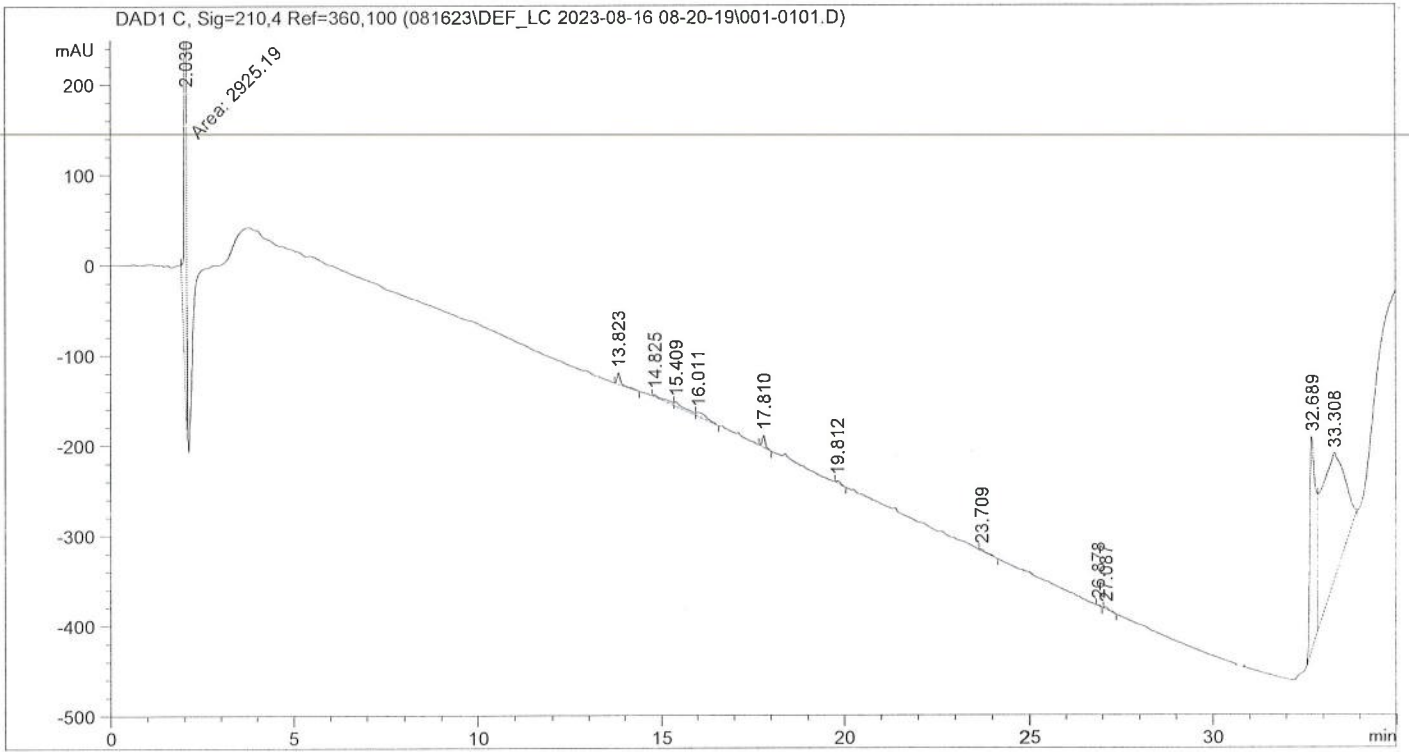
Sample Name: BLANK

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=====
Acq. Operator   : VPR                               Seq. Line :    1
Acq. Instrument : Instrument 1                       Location  : Vial 1
Injection Date  : 08/16/23 8:21:19 AM              Inj       :    1
                                                    Inj Volume: 10.000 µl

Acq. Method     : C:\CHEM32\1\DATA\081623\DEF_LC 2023-08-16 08-20-19\OTS1.M
Last changed    : 07/26/23 8:03:06 AM by VPR
Analysis Method : C:\CHEM32\1\METHODS\OTS1.M
Last changed    : 08/16/23 10:01:52 AM by VPR
                  (modified after loading)

Additional Info : Peak(s) manually integrated
    
```



Area Percent Report

```

Sorted By      :      Signal
Multiplier:    :      1.0000
Dilution:      :      1.0000
Use Multiplier & Dilution Factor with ISTDs
    
```

Signal 1: DAD1 C, Sig=210,4 Ref=360,100

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	2.030	MM	0.0557	2925.18872	874.64258	23.1468
2	13.823	BB	0.1087	92.58273	12.46255	0.7326
3	14.825	BV	0.3638	77.26454	2.62201	0.6114
4	15.409	VV	0.2481	99.84616	5.10673	0.7901
5	16.011	VB	0.2856	104.23348	4.68505	0.8248
6	17.810	BB	0.0924	79.38966	13.15681	0.6282
7	19.812	BB	0.1288	18.50355	2.22932	0.1464

*VPR*  
*08/16/23*

Sample Name: BLANK

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
8	23.709	BB	0.1522	20.52450	1.83952	0.1624
9	26.878	BB	0.0912	8.31459	1.48695	0.0658
10	27.087	BB	0.1299	23.38317	2.57613	0.1850
11	32.689	BV	0.1658	2749.49927	236.14798	21.7565
12	33.308	VB	0.5546	6438.84424	141.04102	50.9500

Totals : 1.26376e4 1297.99664

=====  
\*\*\* End of Report \*\*\*

VPR  
08/16/23