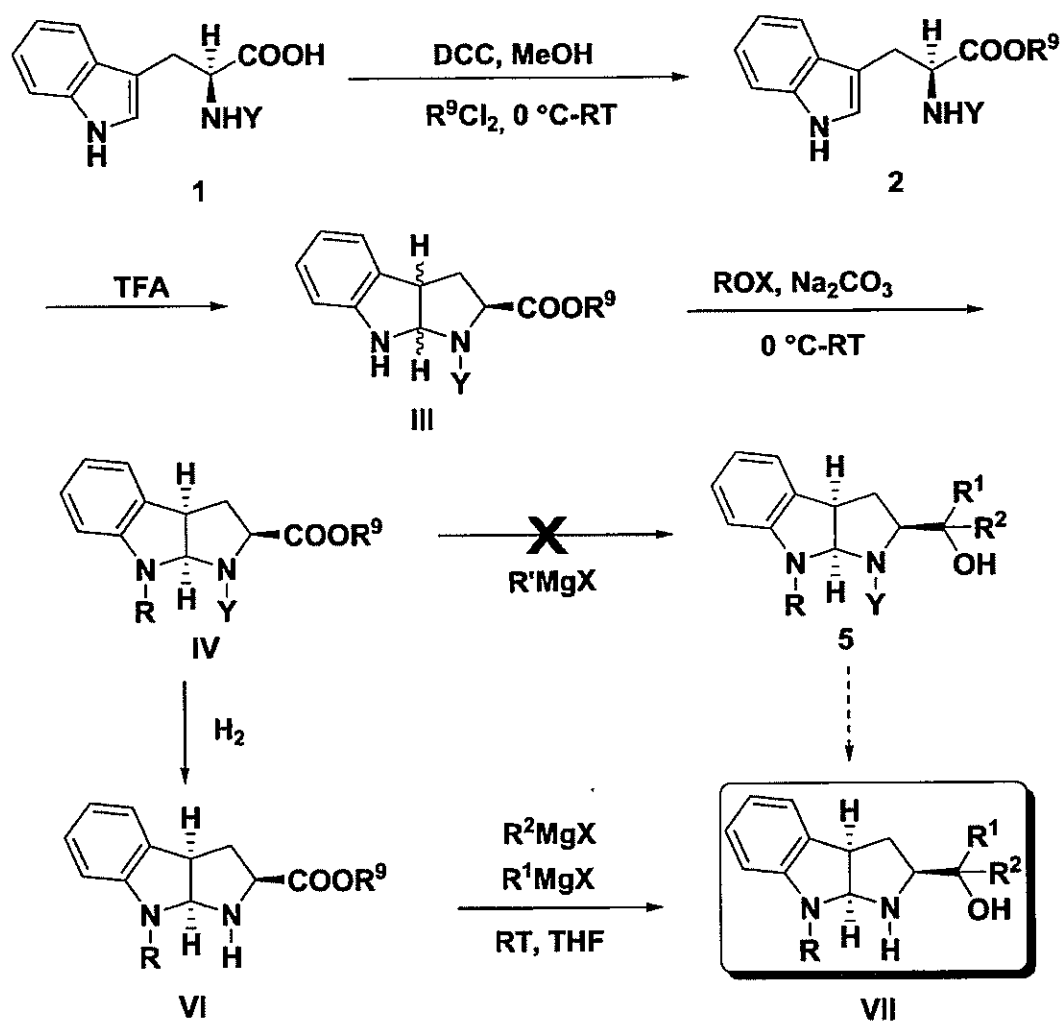




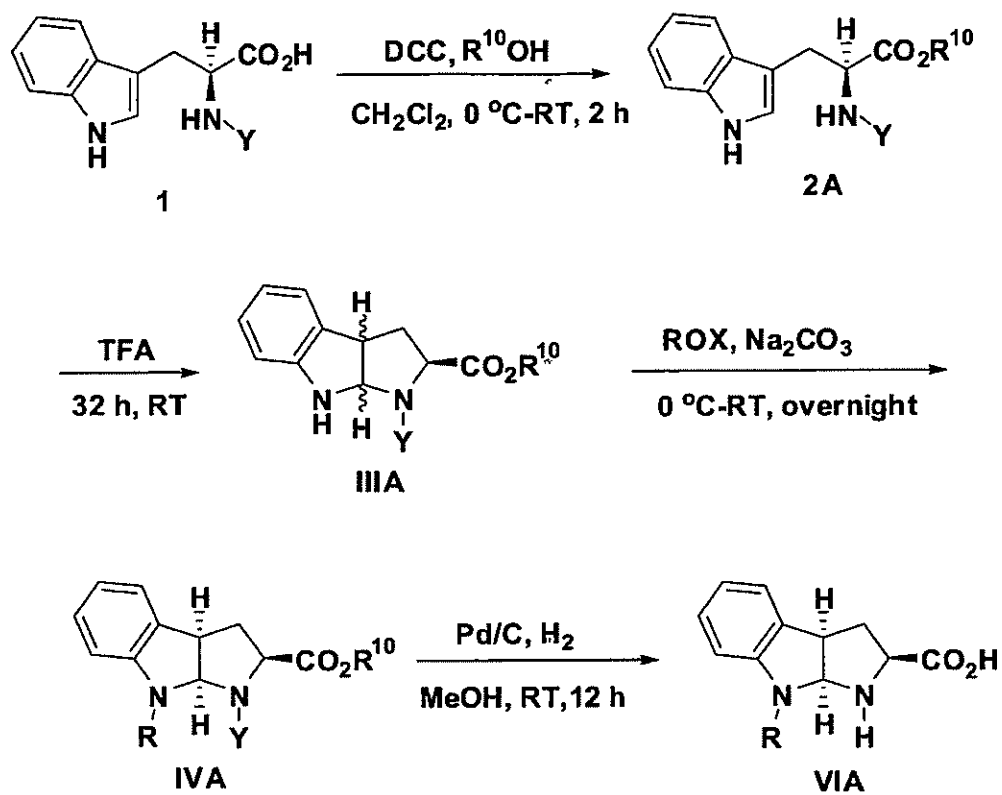
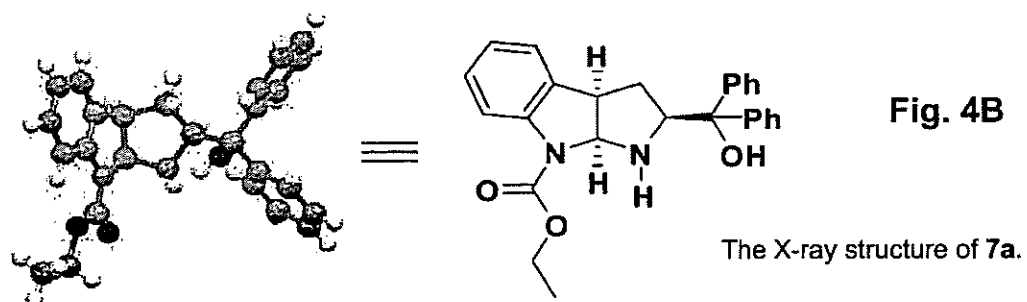
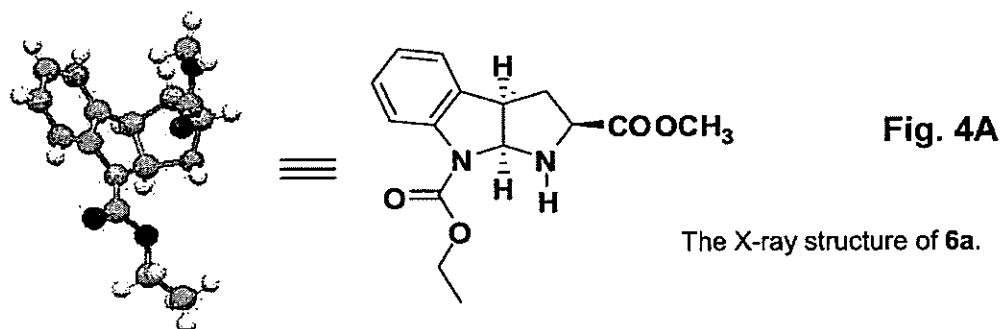


