

## Organocatalytic asymmetric cyanation of isatin derived N-Boc ketoimines

Yun-Lin Liu and Jian Zhou\*

Shanghai Key Laboratory of Green Chemistry and Chemical Processes, Department of Chemistry,  
East China Normal University, 3663N Zhongshan Road, Shanghai 200062, China,

E-mail: [jzhou@chem.ecnu.edu.cn](mailto:jzhou@chem.ecnu.edu.cn)

### Supporting Information

#### (Part III)

Content	Page
HPLC spectra of product 9a-r, 10, spirohydantoin I	2-24

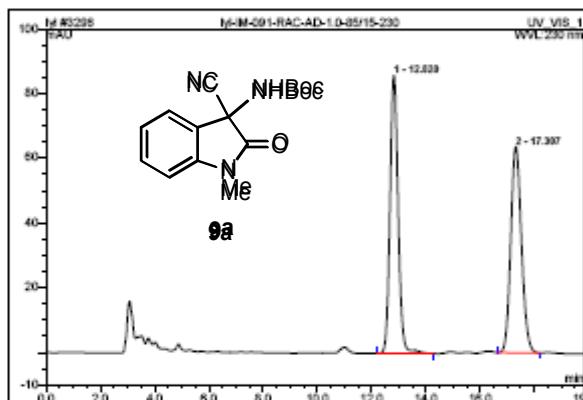
Operator:dell Timebase:U-3000 Sequence:yl

Page 1-1

2012-9-4 10:25

3296 lyI-IM-091-RAC-AD-1.0-85/15-230

Sample Name:	lyI-IM-091-RAC-AD-1.0-85/15-230	Injection Volume:	20.0
Vial Number:	998	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyI	Dilution Factor:	1.0000
Recording Time:	2012-9-2 21:31	Sample Weight:	1.0000
Run Time (min):	18.84	Sample Amount:	1.0000



No.	Rel.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	12.82	n.a.	85.995	29.852	50.67	n.a.	BMB
2	17.31	n.a.	63.706	29.063	49.33	n.a.	BMB'
Total:			149.701	58.915	100.00	0.000	

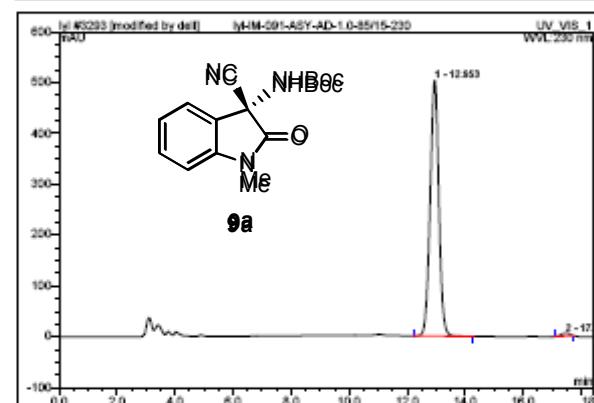
Operator:dell Timebase:U-3000 Sequence:yl

Page 1-1

2012-9-6 6:29

3293 lyI-IM-091-ASY-AD-1.0-85/15-230

Sample Name:	lyI-IM-091-ASY-AD-1.0-85/15-230	Injection Volume:	20.0
Vial Number:	998	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyI	Dilution Factor:	1.0000
Recording Time:	2012-9-2 20:27	Sample Weight:	1.0000
Run Time (min):	18.43	Sample Amount:	1.0000



No.	Rel.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	12.85	n.a.	502.805	174.206	58.87	n.a.	BMB
2	17.47	n.a.	5.689	1.998	1.13	n.a.	BMB'
Total:			508.493	176.205	100.00	0.000	

default/integration

Chromelcon (c) Dionex 1996-2006  
Version 6.80 SR8a Build 2643 (158225)

default/integration

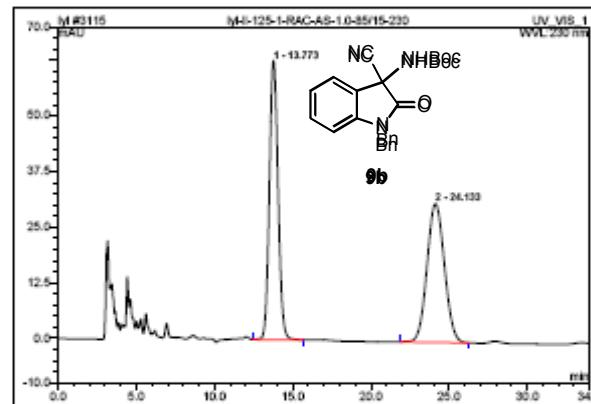
Chromelcon (c) Dionex 1996-2006  
Version 6.80 SR8a Build 2643 (158225)

Operator: dell Timebase:U-3000 Sequence:yl

Page 1-1  
2012-8-6 6:50

3115 lyI-II-125-1-RAC-AS-1.0-85/15-230

Sample Name:	lyI-II-126-1-RAC-AS-1.0-86/15-230	Injection Volume:	20.0
Vial Number:	998	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyI	Dilution Factor:	1.0000
Recording Time:	2012-8-8 17:37	Sample Weight:	1.0000
Run Time (min):	33.88	Sample Amount:	1.0000



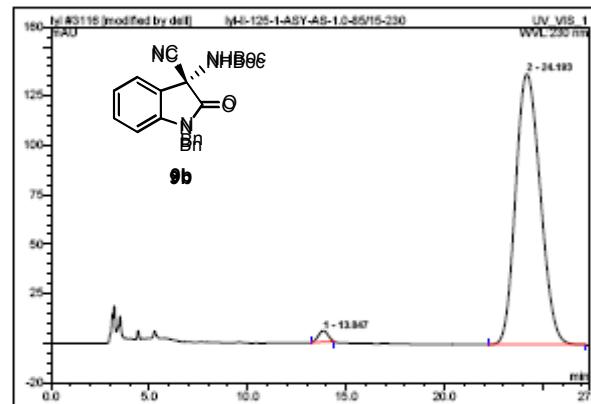
No.	Ret.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	13.77	n.a.	62.804	40.451	50.13	n.a.	BMB
2	24.13	n.a.	31.154	40.243	49.87	n.a.	BMB
Total:			93.957	80.694	100.00	0.000	

Operator: dell Timebase:U-3000 Sequence:yl

Page 1-1  
2012-8-6 6:51

3116 lyI-II-125-1-ASY-AS-1.0-85/15-230

Sample Name:	lyI-II-126-1-ASY-AS-1.0-86/15-230	Injection Volume:	20.0
Vial Number:	998	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyI	Dilution Factor:	1.0000
Recording Time:	2012-8-8 18:12	Sample Weight:	1.0000
Run Time (min):	27.37	Sample Amount:	1.0000



No.	Ret.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	13.86	n.a.	5.705	3.262	1.61	n.a.	BMB*
2	24.19	n.a.	136.913	198.799	98.39	n.a.	BMB
Total:			142.618	202.061	100.00	0.000	

default/integration

Chromleon (c) Dionex 1996-2006  
Version 6.80 SR8a Build 2643 (158225)

default/integration

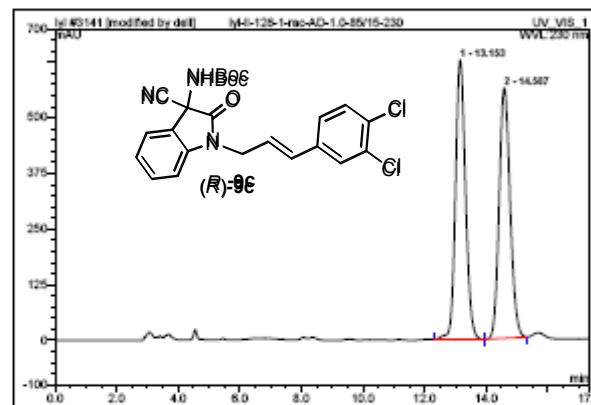
Chromleon (c) Dionex 1996-2006  
Version 6.80 SR8a Build 2643 (158225)

Operator:dell Timebase:U-3000 Sequence:ly

Page 1

3141 [v]-II-126-1-rac-AD-1.0-85/15-230

Sample Name:	Iyl-II-128-1-rac-AD-1.0-85/15-230	Injection Volume:	20.0
Val Number:	988	Channel:	UV_VIS
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	Iyl	Dilution Factor:	1.0000
Recording Time:	2012-8-11 10:44	Sample Weight:	1.000
Run Time (min):	17.35	Sample Amount:	1.000



No.	RetTime min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	13.15	n.a.	628.388	236.494	90.53	n.a.	BMB
2	14.59	n.a.	563.041	231.522	49.47	n.a.	BMB
Total:			1191.410	468.016	100.00	0.000	

## defaultIntegration

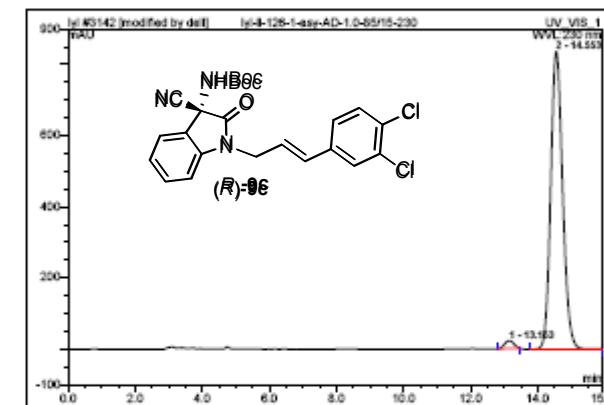
Chromeleon (c) DIONEX 1996-2001  
Version 6.80 SR8a Build 2643 (198229)

