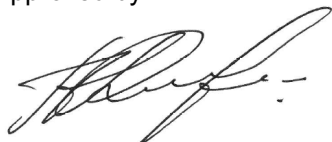


<b>Name:</b>	<b>Tacrolimus-13C, D2 (major)</b>
<b>Lot#:</b>	GR-15-141
<b>Test Date:</b>	11/26/2020 (re-test date: 11/26/2025)
<b>CAS No.:</b>	1356841-89-8
<b>MF:</b>	C <sub>43</sub> <sup>13</sup> CH <sub>67</sub> D <sub>2</sub> NO <sub>12</sub>
<b>MW:</b>	807.02
<b>Appearance:</b>	Pale yellow solid
<b>Purity:</b>	98.4% by HPLC (sum of three isomers; average of two sample preparations); 99% atom <sup>13</sup> C; >85%atom D
<b><sup>1</sup>H-NMR:</b>	Conforms (shows a trace of ACN)
<b>MALDI (+)</b>	Conforms (shows peak at m/z = 829.49 [M+Na] <sup>+</sup> for the major <sup>13</sup> C, D2 form)
<b>Storage</b>	Store at -20°C in a dry place away from direct sunlight under nitrogen

Approved by:

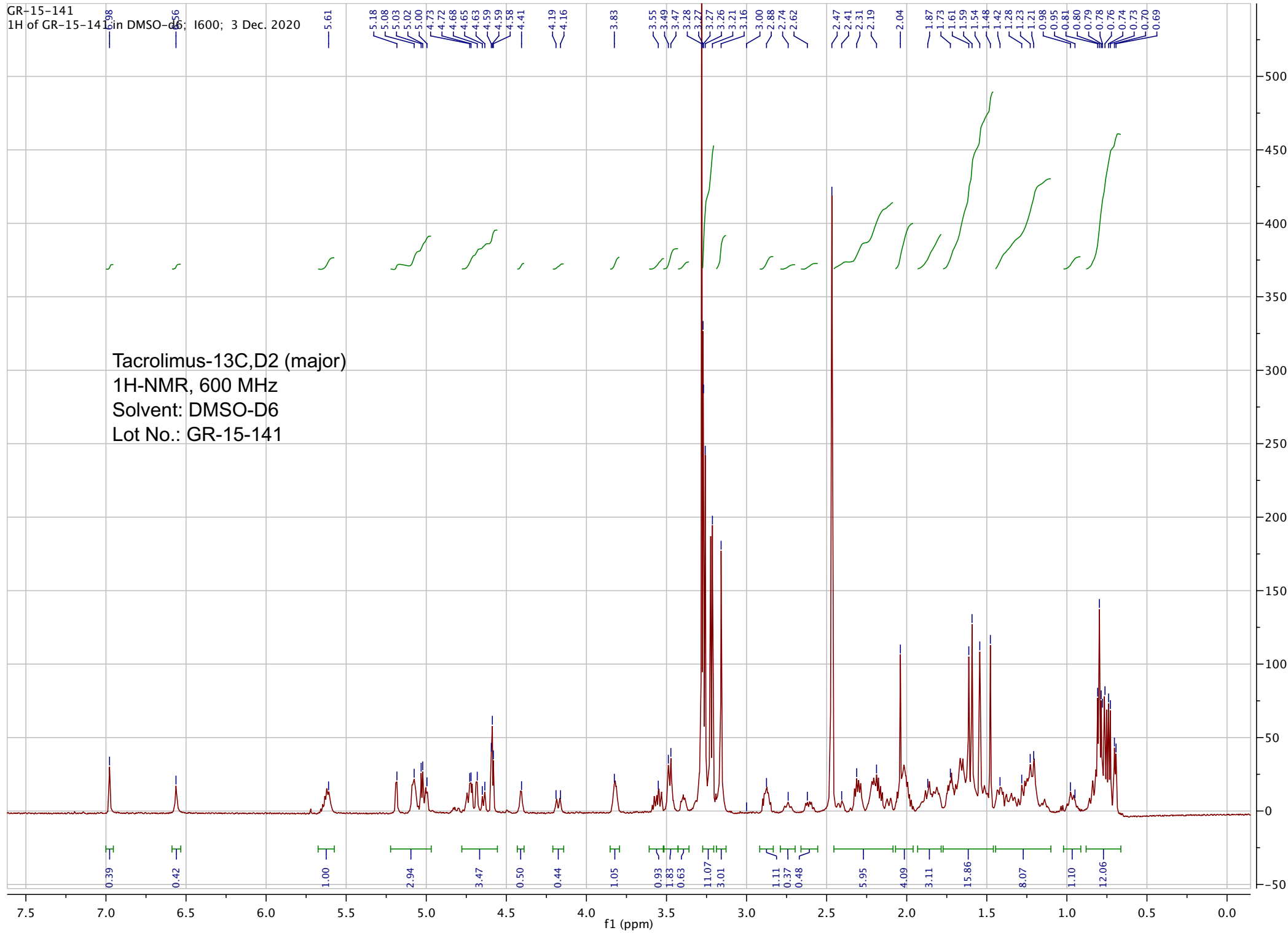
Date: 12/02/2020

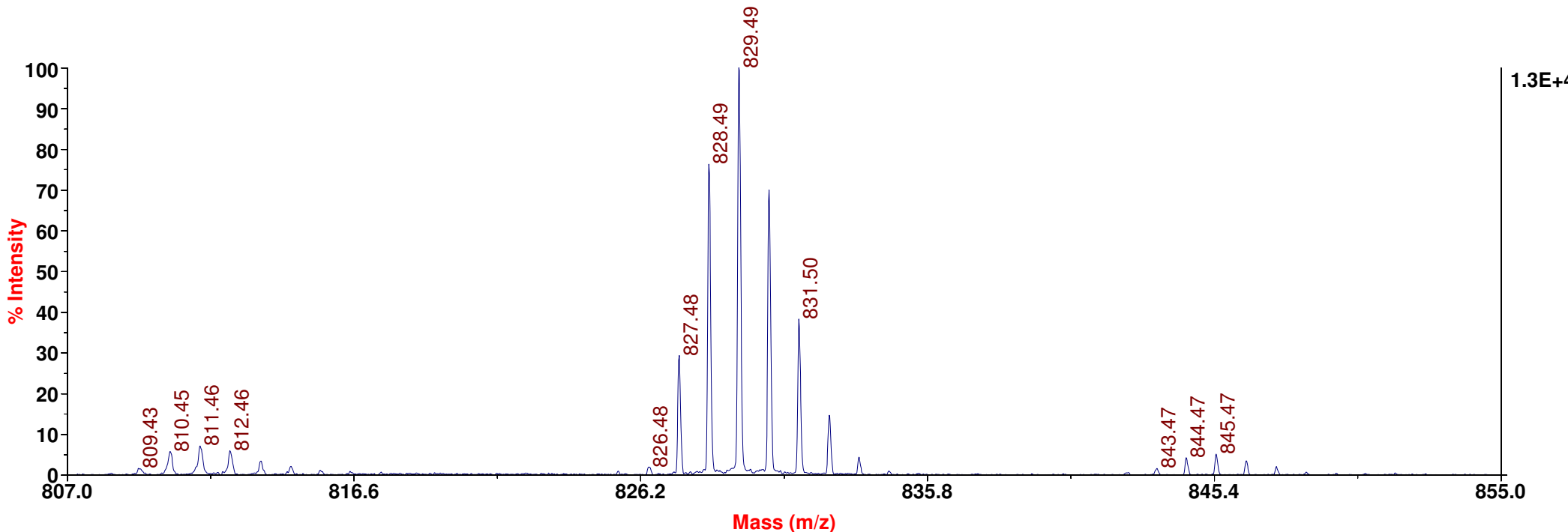


Viorica Rusu, QC/QA Manager

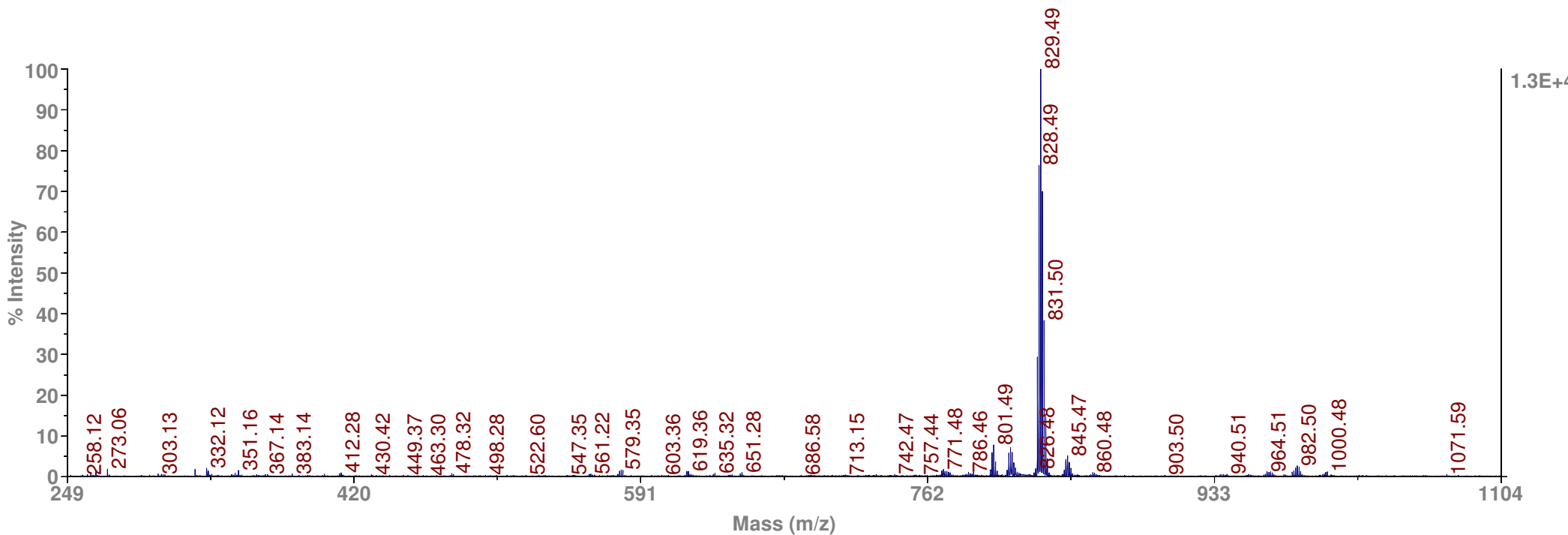
GR-15-141  
1H of GR-15-141 in DMSO-d6; I600; 3 Dec. 2020

Tacrolimus-13C,D2 (major)  
1H-NMR, 600 MHz  
Solvent: DMSO-D6  
Lot No.: GR-15-141