Fig. 3



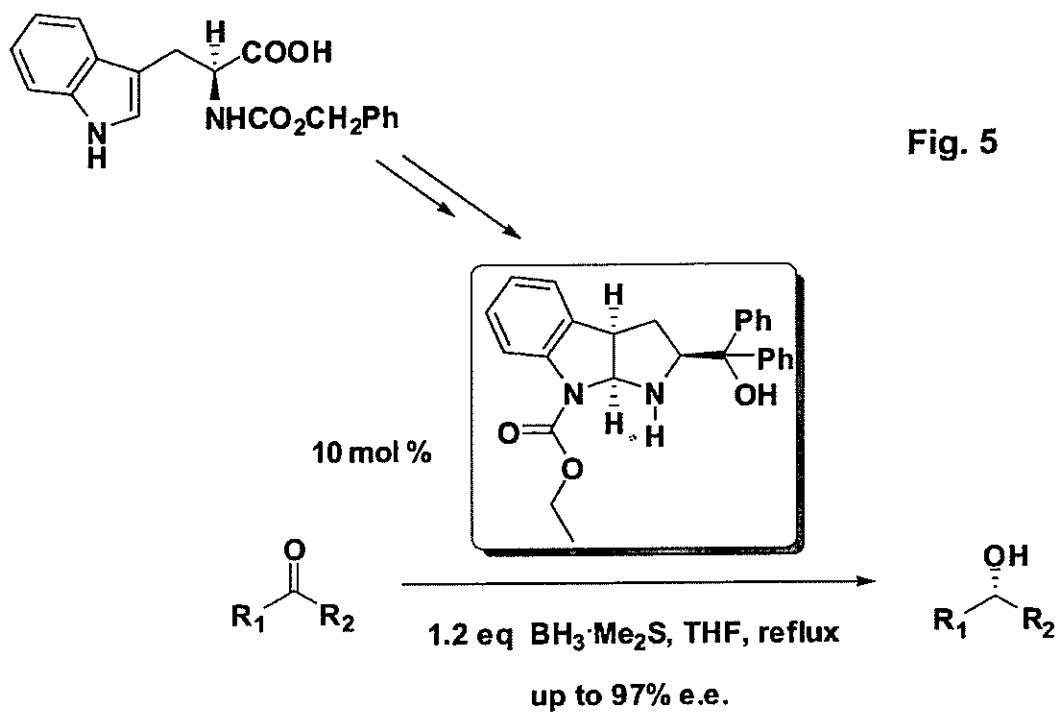


Fig. 6

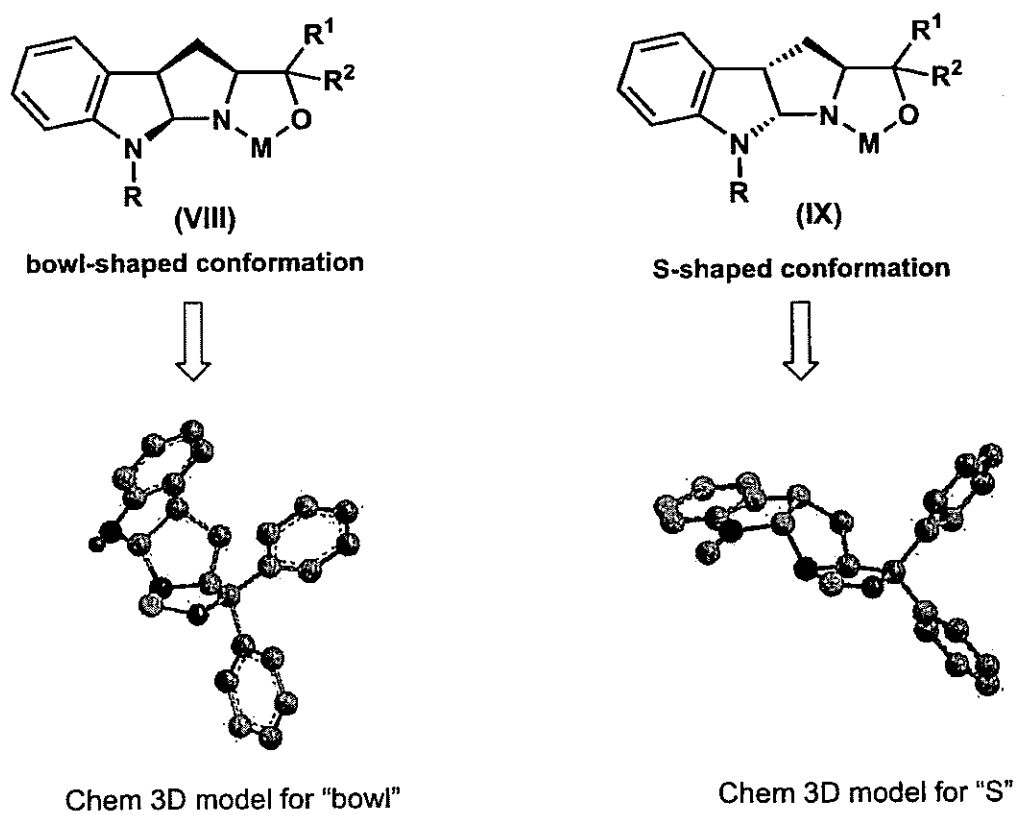


Fig. 7

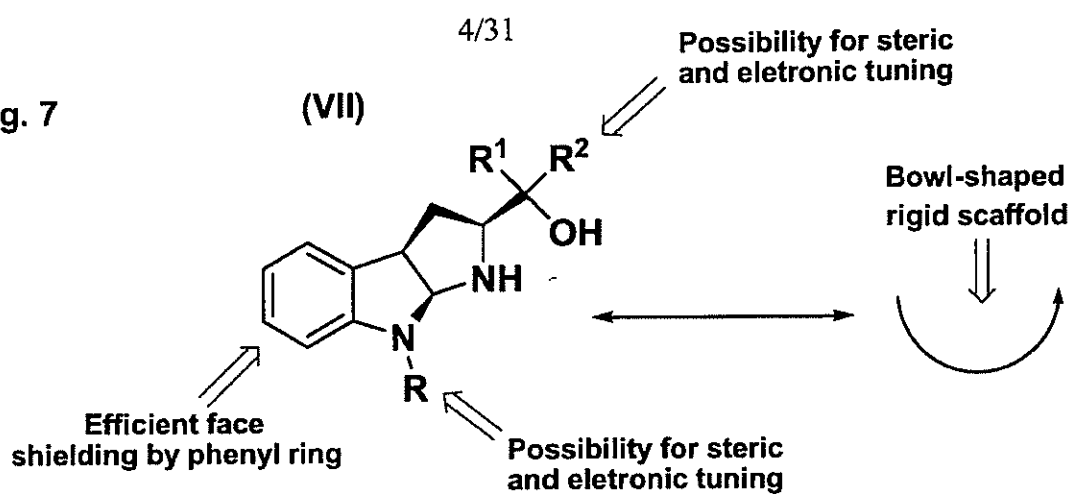


Fig. 8A

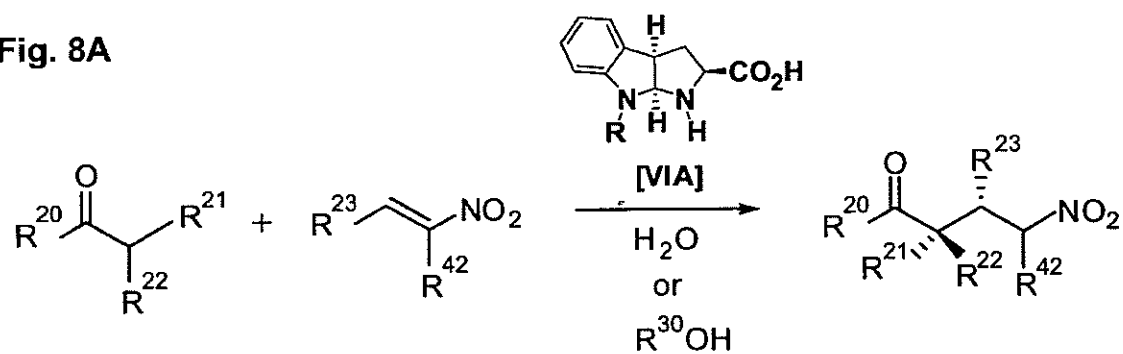


Fig. 8B

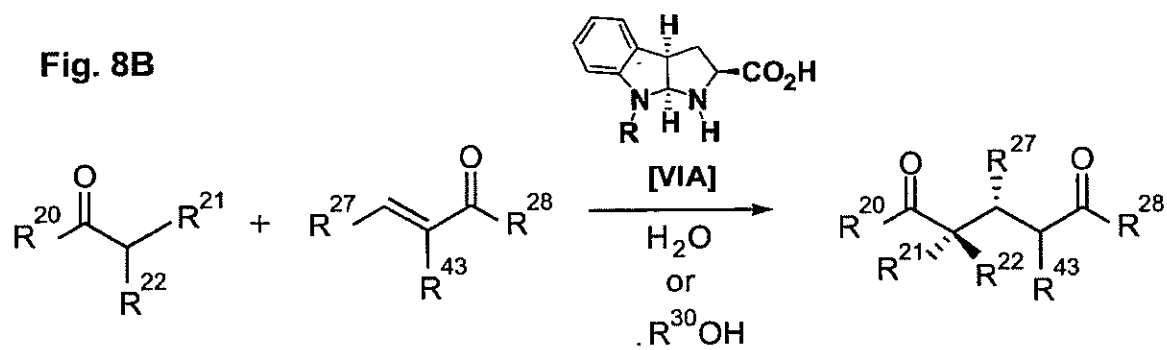