Operator:dell Timebase:U-3000 Sequence:

Page 1

3142 |y|-||-126-1-asv-AD-1.0-85/15-23

Sample Name:	Iyl-II-128-1-asy-AD-1.0-86/16-230	Injection Volume:	20.0
Val Number:	988	Channel:	UV_VI_8
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	Iyl	Dilution Factor:	1.0000
Recording Time:	2012-8-11 11:04	Sample Weight:	1.0000
Run Time (min):	16.88	Sample Amount:	1.0000



No.	Rel.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	13.15	n.a.	22.137	6.980	1.98	n.a.	BMB <sup>1</sup>
2	14.55	n.a.	836.796	344.959	98.02	n.a.	BMB
Total:			858.933	351.939	100.00	0.000	

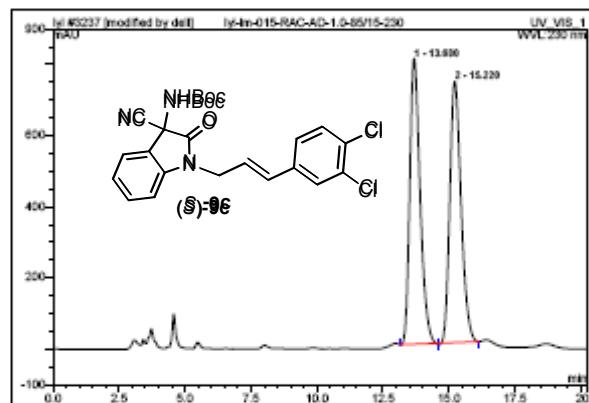
Chromelion (c) DIONEX 1996-2000  
Version 6.80 SR8a Build 2643 (15822)

Operator:dell Timebase:U-3000 Sequence:yl

Page 1-1  
2012-9-4 9:57

3237 lyI-Im-015-RAC-AD-1.0-85/15-230

Sample Name:	lyI-Im-015-RAC-AD-1.0-85/15-230	Injection Volume:	20.0
Vial Number:	988	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyI	Dilution Factor:	1.0000
Recording Time:	2012-8-22 16:41	Sample Weight:	1.0000
Run Time (min):	20.26	Sample Amount:	1.0000



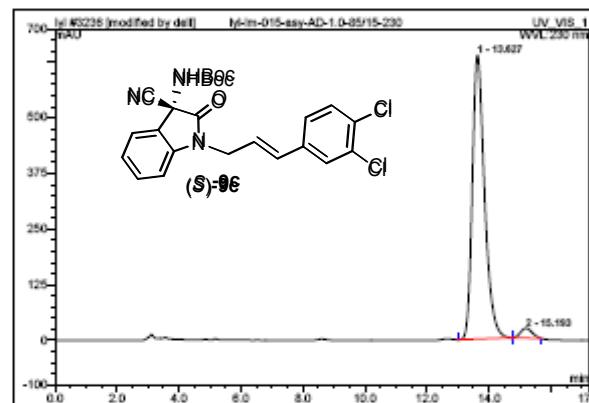
No.	Ret.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	13.68	n.a.	803.591	364.282	50.15	n.a.	BM*
2	15.22	n.a.	734.355	362.168	49.85	n.a.	MB*
Total:			1537.946	726.451	100.00	0.000	

Operator:dell Timebase:U-3000 Sequence:yl

Page 1-1  
2012-9-4 9:55

3236 lyI-Im-015-asy-AD-1.0-85/15-230

Sample Name:	lyI-Im-015-asy-AD-1.0-85/15-230	Injection Volume:	20.0
Vial Number:	988	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyI	Dilution Factor:	1.0000
Recording Time:	2012-8-22 16:21	Sample Weight:	1.0000
Run Time (min):	17.24	Sample Amount:	1.0000



No.	Ret.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	13.63	n.a.	638.238	291.181	55.82	n.a.	BMB*
2	15.19	n.a.	22.243	8.573	3.18	n.a.	BMB*
Total:			660.481	300.754	100.00	0.000	

default/integration

Chromleon (c) Dionex 1996-2006  
Version 6.80 SR8a Build 2643 (158225)

default/integration

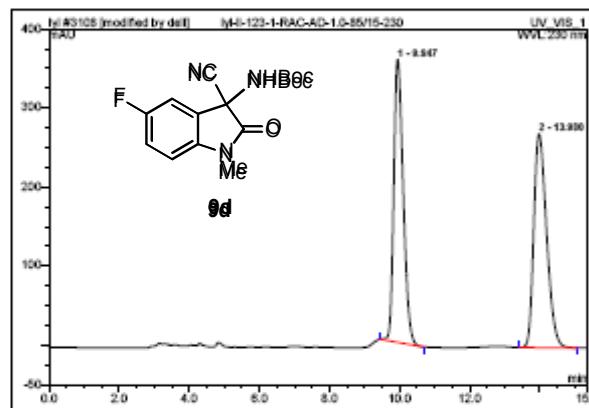
Chromleon (c) Dionex 1996-2006  
Version 6.80 SR8a Build 2643 (158225)

Operator: dell Timebase:U-3000 Sequence:yl

Page 1-1  
2012-8-6 2:32

3108 lyI-II-123-1-RAC-AD-1.0-85/15-230

Sample Name:	lyI-II-123-1-RAC-AD-1.0-85/15-230	Injection Volume:	20.0
Vial Number:	988	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyI	Dilution Factor:	1.0000
Recording Time:	2012-8-8 18:04	Sample Weight:	1.0000
Run Time (min):	16.38	Sample Amount:	1.0000



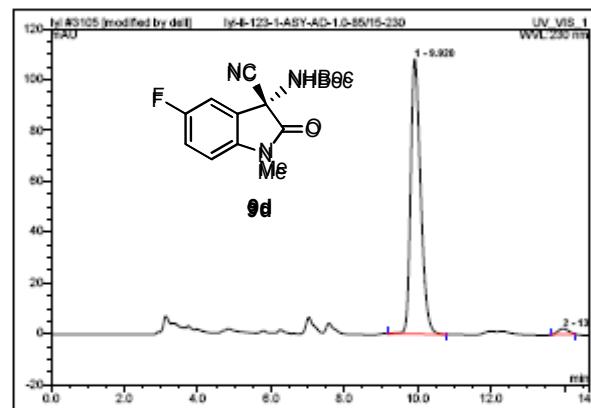
No.	Ret.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	9.95	n.a.	357.872	111.052	49.34	n.a.	BMB*
2	13.98	n.a.	270.452	114.046	50.66	n.a.	BMB
Total:			628.324	225.108	100.00	0.000	

Operator: dell Timebase:U-3000 Sequence:yl

Page 1-1  
2012-8-6 1:08

3105 lyI-II-123-1-ASY-AD-1.0-85/15-230

Sample Name:	lyI-II-123-1-ASY-AD-1.0-85/15-230	Injection Volume:	20.0
Vial Number:	988	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyI	Dilution Factor:	1.0000
Recording Time:	2012-8-8 12:15	Sample Weight:	1.0000
Run Time (min):	14.88	Sample Amount:	1.0000



No.	Ret.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	9.92	n.a.	108.214	33.896	57.87	n.a.	BMB*
2	13.97	n.a.	2.217	0.737	2.13	n.a.	BMB*
Total:			110.431	34.633	100.00	0.000	

default/integration

Chromleon (c) Dionex 1996-2006  
Version 6.80 SR8a Build 2643 (158225)

default/integration

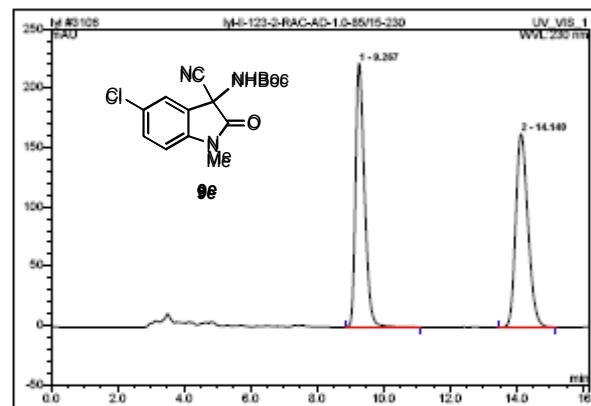
Chromleon (c) Dionex 1996-2006  
Version 6.80 SR8a Build 2643 (158225)

Operator: dell Timebase:U-3000 Sequence:yl

Page 1-1  
2012-8-6 1:07

3106 lyI-II-123-2-RAC-AD-1.0-85/15-230

Sample Name:	lyI-II-123-2-RAC-AD-1.0-85/15-230	Injection Volume:	20.0
Vial Number:	998	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyI	Dilution Factor:	1.0000
Recording Time:	2012-8-8 12:30	Sample Weight:	1.0000
Run Time (min):	16.19	Sample Amount:	1.0000