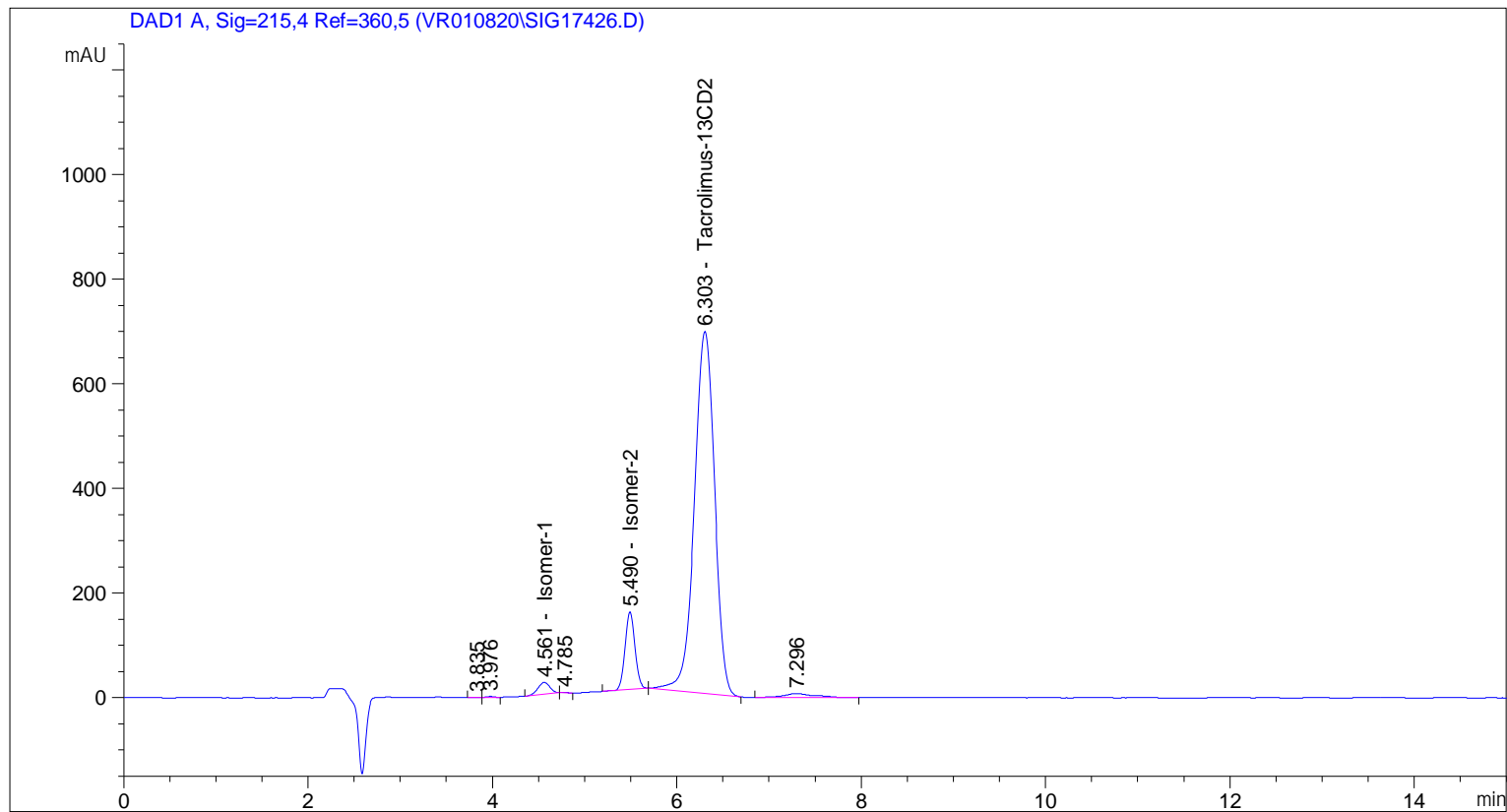


TOF/TOF™ Reflector Spec #1 MC[BP = 829.5, 12942]



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Acq. Operator   : vrusu
Acq. Instrument : Instrument 1                Location : Vial 38
Injection Date  : 11/26/2020 9:45:27 AM
                                           Inj Volume : 25.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\VR112620_141.M
Last changed    : 11/26/2020 9:44:13 AM by vrusu
Analysis Method : C:\CHEM32\1\METHODS\VR112620_141PM.M
Last changed    : 11/26/2020 12:14:25 PM by vrusu
  
```



=====  
 Area Percent Report  
 =====