Fig. 8C

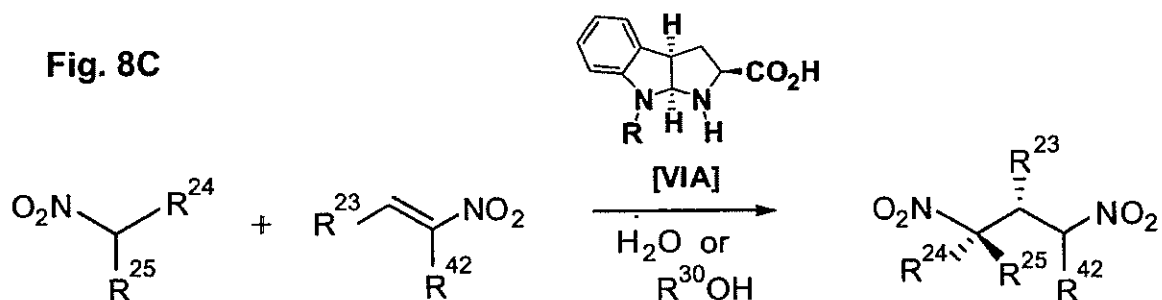


Fig. 8D

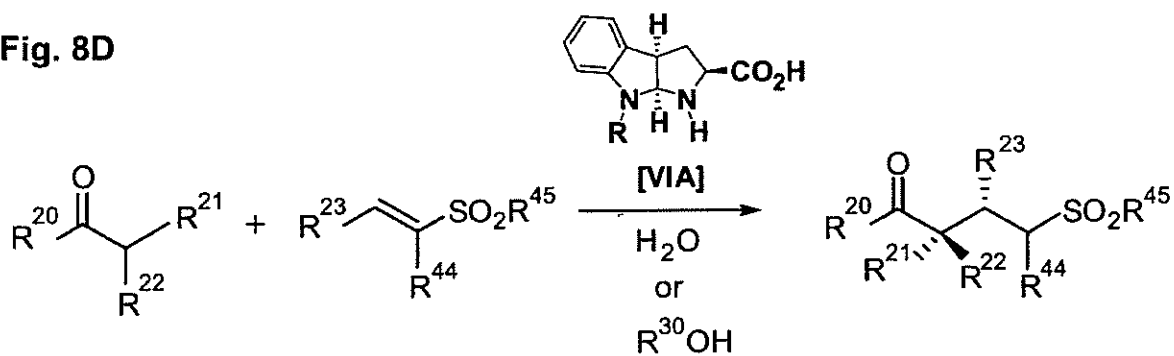
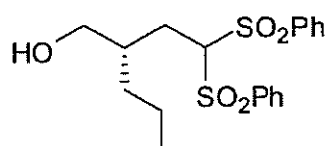
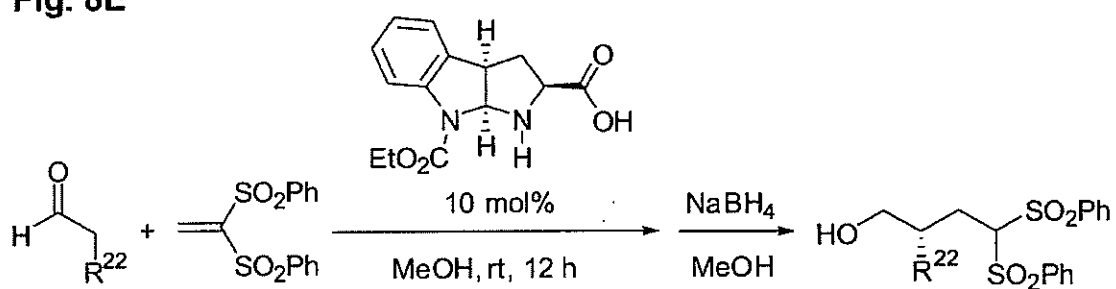
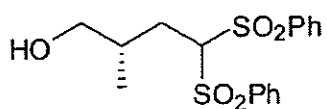