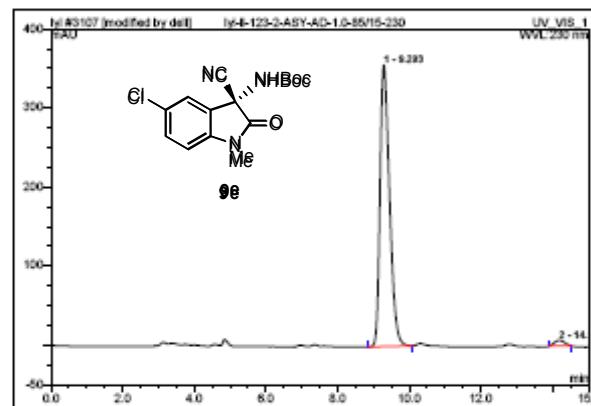
No.	Ret.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	9.27	n.a.	222.575	69.650	50.03	n.a.	BMB
2	14.14	n.a.	163.022	69.577	49.97	n.a.	BMB
Total:			385.597	139.237	100.00	0.000	

Operator: dell Timebase:U-3000 Sequence:yl

Page 1-1  
2012-8-6 1:08

3107 lyI-II-123-2-ASY-AD-1.0-85/15-230

Sample Name:	lyI-II-123-2-ASY-AD-1.0-85/15-230	Injection Volume:	20.0
Vial Number:	998	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyI	Dilution Factor:	1.0000
Recording Time:	2012-8-8 12:48	Sample Weight:	1.0000
Run Time (min):	16.08	Sample Amount:	1.0000



No.	Ret.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	9.29	n.a.	355.887	109.238	57.79	n.a.	BMB
2	14.19	n.a.	7.209	2.464	2.21	n.a.	BMB
Total:			363.196	111.703	100.00	0.000	

default/integration

Chromleon (c) Dionex 1996-2006  
Version 6.80 SR8a Build 2643 (158225)

default/integration

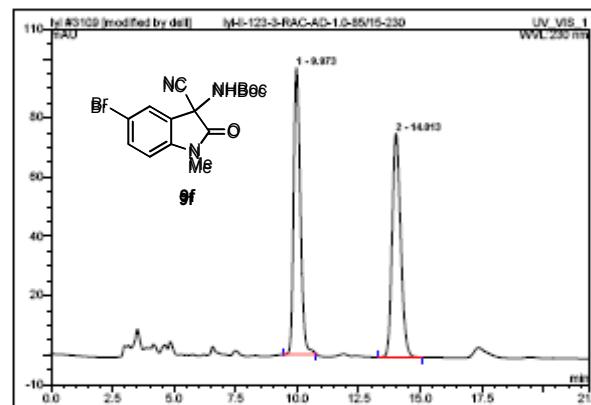
Chromleon (c) Dionex 1996-2006  
Version 6.80 SR8a Build 2643 (158225)

Operator:dell Timebase:U-3000 Sequence:ly

Page 1

3109 [v]-II-123-3-RAC-AD-1.0-85/15-230

Sample Name:	Iyl-II-123-3-RAC-AD-1.0-85\15-230	Injection Volume:	20.0
Vial Number:	998	Channel:	UV_VIS
Sample Type:	standard	Wavelength:	280
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	Iyl	Dilution Factor:	1.0000
Recording Time:	2012-8-8 14:07	Sample Weight:	1.000
Run Time (min):	21.87	Sample Amount:	1.000



No.	Ret Time min	Peak Name	Height mAU	Area mAU/min	Rel. Area %	Amount	Type
1	9.97	n.a.	95.584	30.506	90.11	n.a.	BMS <sup>1</sup>
2	14.01	n.a.	75.405	30.373	49.89	n.a.	BMS
Total:			171.989	60.878	100.00	0.000	

## defaultIntegration

Chromeleon (c) Dionex 1996-2001

## defaultIntegration

Chromelion (c) Dionex 1996-2000  
Version 6.80 SRBa Build 2643 (15822)

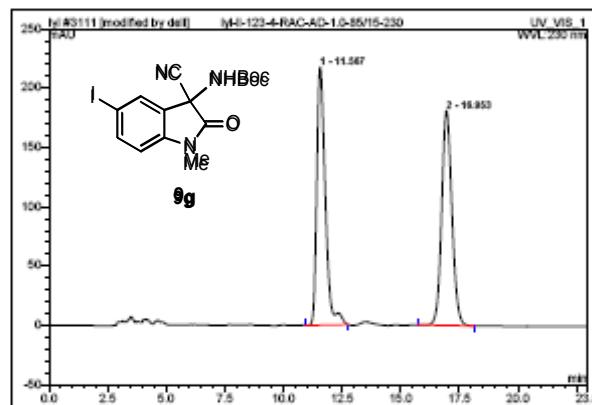
- 8 -

Operator:dell Timebase:U-3000 Sequence:yl

Page 1-1  
2012-8-6 3:14

3111 ly-II-123-4-RAC-AD-1.0-85/15-230

Sample Name:	ly-II-123-4-RAC-AD-1.0-85/15-230	Injection Volume:	20.0
Vial Number:	998	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyl	Dilution Factor:	1.0000
Recording Time:	2012-8-8 14:47	Sample Weight:	1.0000
Run Time (min):	22.87	Sample Amount:	1.0000



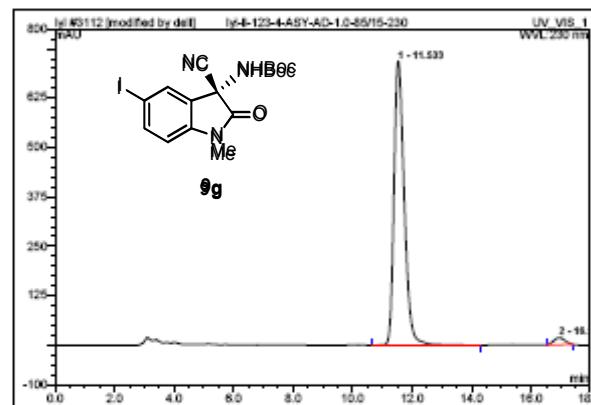
No.	Ret.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	11.57	n.a.	217.500	91.215	48.78	n.a.	BMB*
2	16.95	n.a.	180.933	92.021	50.22	n.a.	BMB
Total:			398.432	183.236	100.00	0.000	

Operator:dell Timebase:U-3000 Sequence:yl

Page 1-1  
2012-8-6 3:32

3112 ly-II-123-4-ASY-AD-1.0-85/15-230

Sample Name:	ly-II-123-4-ASY-AD-1.0-85/15-230	Injection Volume:	20.0
Vial Number:	998	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyl	Dilution Factor:	1.0000
Recording Time:	2012-8-8 16:12	Sample Weight:	1.0000
Run Time (min):	17.98	Sample Amount:	1.0000



No.	Ret.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	11.53	n.a.	718.576	285.898	57.40	n.a.	BMB*
2	16.95	n.a.	17.396	7.544	2.60	n.a.	BMB*
Total:			735.972	293.541	100.00	0.000	

default/integration

Chromleon (c) Dionex 1996-2006  
Version 6.80 SR8a Build 2643 (158225)

default/integration

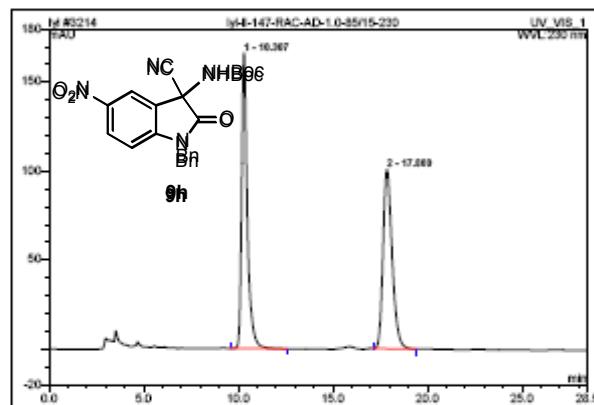
Chromleon (c) Dionex 1996-2006  
Version 6.80 SR8a Build 2643 (158225)

Operator:ell Timebase:U-3000 Sequence:yl

Page 1-1  
2012-9-6 6:27

3214 ly-II-147-RAC-AD-1.0-85/15-230

Sample Name:	ly-II-147-RAC-AD-1.0-85/15-230	Injection Volume:	20.0
Vial Number:	988	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyl	Dilution Factor:	1.0000
Recording Time:	2012-8-18 18:31	Sample Weight:	1.0000
Run Time (min):	28.48	Sample Amount:	1.0000



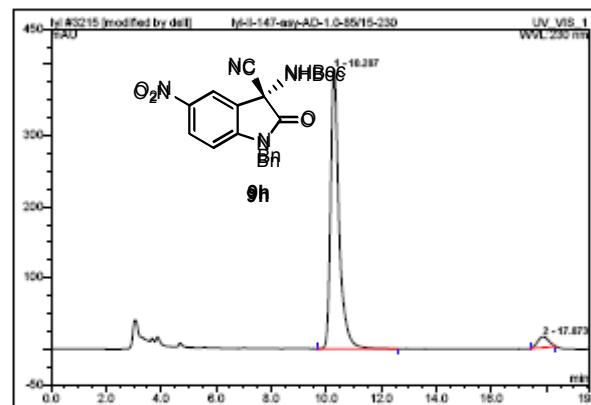
No.	Ret.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	10.31	n.a.	165.209	58.219	50.83	n.a.	BMB
2	17.86	n.a.	100.550	56.324	49.17	n.a.	BMB
Total:			266.760	114.543	100.00	0.000	