```

Sorted By      : Signal
Calib. Data Modified : 11/26/2020 12:12:59 PM
Multiplier:    : 1.0000
Dilution:     : 1.0000
Use Multiplier & Dilution Factor with ISTDs
  
```

Signal 1: DAD1 A, Sig=215,4 Ref=360,5

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Area %	Name
1	3.835	BV	0.0922	3.53634	0.0294	?
2	3.976	VB	0.0849	10.10698	0.0839	?
3	4.561	BB	0.1446	210.36536	1.7473	Isomer-1
4	4.785	BB	0.0685	2.52612	0.0210	?
5	5.490	BB	0.1133	1083.19067	8.9968	Isomer-2
6	6.303	BB	0.2358	1.05494e4	87.6221	Tacrolimus-13CD2
7	7.296	BB	0.3142	180.53694	1.4995	?

Sample Name: GR-15-141

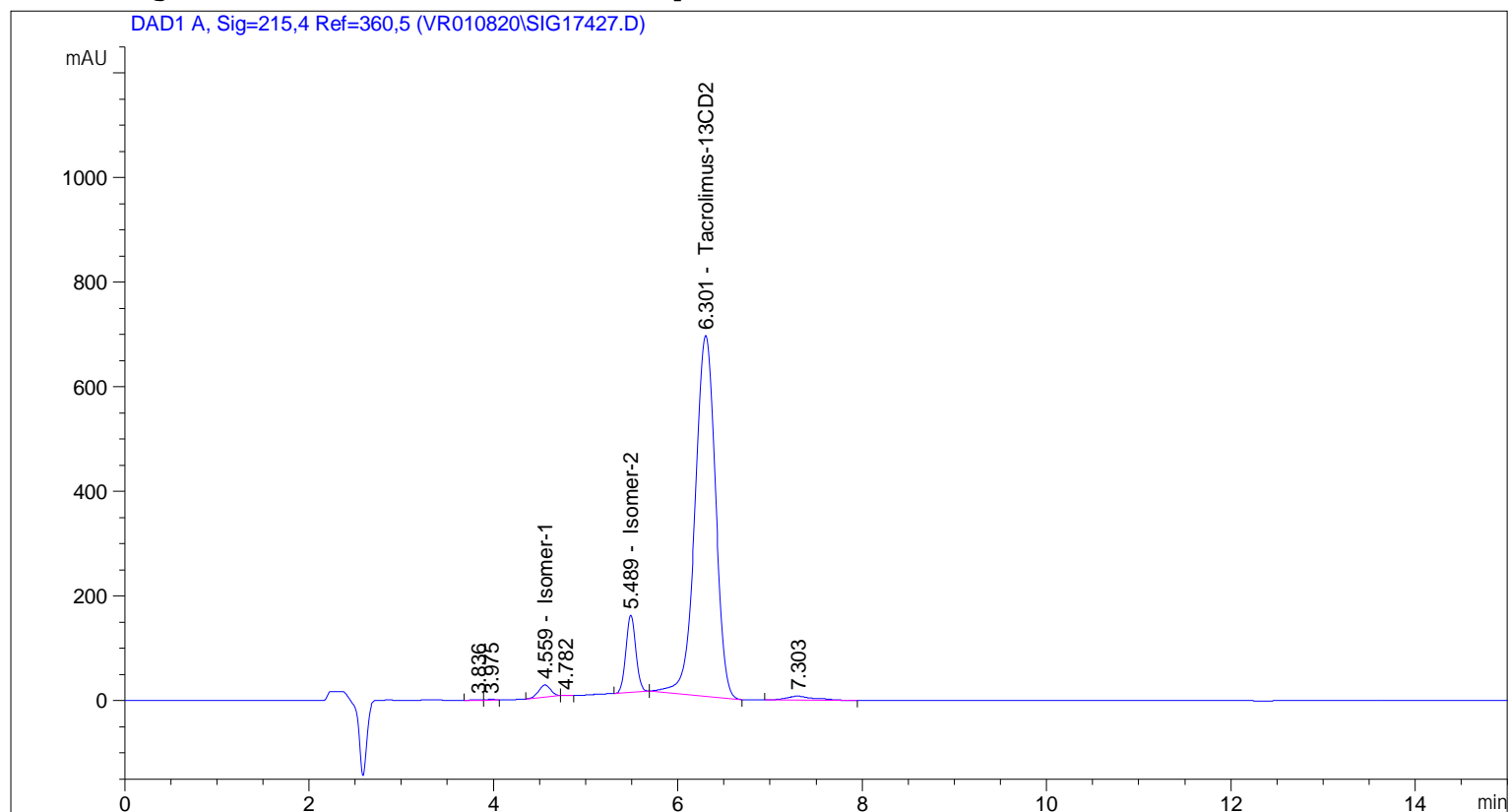
Totals : 1.20397e4

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

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=====
Acq. Operator   : vrusu
Acq. Instrument : Instrument 1                Location : Vial 38
Injection Date  : 11/26/2020 10:04:35 AM
                                           Inj Volume : 25.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\VR112620_141.M
Last changed    : 11/26/2020 10:03:17 AM by vrusu
Analysis Method : C:\CHEM32\1\METHODS\VR112620_141PM.M
Last changed    : 11/26/2020 12:14:25 PM by vrusu
  
```



=====  
 Area Percent Report  
 =====

```

Sorted By           :      Signal
Calib. Data Modified :      11/26/2020 12:12:59 PM
Multiplier:         :      1.0000
Dilution:           :      1.0000
Use Multiplier & Dilution Factor with ISTDs
  
```

Signal 1: DAD1 A, Sig=215,4 Ref=360,5

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Area %	Name
1	3.836	BV	0.0978	9.15828	0.0762	?
2	3.975	VB	0.0904	10.90855	0.0908	?
3	4.559	BB	0.1422	209.62389	1.7442	Isomer-1
4	4.782	BB	0.0730	2.68461	0.0223	?
5	5.489	BB	0.1129	1075.42688	8.9480	Isomer-2
6	6.301	BB	0.2383	1.05409e4	87.7049	Tacrolimus-13CD2
7	7.303	BB	0.2909	169.89259	1.4136	?

Sample Name: GR-15-141 spl 2

Totals : 1.20186e4

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