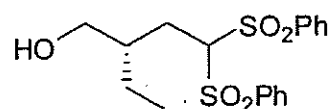
Fig. 8E



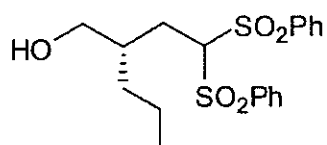
89%, 79% ee



23%, 63% ee



32%, 49% ee



40%, 57% ee

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Fig. 8F

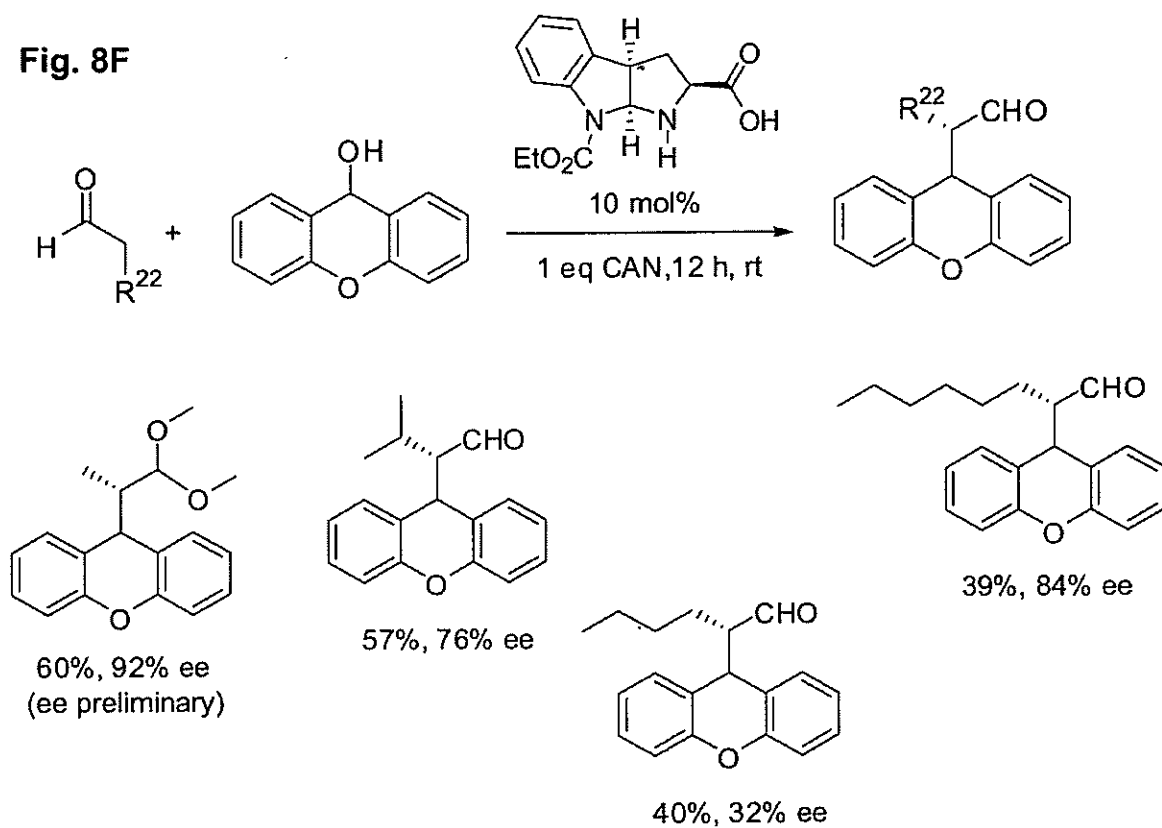


Fig. 8G

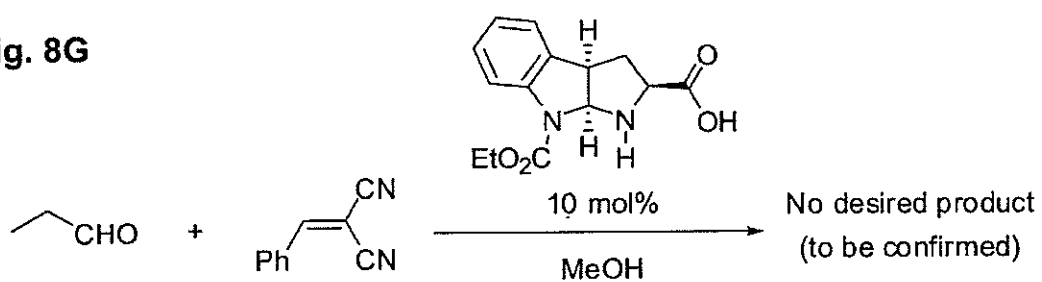
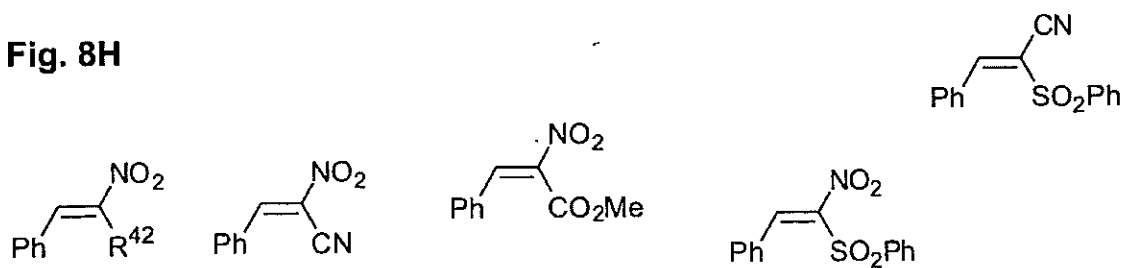
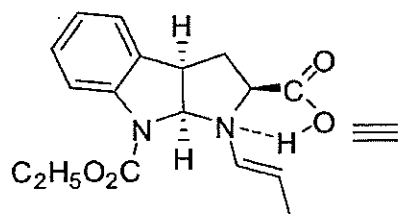


Fig. 8H



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Fig. 9A



(XXXA)

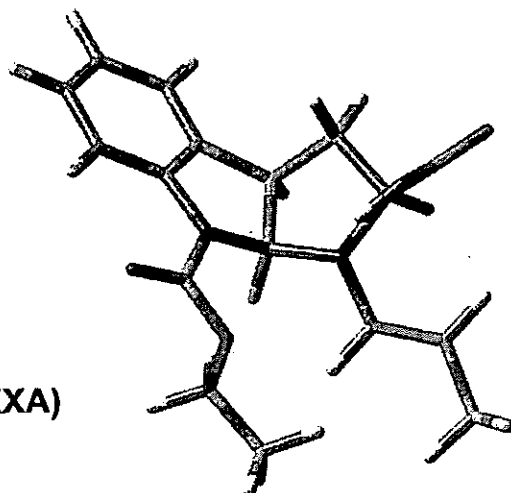
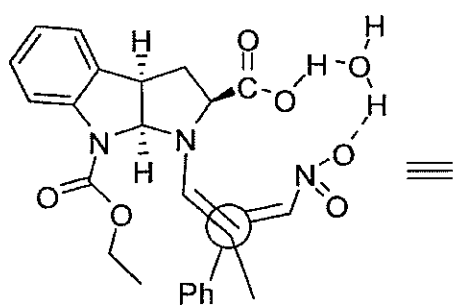


Fig. 9B



(XXXB)

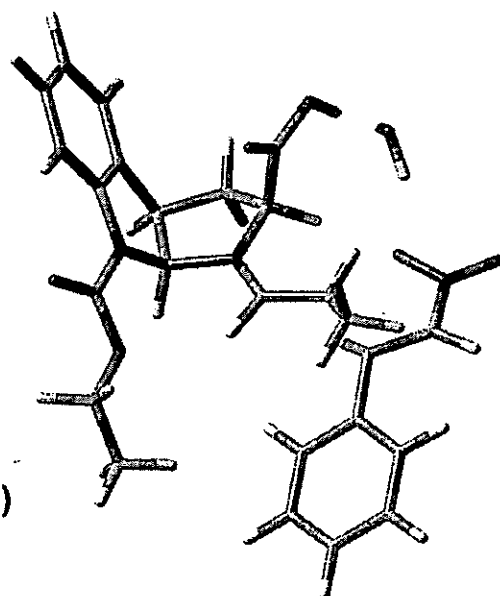
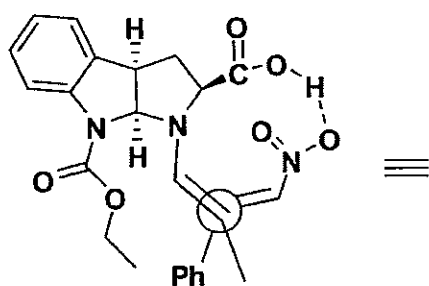


Fig. 9C



(XXXC)