Operator:ell Timebase:U-3000 Sequence:yl

Page 1-1  
2012-9-6 6:28

3215 ly-II-147-asy-AD-1.0-85/15-230

Sample Name:	ly-II-147-asy-AD-1.0-85/15-230	Injection Volume:	20.0
Vial Number:	988	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyl	Dilution Factor:	1.0000
Recording Time:	2012-8-18 17:01	Sample Weight:	1.0000
Run Time (min):	18.58	Sample Amount:	1.0000



No.	Ret.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	10.29	n.a.	392.833	139.469	95.10	n.a.	BMB
2	17.87	n.a.	15.301	7.180	4.90	n.a.	BMB
Total:			408.134	146.649	100.00	0.000	

default/integration

Chromleon (c) Dionex 1996-2006  
Version 6.80 SRBa Build 2643 (158225)

default/integration

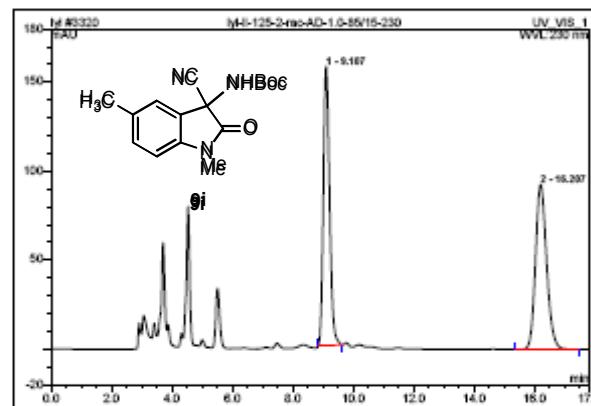
Chromleon (c) Dionex 1996-2006  
Version 6.80 SRBa Build 2643 (158225)

Operator: dell Timebase:U-3000 Sequence:yl

Page 1-1  
2012-9-7 10:59

3320 lyI-II-125-2-rac-AD-1.0-85/15-230

Sample Name:	lyI-II-125-2-rac-AD-1.0-85/15-230	Injection Volume:	20.0
Vial Number:	998	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyI	Dilution Factor:	1.0000
Recording Time:	2012-8-7 10:37	Sample Weight:	1.0000
Run Time (min):	17.82	Sample Amount:	1.0000

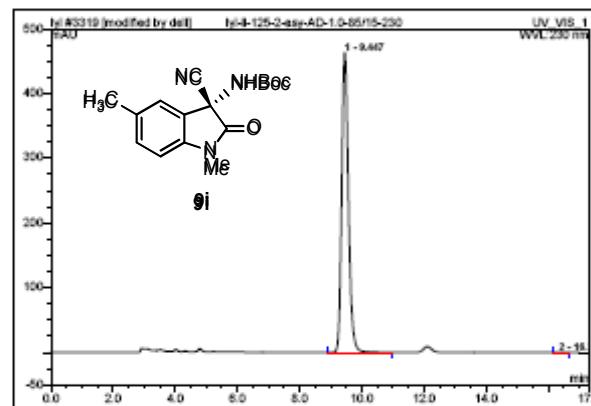


Operator: dell Timebase:U-3000 Sequence:yl

Page 1-1  
2012-9-7 10:59

3319 lyI-II-125-2-asy-AD-1.0-85/15-230

Sample Name:	lyI-II-125-2-asy-AD-1.0-85/15-230	Injection Volume:	20.0
Vial Number:	998	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyI	Dilution Factor:	1.0000
Recording Time:	2012-8-7 10:19	Sample Weight:	1.0000
Run Time (min):	17.32	Sample Amount:	1.0000



default/integration

Chromleon (c) Dionex 1996-2006  
Version 6.80 SR8a Build 2643 (158225)

default/integration

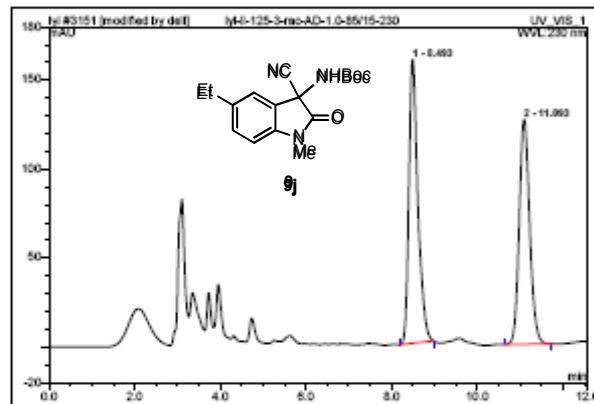
Chromleon (c) Dionex 1996-2006  
Version 6.80 SR8a Build 2643 (158225)

Operator:dell Timebase:U-3000 Sequence:yl

Page 1-1  
2012-8-11 3:47

3151 lyI-II-125-3-rac-AD-1.0-85/15-230

Sample Name:	lyI-II-125-3-rac-AD-1.0-85/15-230	Injection Volume:	20.0
Vial Number:	998	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyI	Dilution Factor:	1.0000
Recording Time:	2012-8-11 16:30	Sample Weight:	1.0000
Run Time (min):	12.67	Sample Amount:	1.0000

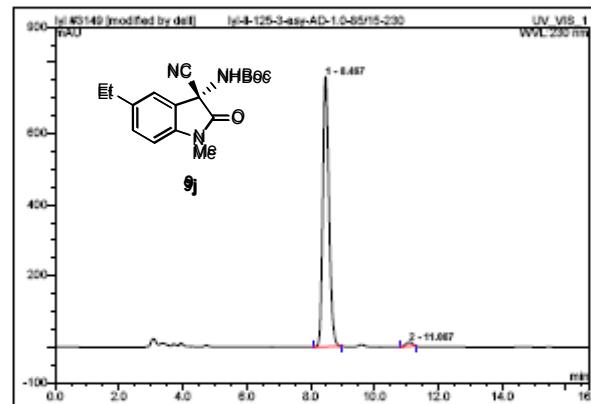


Operator:dell Timebase:U-3000 Sequence:yl

Page 1-1  
2012-8-11 3:47

3149 lyI-II-125-3-asy-AD-1.0-85/15-230

Sample Name:	lyI-II-125-3-asy-AD-1.0-85/15-230	Injection Volume:	20.0
Vial Number:	998	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyI	Dilution Factor:	1.0000
Recording Time:	2012-8-11 14:47	Sample Weight:	1.0000
Run Time (min):	18.73	Sample Amount:	1.0000



default/integration

Chromleon (c) Dionex 1996-2006  
Version 6.80 SR8a Build 2643 (158225)

default/integration

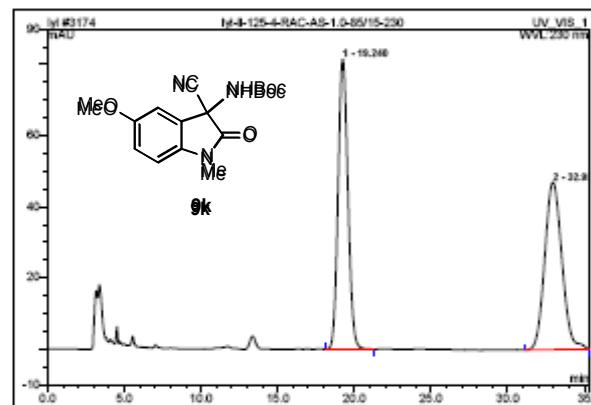
Chromleon (c) Dionex 1996-2006  
Version 6.80 SR8a Build 2643 (158225)

Operator:ell Timebase:U-3000 Sequence:yl

Page 1-1  
2012-8-12 1:03

3174 ly-II-125-4-RAC-AS-1.0-85/15-230

Sample Name:	ly-II-125-4-RAC-AS-1.0-85/15-230	Injection Volume:	20.0
Vial Number:	988	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyl	Dilution Factor:	1.0000
Recording Time:	2012-8-12 11:48	Sample Weight:	1.0000
Run Time (min):	36.33	Sample Amount:	1.0000



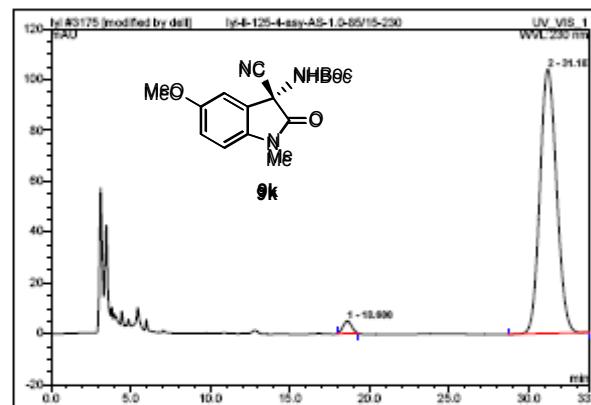
No.	Ret.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	19.24	n.a.	81.495	60.590	49.86	n.a.	BMB
2	32.95	n.a.	47.070	60.935	50.14	n.a.	BMB
Total:			128.565	121.525	100.00	0.000	

Operator:ell Timebase:U-3000 Sequence:yl

Page 1-1  
2012-8-12 1:02

3175 ly-II-125-4-asy-AS-1.0-85/15-230

Sample Name:	ly-II-125-4-asy-AS-1.0-85/15-230	Injection Volume:	20.0
Vial Number:	988	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyl	Dilution Factor:	1.0000
Recording Time:	2012-8-12 12:22	Sample Weight:	1.0000
Run Time (min):	33.80	Sample Amount:	1.0000