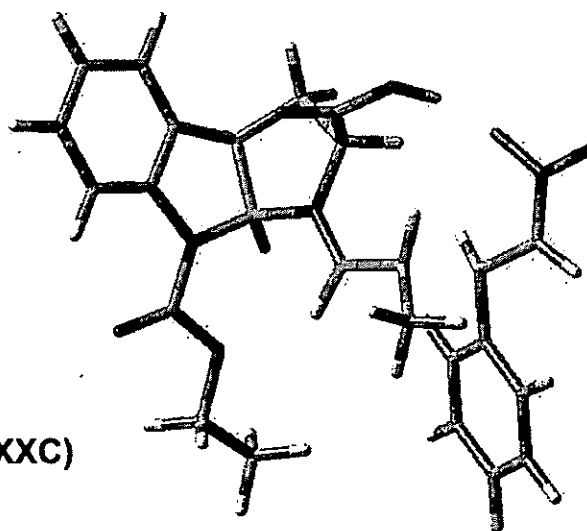


Fig. 10A

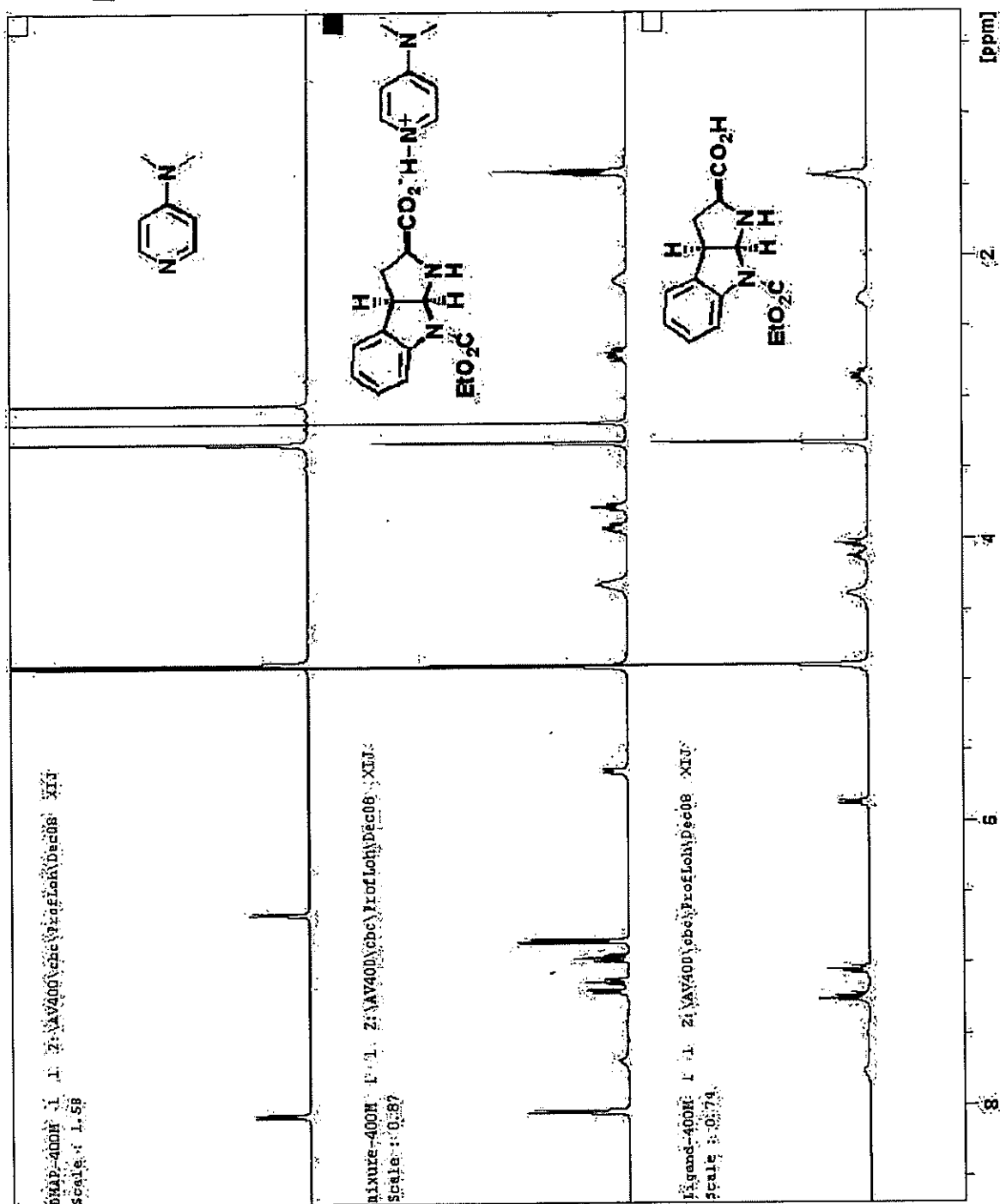


Fig. 10B

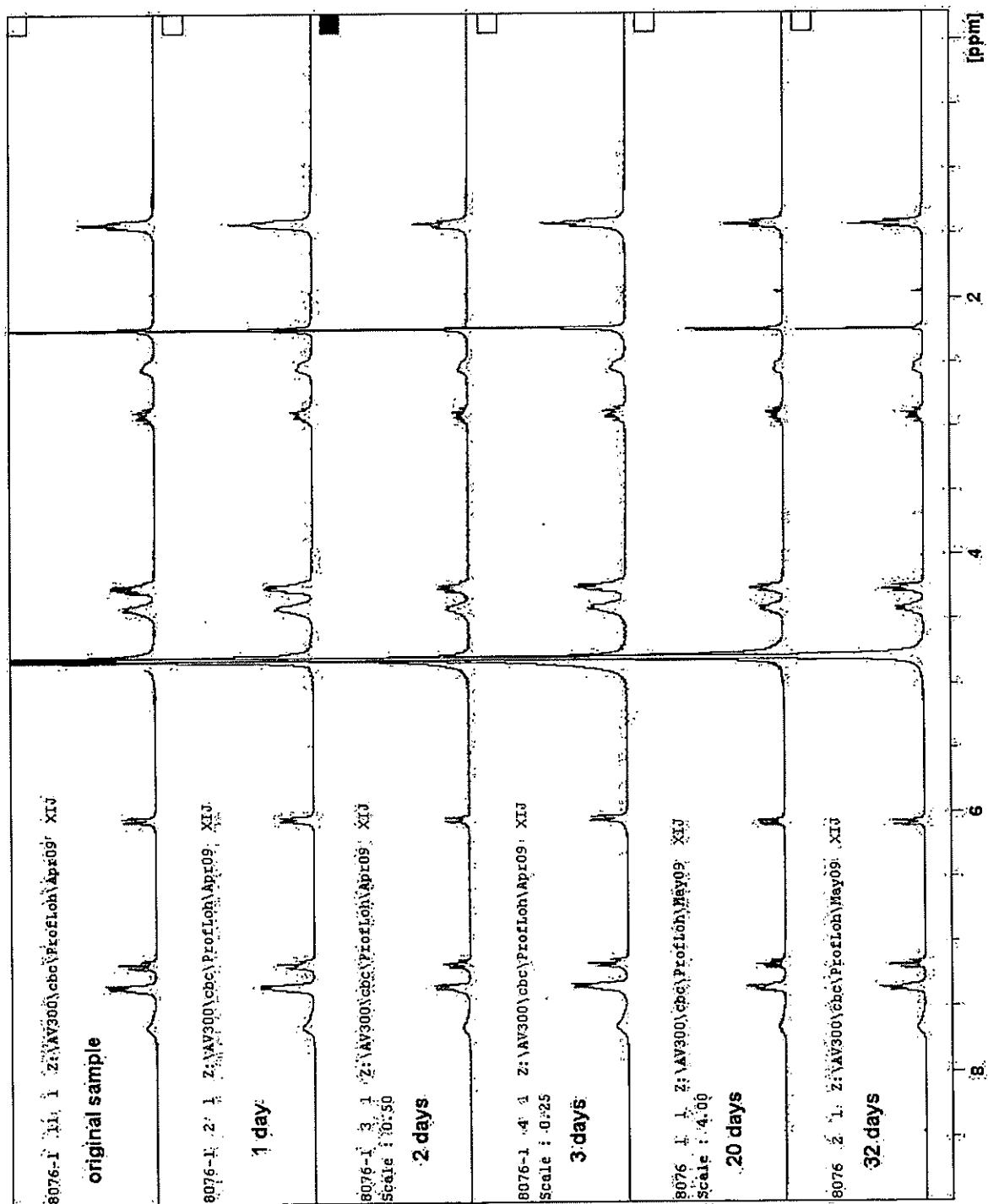
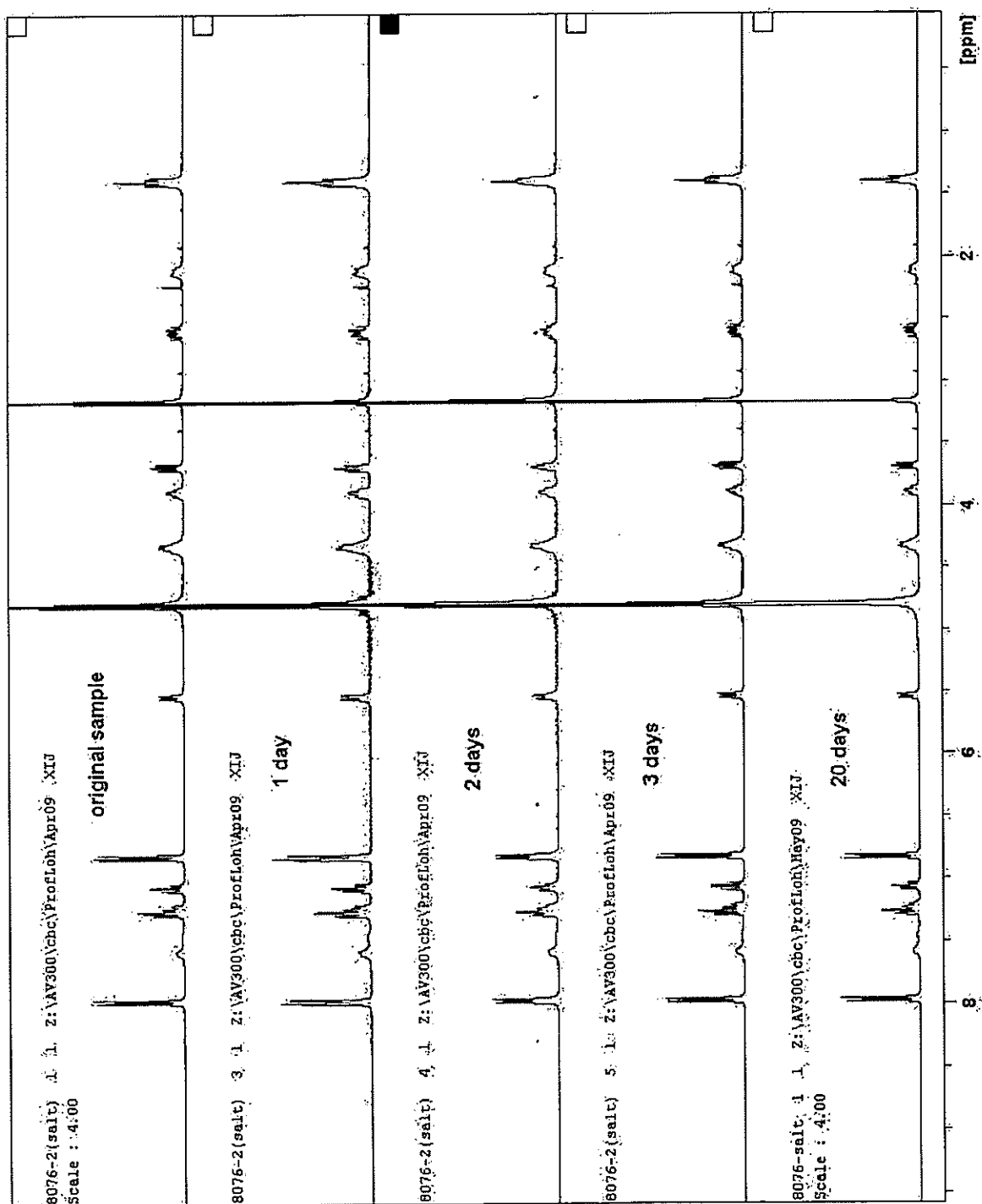
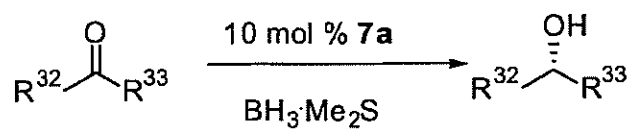


Fig. 10C





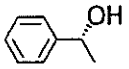
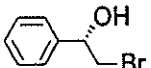
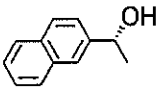
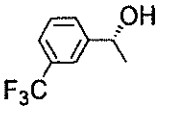
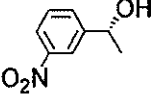
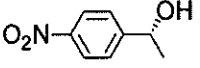
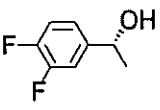
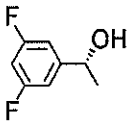
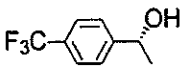
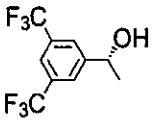
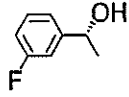
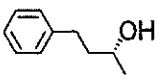
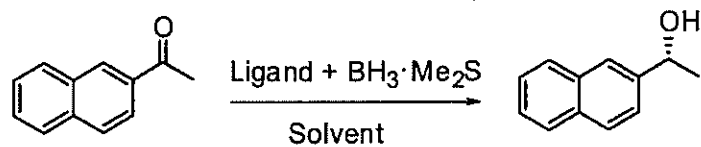
Entry	Product	Yield (%) ^a	e. e. ^b
1		98	81
2		98	92
3		99	89
4		98	86
5		98	92
6		96	92
7		99	97
8		99	93
9		99	97
10		99	93
11		99	90
12		99	50

Fig. 11

Fig. 12A



Entry	ligand	Solvent	Yield (%) ^a	e.e.(%) ^b
1 ^c	7a	THF	96	37
2 ^d	7a	THF	99	85
3	7a	THF	99	89
4	7b	THF	96	85
5	7c	THF	96	40
6	7d	THF	98	85
7	7e	THF	97	81
8	7f	THF	96	60
9	7g	THF	96	72
10	7h	THF	96	75
11	7a	Dioxane	95	36
12	7a	CH ₂ Cl ₂	92	59
13	7a^e	THF	98	89
14	7a^f	THF	98	89
15	7a^g	THF	98	86

Fig. 12B

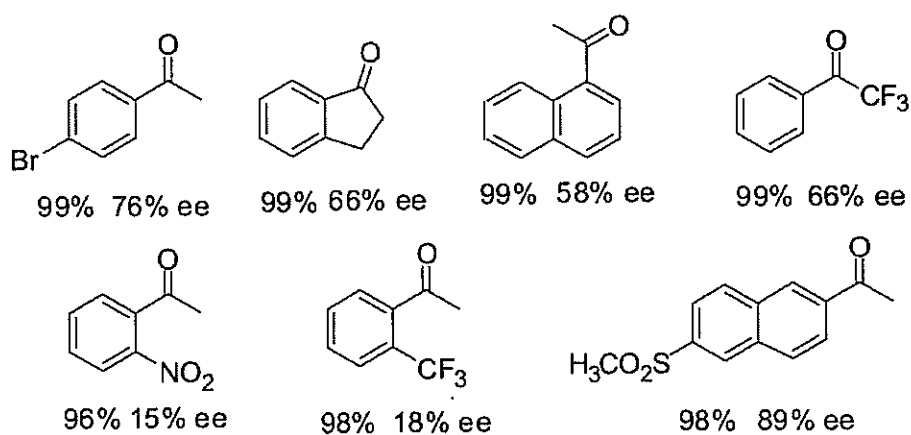


Fig. 13A

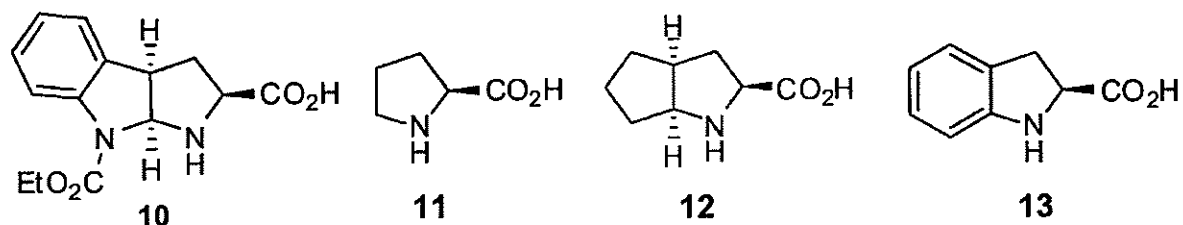


Fig. 13B

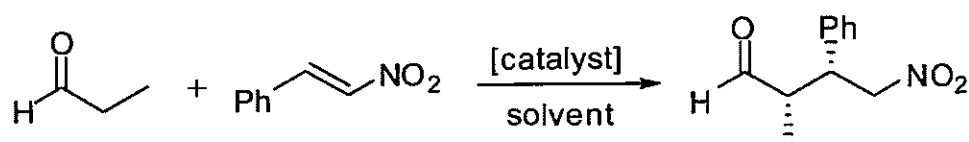


Fig. 13C

Entry	Catalyst	Solvent	Loading (mol %)	Yield (%) ^a	Dr ^b	ee (%) ^c
1	10	MeOH	10	86	91:9	96
2	11	MeOH	10	30	85:15	-20
3	12	MeOH	10	<10	86:14	-20
4	13	MeOH	10	<10	N.D.	N.D.
5	10/DMAP	MeOH	5	96	91:9	>99
6	10/DMAP	MeOH	2	92	75:25	>99
7	10/DMAP	H ₂ O	5	90	91:9	>99
8	10/DMAP	brine	10	10	86:14	96
9	10	H ₂ O	10	N.R.	N.R.	N.R.
10	11/DMAP	H ₂ O	10	N.R.	N.R.	N.R.
11	12/DMAP	H ₂ O	10	N.R.	N.R.	N.R.
12	13/DMAP	H ₂ O	10	N.R.	N.R.	N.R.

Fig. 13D

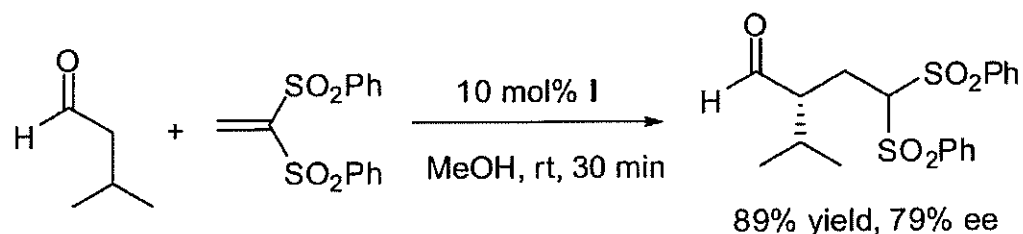
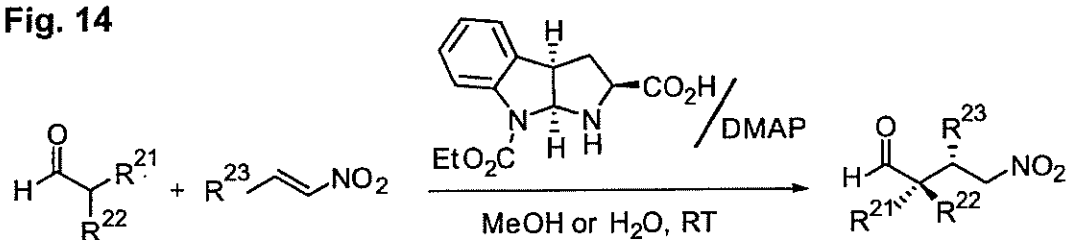


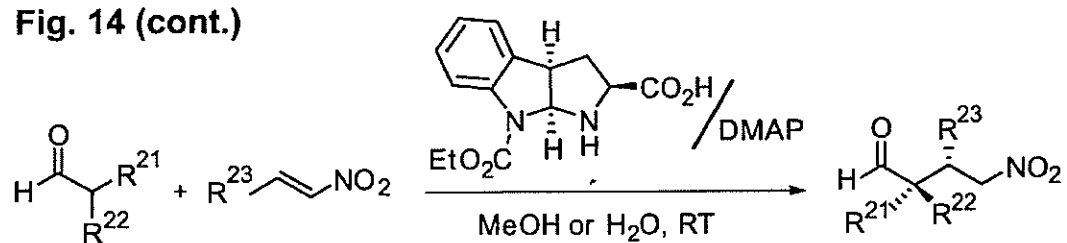
Fig. 14



Entry	Product	Catalyst (mol %)	Solvent	Time (h)	Yield (%) ^a	syn/anti ^b	ee (%) ^c
1		5	MeOH	8	96	91:9	>99
			H ₂ O	12	90	91:9	>99
2		5	MeOH	8	87	86:14	96
			H ₂ O	12	75	63:37	91
3		5	MeOH	8	79	72:28	93
			H ₂ O	12	76	63:37	92
4		5	MeOH	8	94	88:12	96
			H ₂ O	12	61	64:36	95
5		5	MeOH	24	92	91:9	96
			H ₂ O	36	87	78:22	96