No.	Ret.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	18.60	n.a.	4.886	3.074	2.38	n.a.	BMB*
2	31.19	n.a.	103.883	125.849	97.62	n.a.	BMB*
Total:			108.868	128.923	100.00	0.000	

default/integration

Chromleon (c) Dionex 1996-2006  
Version 6.80 SR8a Build 2643 (158225)

default/integration

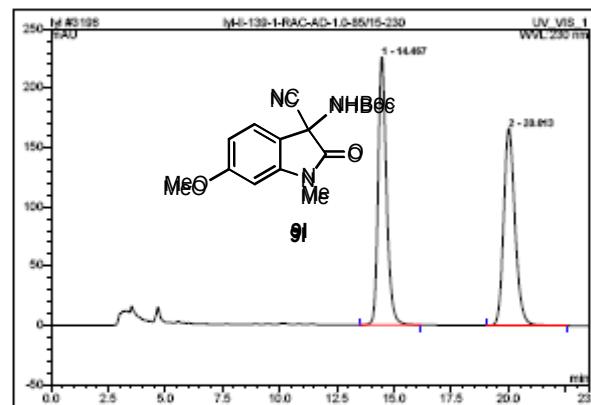
Chromleon (c) Dionex 1996-2006  
Version 6.80 SR8a Build 2643 (158225)

Operator: dell Timebase:U-3000 Sequence:yl

Page 1-1  
2012-9-6 6:25

3196 lyI-II-139-1-RAC-AD-1.0-85/15-230

Sample Name:	lyI-II-139-1-RAC-AD-1.0-85/15-230	Injection Volume:	20.0
Vial Number:	988	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyI	Dilution Factor:	1.0000
Recording Time:	2012-8-16 16:38	Sample Weight:	1.0000
Run Time (min):	23.54	Sample Amount:	1.0000



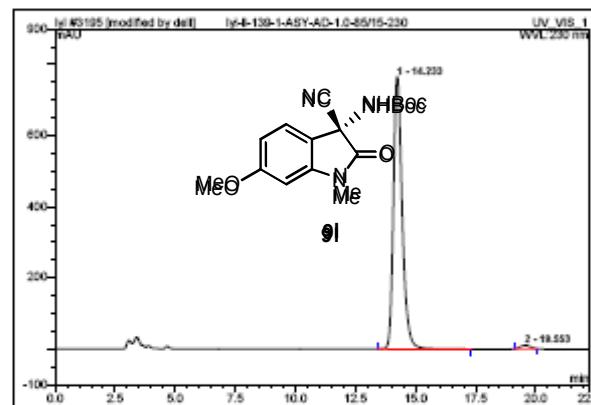
No.	Ret.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	14.47	n.a.	225.793	95.420	50.20	n.a.	BMB
2	20.01	n.a.	166.359	95.658	49.80	n.a.	BMB
Total:			392.152	190.078	100.00	0.000	

Operator: dell Timebase:U-3000 Sequence:yl

Page 1-1  
2012-9-6 6:25

3195 lyI-II-139-1-ASY-AD-1.0-85/15-230

Sample Name:	lyI-II-139-1-ASY-AD-1.0-85/15-230	Injection Volume:	20.0
Vial Number:	988	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyI	Dilution Factor:	1.0000
Recording Time:	2012-8-16 16:16	Sample Weight:	1.0000
Run Time (min):	22.23	Sample Amount:	1.0000



No.	Ret.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	14.23	n.a.	756.297	325.566	58.68	n.a.	BMB
2	19.55	n.a.	8.513	4.338	1.32	n.a.	BMB
Total:			775.810	329.904	100.00	0.000	

default/integration

Chromleon (c) Dionex 1996-2006  
Version 6.80 SRBa Build 2643 (158225)

default/integration

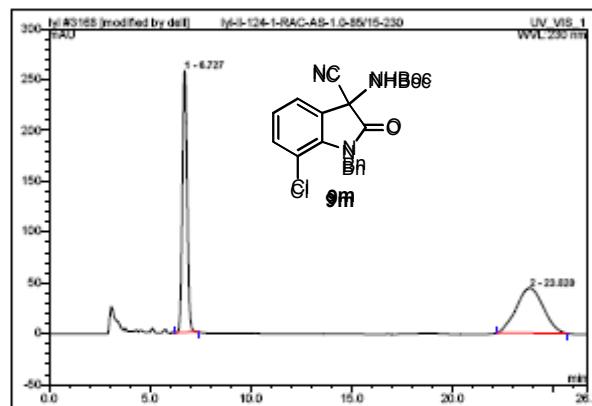
Chromleon (c) Dionex 1996-2006  
Version 6.80 SRBa Build 2643 (158225)

Operator: dell Timebase:U-3000 Sequence:yl

Page 1-1  
2012-8-11 9:23

3168 lyI-II-124-1-RAC-AS-1.0-85/15-230

Sample Name:	lyI-II-124-1-RAC-AS-1.0-85/15-230	Injection Volume:	20.0
Vial Number:	988	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyI	Dilution Factor:	1.0000
Recording Time:	2012-8-11 20:24	Sample Weight:	1.0000
Run Time (min):	28.88	Sample Amount:	1.0000



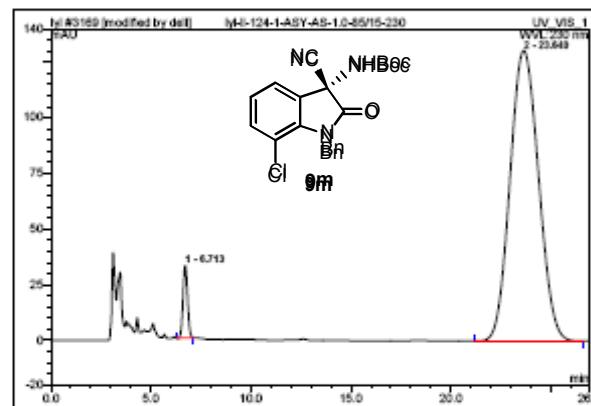
No.	Rel.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	6.73	n.a.	257.404	69.725	50.27	n.a.	BMB*
2	23.82	n.a.	44.178	68.930	49.73	n.a.	BMB*
Total:			301.582	138.715	100.00	0.000	

Operator: dell Timebase:U-3000 Sequence:yl

Page 1-1  
2012-8-11 9:23

3169 lyI-II-124-1-ASY-AS-1.0-85/15-230

Sample Name:	lyI-II-124-1-ASY-AS-1.0-85/15-230	Injection Volume:	20.0
Vial Number:	988	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyI	Dilution Factor:	1.0000
Recording Time:	2012-8-11 20:63	Sample Weight:	1.0000
Run Time (min):	28.98	Sample Amount:	1.0000



No.	Rel.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	6.71	n.a.	32.541	8.587	3.83	n.a.	BMB*
2	23.64	n.a.	130.700	215.588	95.17	n.a.	BMB
Total:			163.241	224.175	100.00	0.000	

default/integration

Chromleon (c) Dionex 1996-2006  
Version 6.80 SR8a Build 2643 (158225)

default/integration

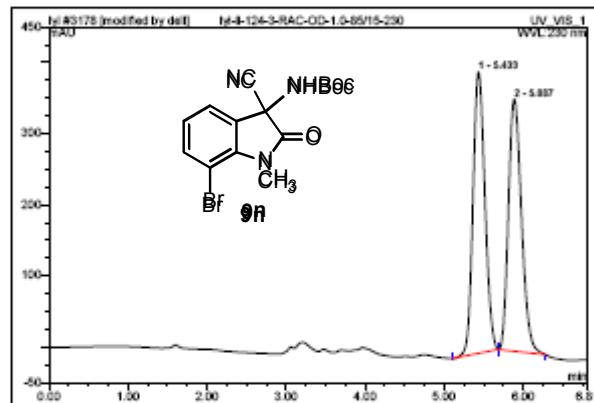
Chromleon (c) Dionex 1996-2006  
Version 6.80 SR8a Build 2643 (158225)

Operator:dell Timebase:U-3000 Sequence:yl

Page 1-1  
2012-8-12 2:00

3178 lyI-II-124-3-RAC-OD-1.0-85/15-230

Sample Name:	lyI-II-124-3-RAC-OD-1.0-85/15-230	Injection Volume:	20.0
Vial Number:	998	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyI	Dilution Factor:	1.0000
Recording Time:	2012-8-12 13:50	Sample Weight:	1.0000
Run Time (min):	6.81	Sample Amount:	1.0000



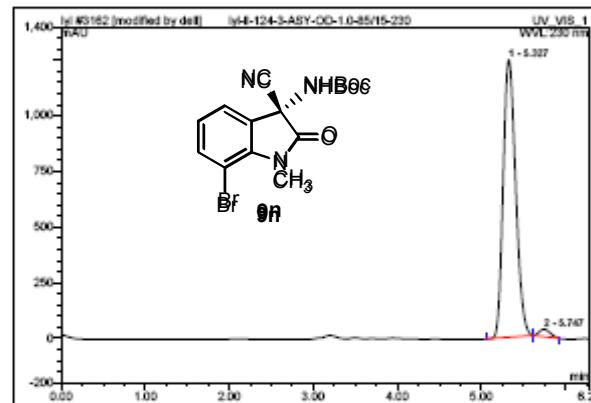
No.	Ret.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	5.43	n.a.	395.452	68.883	50.42	n.a.	BMb*
2	5.89	n.a.	354.285	67.736	49.58	n.a.	bMB*
Total:			749.737	136.619	100.00	0.000	