(cont. on next page)

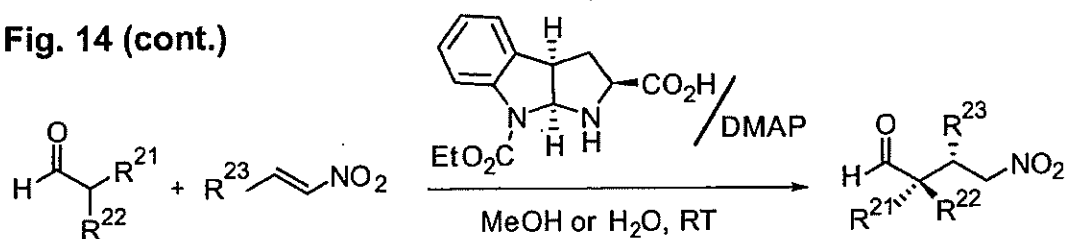
Fig. 14 (cont.)



Entry	Product	Catalyst (mol %)	Solvent	Time (h)	Yield (%) ^a	syn/anti ^b	ee (%) ^c
6		10	MeOH	72	60	60:40	93
			H_2O	96	56	60:40	99
7		10	MeOH	72	70	57:43	96
			H_2O	96	65	57:43	96
8		5	MeOH	48	89	91:9	98
			H_2O	56	83	91:9	98
9		10	MeOH	48	86	99:1	99
			H_2O	24	94	96:4	99
10		10	MeOH	72	86	98:2	>99
			H_2O	36	85	98:2	>99
11		10	MeOH	72	86	96:4	99
			H_2O	96	85	96:4	99
12		10	MeOH	96	88	---	95

(cont. on next page)

Fig. 14 (cont.)



Entry	Product	Catalyst (mol %)	Solvent	Time (h)	Yield (%) ^a	syn/anti ^b	ee (%) ^c
13		10	MeOH	96	85	---	95
14		10	MeOH	96	88	---	95
15		10	MeOH	96	86	---	92
16		10	MeOH	96	86	---	95

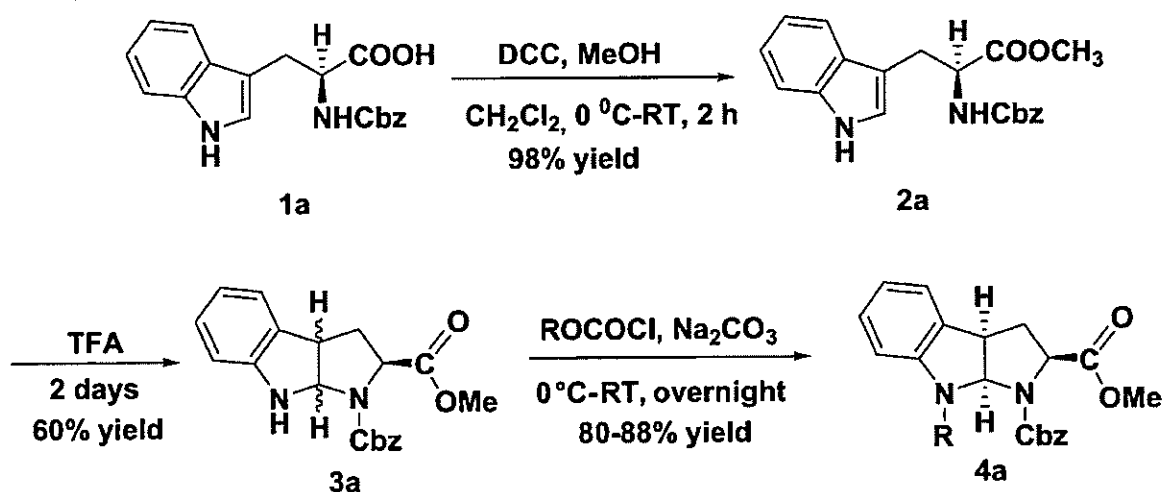


Fig. 15

(cont. on next page)

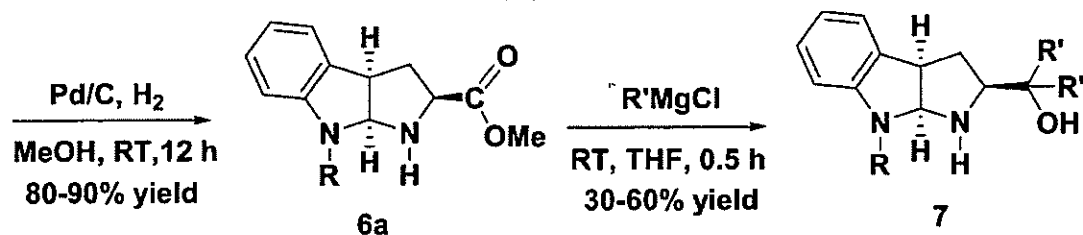


Fig. 15 (a) R = CO₂C₂H₅, R' = Ph; (b) R = OCOC₂H₅, R' = H; (c) R = CO₂C₂H₅, R' = m-xyl;
 (cont.) (d) R = CO₂CH₃, R' = Ph; (e) R = COCH₃, R' = Ph; (f) R = CO₂CH(CH₃)₂, R' = Ph;
 (g) R = CO₂CH₂CH(CH₃)₂, R' = Ph; (h) R = CO₂C₆H₅, R' = Ph

Fig. 16

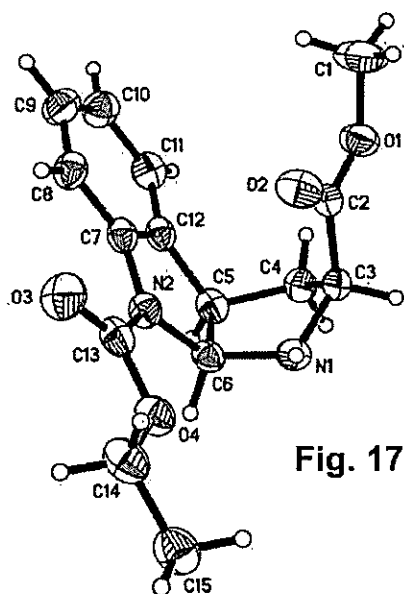
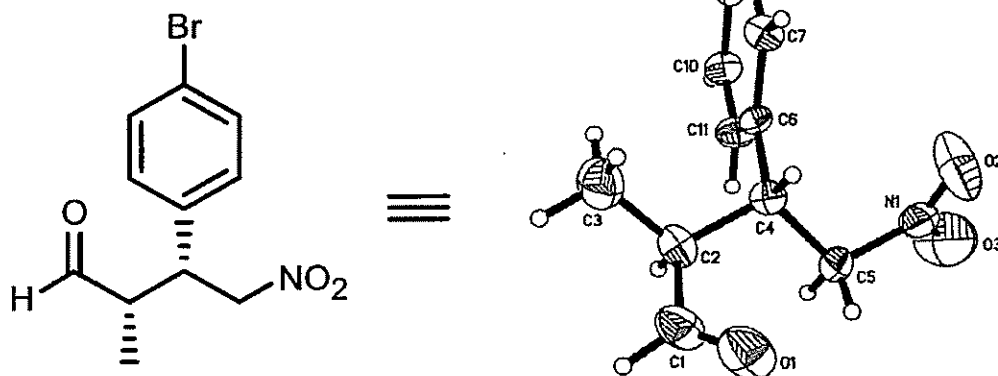