Operator:dell Timebase:U-3000 Sequence:yl

Page 1-1  
2012-8-12 2:01

3162 lyI-II-124-3-ASY-OD-1.0-85/15-230

Sample Name:	lyI-II-124-3-ASY-OD-1.0-85/15-230	Injection Volume:	20.0
Vial Number:	998	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyI	Dilution Factor:	1.0000
Recording Time:	2012-8-11 18:44	Sample Weight:	1.0000
Run Time (min):	6.29	Sample Amount:	1.0000



No.	Ret.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	5.33	n.a.	1247.536	214.315	57.75	n.a.	BMb*
2	5.75	n.a.	33.178	4.939	2.25	n.a.	bMB*
Total:			1280.714	219.254	100.00	0.000	

default/integration

Chromleon (c) Dionex 1996-2006  
Version 6.80 SR8a Build 2643 (158225)

default/integration

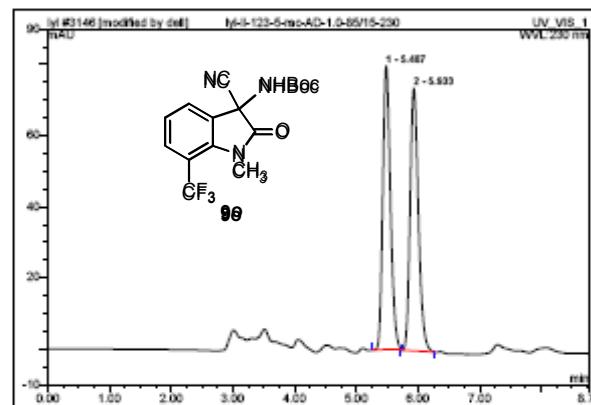
Chromleon (c) Dionex 1996-2006  
Version 6.80 SR8a Build 2643 (158225)

Operator:ell Timebase:U-3000 Sequence:yl

Page 1-1  
2012-8-11 2:31

3146 ly-II-123-5-rac-AD-1.0-85/15-230

Sample Name:	ly-II-123-5-rac-AD-1.0-85/15-230	Injection Volume:	20.0
Vial Number:	988	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyl	Dilution Factor:	1.0000
Recording Time:	2012-8-11 14:11	Sample Weight:	1.0000
Run Time (min):	8.78	Sample Amount:	1.0000



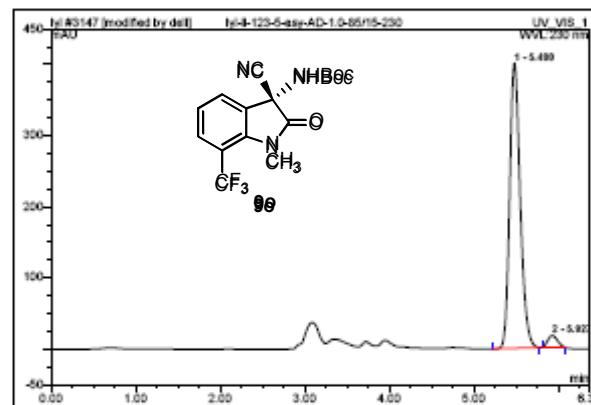
No.	Ret.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	5.48	n.a.	79.746	11.431	48.90	n.a.	BMB*
2	5.93	n.a.	73.795	11.478	50.10	n.a.	BMB*
Total:			153.542	22.909	100.00	0.000	

Operator:ell Timebase:U-3000 Sequence:yl

Page 1-1  
2012-8-11 2:32

3147 ly-II-123-5-asy-AD-1.0-85/15-230

Sample Name:	ly-II-123-5-asy-AD-1.0-85/15-230	Injection Volume:	20.0
Vial Number:	988	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyl	Dilution Factor:	1.0000
Recording Time:	2012-8-11 14:21	Sample Weight:	1.0000
Run Time (min):	8.37	Sample Amount:	1.0000



No.	Ret.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	5.48	n.a.	400.943	57.795	55.31	n.a.	BMB*
2	5.93	n.a.	16.563	2.217	3.69	n.a.	BMB*
Total:			417.507	60.011	100.00	0.000	

default/integration

Chromleon (c) Dionex 1996-2006  
Version 6.80 SR8a Build 2643 (158225)

default/integration

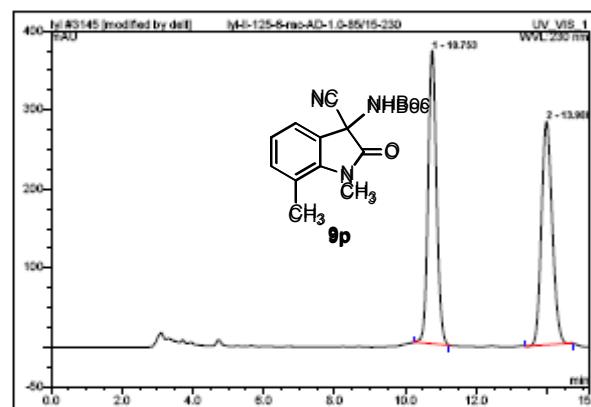
Chromleon (c) Dionex 1996-2006  
Version 6.80 SR8a Build 2643 (158225)

Operator:dell Timebase:U-3000 Sequence:yl

Page 1-1  
2012-9-6 6:24

3145 ly-II-125-6-rac-AD-1.0-85/15-230

Sample Name:	ly-II-125-6-rac-AD-1.0-85/15-230	Injection Volume:	20.0
Vial Number:	988	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyl	Dilution Factor:	1.0000
Recording Time:	2012-8-11 12:00	Sample Weight:	1.0000
Run Time (min):	16.18	Sample Amount:	1.0000



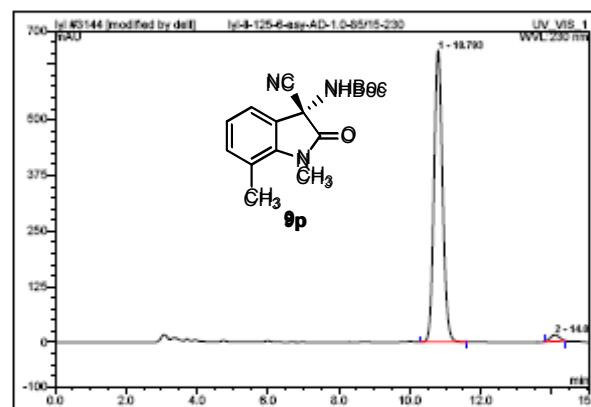
No.	Ret.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	10.75	n.a.	370.980	102.222	50.62	n.a.	BMB*
2	13.98	n.a.	282.103	99.719	49.38	n.a.	BMB*
Total:			653.082	201.942	100.00	0.000	

Operator:dell Timebase:U-3000 Sequence:yl

Page 1-1  
2012-9-6 6:24

3144 ly-II-125-6-asy-AD-1.0-85/15-230

Sample Name:	ly-II-125-6-asy-AD-1.0-85/15-230	Injection Volume:	20.0
Vial Number:	988	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyl	Dilution Factor:	1.0000
Recording Time:	2012-8-11 11:43	Sample Weight:	1.0000
Run Time (min):	16.08	Sample Amount:	1.0000



No.	Ret.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	10.79	n.a.	656.049	184.059	57.72	n.a.	BMB*
2	14.09	n.a.	14.186	4.291	2.28	n.a.	BMB*
Total:			670.234	188.350	100.00	0.000	

default/integration

Chromleon (c) Dionex 1996-2006  
Version 6.80 SRBa Build 2643 (158225)

default/integration

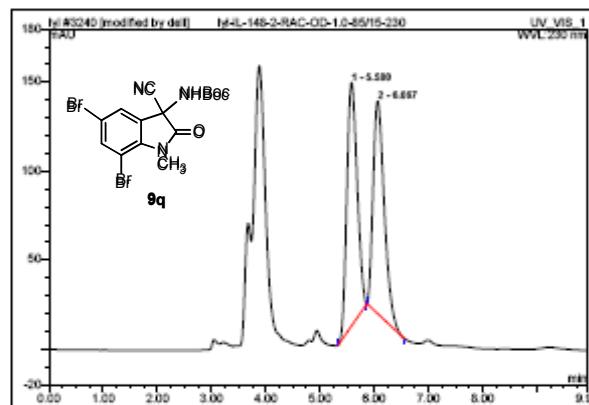
Chromleon (c) Dionex 1996-2006  
Version 6.80 SRBa Build 2643 (158225)

Operator: dell Timebase:U-3000 Sequence:yl

Page 1-1  
2012-9-4 9:54

3240 lyIL-148-2-RAC-OD-1.0-85/15-230

Sample Name:	lyIL-148-2-RAC-OD-1.0-85/15-230	Injection Volume:	20.0
Vial Number:	988	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyl	Dilution Factor:	1.0000
Recording Time:	2012-8-22 18:48	Sample Weight:	1.0000
Run Time (min):	8.88	Sample Amount:	1.0000



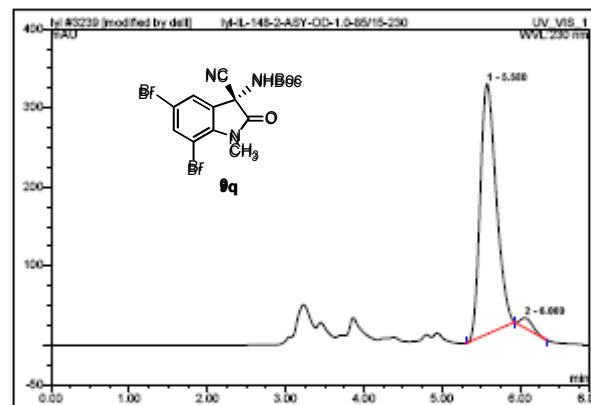
No.	Ret.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	5.58	n.a.	135.787	30.041	51.31	n.a.	BMB*
2	6.07	n.a.	119.467	28.504	48.68	n.a.	BMB*
Total:			256.254	58.544	100.00	0.000	

Operator: dell Timebase:U-3000 Sequence:yl

Page 1-1  
2012-9-4 9:52

3239 lyIL-148-2-ASY-OD-1.0-85/15-230

Sample Name:	lyIL-148-2-ASY-OD-1.0-85/15-230	Injection Volume:	20.0
Vial Number:	988	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyl	Dilution Factor:	1.0000
Recording Time:	2012-8-22 18:48	Sample Weight:	1.0000
Run Time (min):	8.88	Sample Amount:	1.0000



No.	Ret.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	5.58	n.a.	315.408	74.855	95.95	n.a.	BMB*
2	6.06	n.a.	12.686	2.346	3.04	n.a.	bMB*
Total:			329.094	77.200	100.00	0.000	

default/integration

Chromleon (c) Dionex 1996-2006  
Version 6.80 SR8a Build 2643 (158225)

default/integration

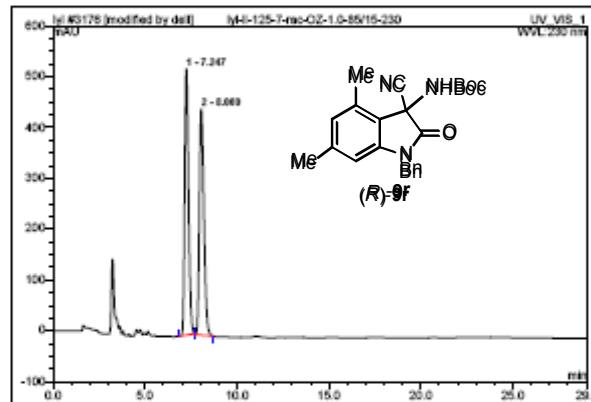
Chromleon (c) Dionex 1996-2006  
Version 6.80 SR8a Build 2643 (158225)

Operator:dell Timebase:U-3000 Sequence:vyl

Page 1-1  
 2012-8-12 1:52

3176 lyI-II-125-7-rac-OZ-1.0-85/15-230

Sample Name:	lyI-II-125-7-rac-OZ-1.0-85/15-230	Injection Volume:	20.0
Vial Number:	988	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyI	Dilution Factor:	1.0000
Recording Time:	2012-8-12 13:01	Sample Weight:	1.0000
Run Time (min):	28.08	Sample Amount:	1.0000

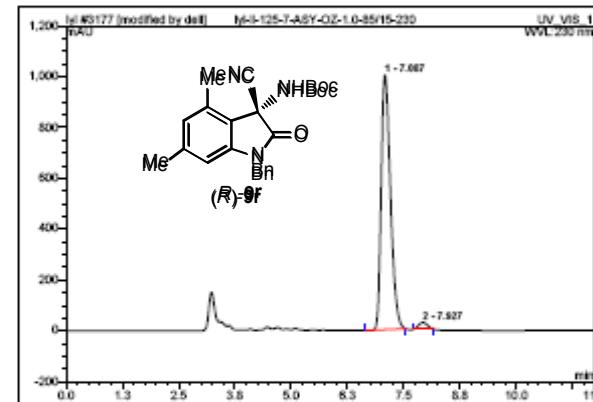


Operator:dell Timebase:U-3000 Sequence:vyl

Page 1-1  
 2012-8-12 1:52

3177 lyI-II-125-7-ASY-OZ-1.0-85/15-230

Sample Name:	lyI-II-125-7-ASY-OZ-1.0-85/15-230	Injection Volume:	20.0
Vial Number:	988	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyI	Dilution Factor:	1.0000
Recording Time:	2012-8-12 13:31	Sample Weight:	1.0000
Run Time (min):	11.74	Sample Amount:	1.0000



default/integration

Chromelion (c) Dionex 1996-2006  
 Version 6.80 SRBa Build 2643 (158225)

default/integration

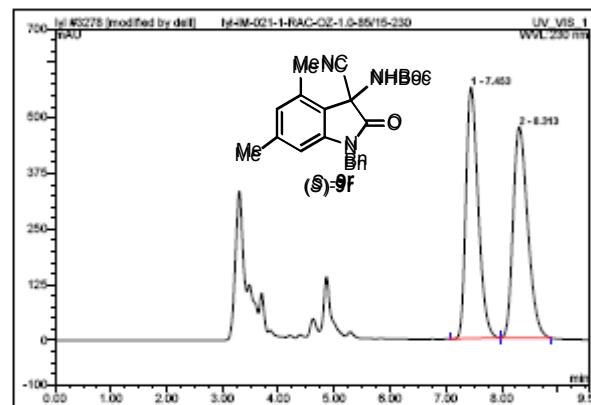
Chromelion (c) Dionex 1996-2006  
 Version 6.80 SRBa Build 2643 (158225)

Operator:dell Timebase:U-3000 Sequence:yl

Page 1-1  
2012-9-4 10:13

3278 lyI-IM-021-1-RAC-OZ-1.0-85/15-230

Sample Name:	lyI-IM-021-1-RAC-OZ-1.0-85/15-230	Injection Volume:	20.0
Vial Number:	988	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyI	Dilution Factor:	1.0000
Recording Time:	2012-8-27 21:01	Sample Weight:	1.0000
Run Time (min):	9.67	Sample Amount:	1.0000



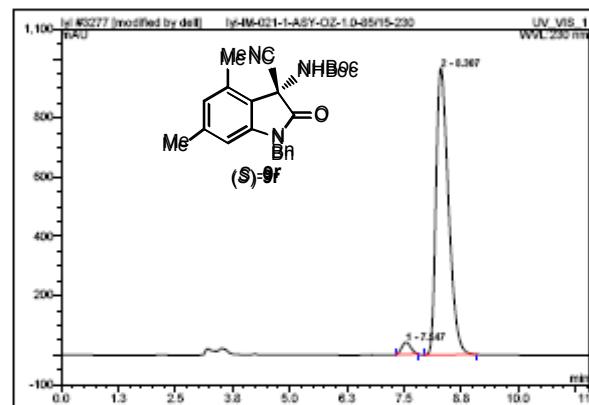
No.	Ret.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	7.45	n.a.	565.102	143.671	49.98	n.a.	BMB <sup>*</sup>
2	8.31	n.a.	473.393	143.814	50.02	n.a.	BMB <sup>*</sup>
Total:			1038.494	287.486	100.00	0.000	

Operator:dell Timebase:U-3000 Sequence:yl

Page 1-1  
2012-9-4 10:12

3277 lyI-IM-021-1-ASY-OZ-1.0-85/15-230

Sample Name:	lyI-IM-021-1-ASY-OZ-1.0-85/15-230	Injection Volume:	20.0
Vial Number:	988	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyI	Dilution Factor:	1.0000
Recording Time:	2012-8-27 20:47	Sample Weight:	1.0000
Run Time (min):	11.58	Sample Amount:	1.0000



No.	Ret.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	7.65	n.a.	40.576	9.320	2.95	n.a.	BMB <sup>*</sup>
2	8.31	n.a.	966.426	305.643	97.04	n.a.	BMB <sup>*</sup>
Total:			1007.001	314.962	100.00	0.000	

default/integration

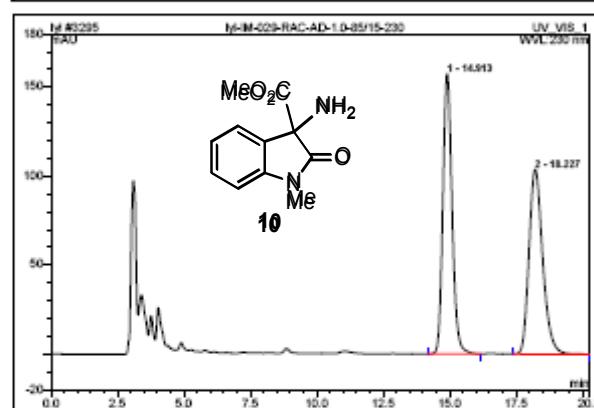
Chromleon (c) Dionex 1996-2006  
Version 6.80 SRBa Build 2643 (158225)

default/integration

Chromleon (c) Dionex 1996-2006  
Version 6.80 SRBa Build 2643 (158225)

Operator: lyl Timebase:U-3000 Sequence:yl  
Page 1-1  
2012-9-6 6:31

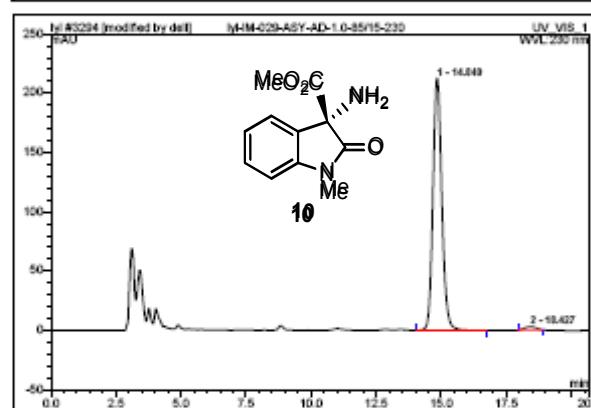
3295 lyl-IM-029-RAC-AD-1.0-85/15-230	
Sample Name:	lyl-IM-029-RAC-AD-1.0-85/15-230
Vial Number:	988
Sample Type:	standard
Control Program:	Liu Yunlin
Quantif. Method:	lyl
Recording Time:	2012-9-2 21:10
Run Time (min):	20.27
Injection Volume:	20.0
Channel:	UV_VIS_1
Wavelength:	230
Bandwidth:	n.a.
Dilution Factor:	1.0000
Sample Weight:	1.0000
Sample Amount:	1.0000



No.	Rel.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	14.91	n.a.	157.553	63.164	59.42	n.a.	BMB
2	18.23	n.a.	103.929	62.102	48.58	n.a.	BMB
Total:			261.482	125.266	100.00	0.000	

Operator: lyl Timebase:U-3000 Sequence:yl  
Page 1-1  
2012-9-6 6:30

3294 lyl-IM-029-ASY-AD-1.0-85/15-230	
Sample Name:	lyl-IM-029-ASY-AD-1.0-85/15-230
Vial Number:	988
Sample Type:	standard
Control Program:	Liu Yunlin
Quantif. Method:	lyl
Recording Time:	2012-9-2 20:47
Run Time (min):	20.88
Injection Volume:	20.0
Channel:	UV_VIS_1
Wavelength:	230
Bandwidth:	n.a.
Dilution Factor:	1.0000
Sample Weight:	1.0000
Sample Amount:	1.0000



No.	Rel.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	14.84	n.a.	212.788	84.264	98.41	n.a.	BMB
2	18.43	n.a.	2.695	1.352	1.59	n.a.	BMB'
Total:			215.483	85.626	100.00	0.000	

default/integration

Chromleon (c) Dlonex 1996-2005  
Version 6.80 SR8a Build 2643 (158225)

default/integration

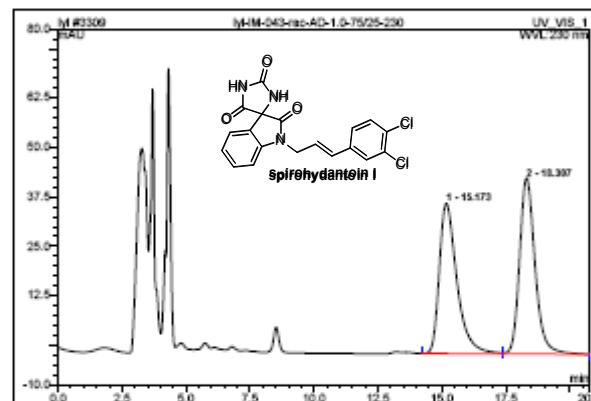
Chromleon (c) Dlonex 1996-2005  
Version 6.80 SR8a Build 2643 (158225)

Operator:li Timebase:U-3000 Sequence:lyl

Page 1-1  
 2012-9-4 10:29

3309 lyI-IM-043-rac-AD-1.0-75/25-230

Sample Name:	lyI-IM-043-rac-AD-1.0-75/25-230	Injection Volume:	20.0
Vial Number:	988	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyl	Dilution Factor:	1.0000
Recording Time:	2012-9-4 10:21	Sample Weight:	1.0000
Run Time (min):	20.77	Sample Amount:	1.0000



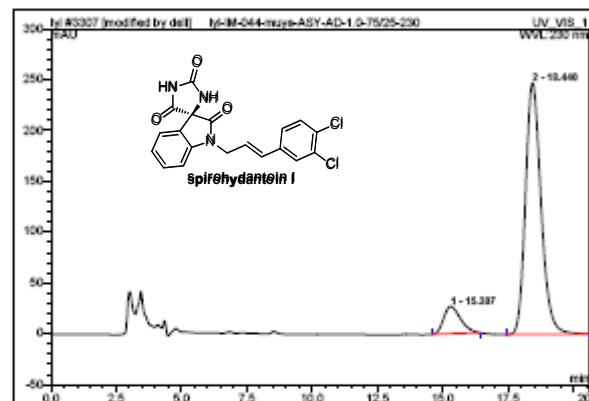
No.	Rel.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	15.17	n.a.	37.994	30.324	48.30	n.a.	BM
2	18.31	n.a.	44.499	31.188	50.70	n.a.	MB
Total:			82.492	61.512	100.00	0.000	

Operator:li Timebase:U-3000 Sequence:lyl

Page 1-1  
 2012-9-4 10:30

3307 lyI-IM-044-muye-ASY-AD-1.0-75/25-230

Sample Name:	lyI-IM-044-muye-ASY-AD-1.0-75/25-230	Injection Volume:	20.0
Vial Number:	988	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	230
Control Program:	Liu Yunlin	Bandwidth:	n.a.
Quantif. Method:	lyl	Dilution Factor:	1.0000
Recording Time:	2012-9-4 8:38	Sample Weight:	1.0000
Run Time (min):	20.82	Sample Amount:	1.0000



No.	Rel.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	15.31	n.a.	26.754	20.053	10.51	n.a.	BMB*
2	18.44	n.a.	247.358	170.758	89.49	n.a.	BMB
Total:			274.112	190.811	100.00	0.000	

default/integration

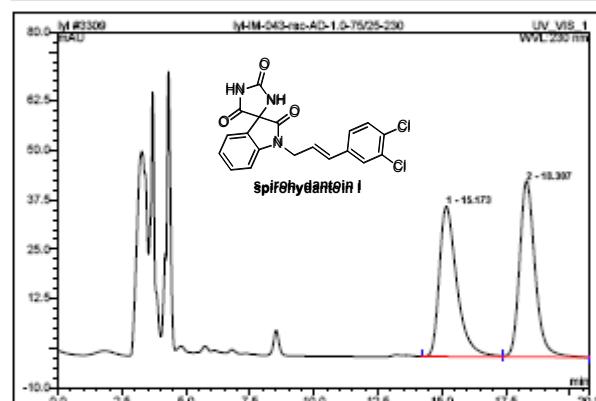
Chromleon (c) Dionex 1996-2006  
 Version 6.80 SR8a Build 2643 (158225)

default/integration

Chromleon (c) Dionex 1996-2006  
 Version 6.80 SR8a Build 2643 (158225)

Operator:ell Timebase:U-3000 Sequence:yl  
Page 1-1  
2012-9-4 10:29

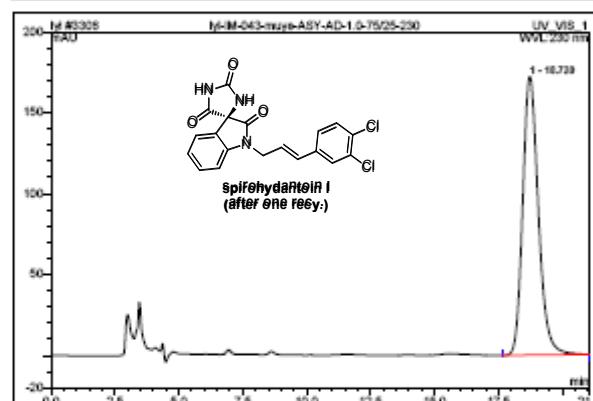
3309 lyI-IM-043-rac-AD-1.0-75/25-230	
Sample Name:	lyI-IM-043-rac-AD-1.0-75/25-230
Vial Number:	988
Sample Type:	standard
Control Program:	Liu Yunlin
Quantif. Method:	lyI
Recording Time:	2012-9-4 10:21
Run Time (min):	20.77
Injection Volume:	20.0
Channel:	UV_VIS_1
Wavelength:	230
Bandwidth:	n.a.
Dilution Factor:	1.0000
Sample Weight:	1.0000
Sample Amount:	1.0000



No.	Rel.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	15.17	n.a.	37.994	30.324	48.30	n.a.	EM
2	18.31	n.a.	44.499	31.188	50.70	n.a.	MB
Total:			82.492	61.512	100.00	0.000	

Operator:ell Timebase:U-3000 Sequence:yl  
Page 1-1  
2012-9-4 10:30

3306 lyI-IM-043-muye-ASY-AD-1.0-75/25-230	
Sample Name:	lyI-IM-043-muye-ASY-AD-1.0-75/25-230
Vial Number:	988
Sample Type:	standard
Control Program:	Liu Yunlin
Quantif. Method:	lyI
Recording Time:	2012-9-4 8:15
Run Time (min):	21.06
Injection Volume:	20.0
Channel:	UV_VIS_1
Wavelength:	230
Bandwidth:	n.a.
Dilution Factor:	1.0000
Sample Weight:	1.0000
Sample Amount:	1.0000



No.	Rel.Time min	Peak Name	Height mAU	Area mAU/min	Rel.Area %	Amount	Type
1	18.31	n.a.	172.294	121.980	100.00	n.a.	EM
Total:			172.294	121.980	100.00	0.000	

default/integration

Chameleon (c) Dionex 1996-2005  
Version 6.80 SR8a Build 2643 (158225)

default/integration

Chameleon (c) Dionex 1996-2005  
Version 6.80 SR8a Build 2643 (158225)