Fig. 17

Crystal Structure of 6a

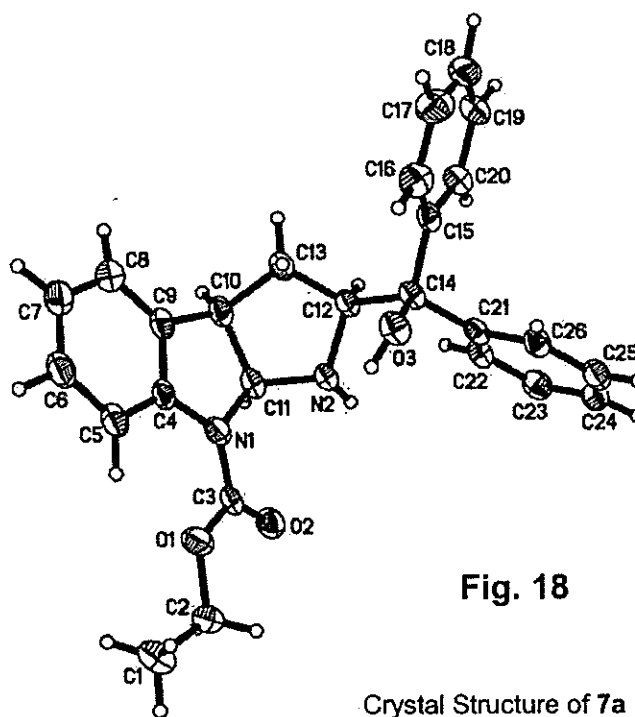
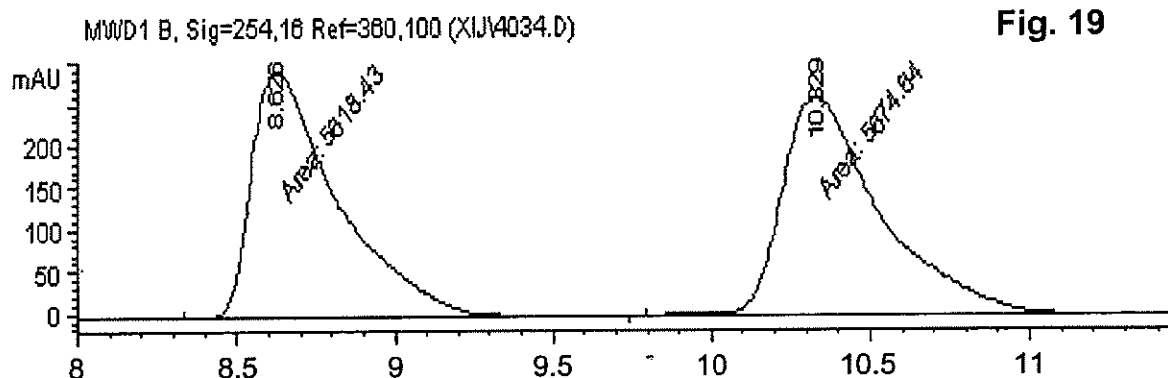


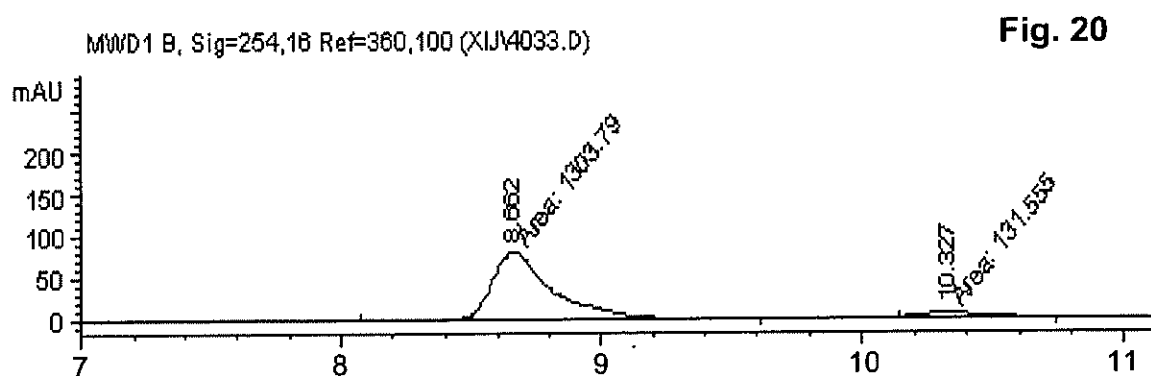
Fig. 18

Crystal Structure of 7a



Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	8.626	MM	0.3158	5618.43359	296.55637	49.7512
2	10.329	MM	0.3608	5674.63721	262.15540	50.2488

Totals : 1.12931e4 558.71176



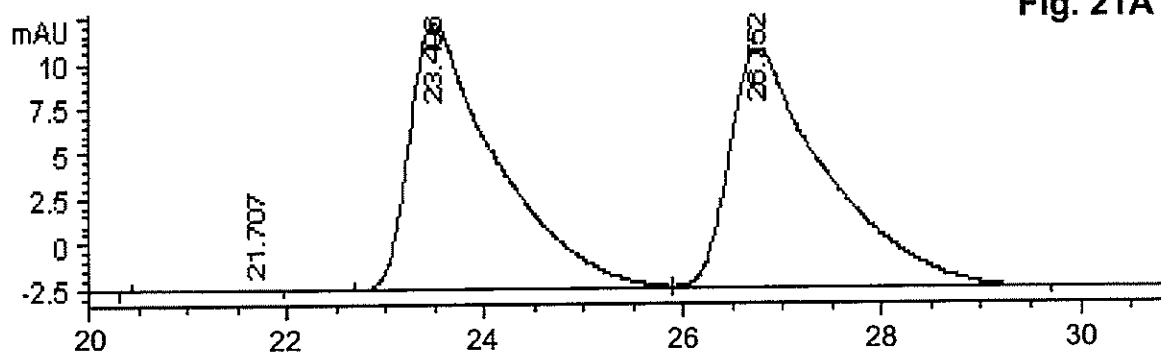
Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	8.662	MM	0.2686	1303.79114	80.88783	90.8346
2	10.327	MM	0.2722	131.55505	8.05415	9.1654

Totals : 1435.34619 88.94198

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MWVD1 B, Sig=254,16 Ref=360,100 (XIJ\3142.D)

Fig. 21A



MWVD1 B, Sig=254,16 Ref=360,100 (XIJ\4018-2.D)

Fig. 21B

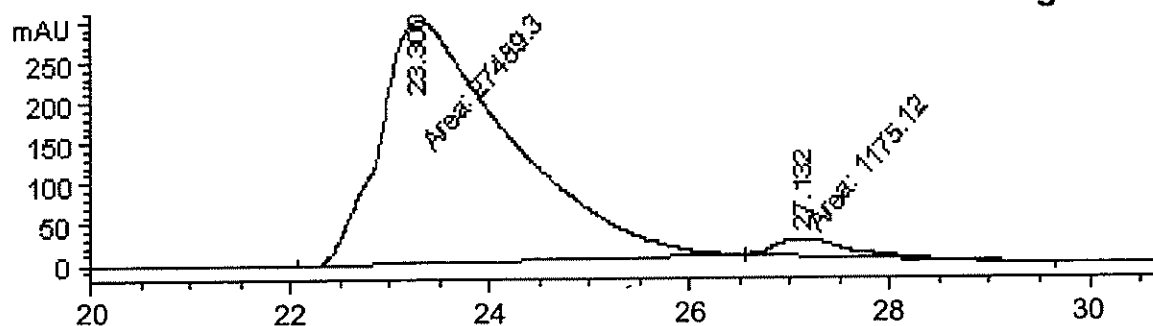


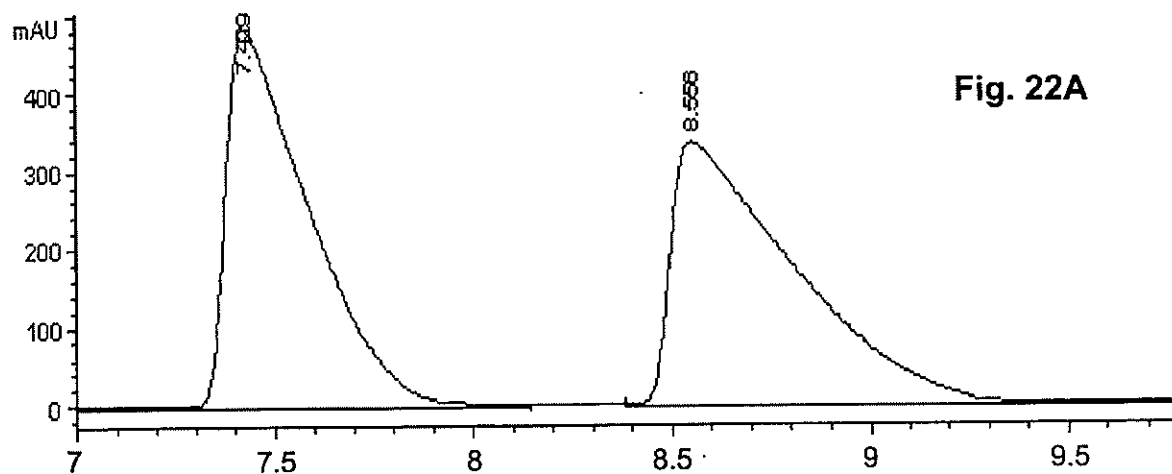
Fig. 21C

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	23.493	MM	1.0084	793.66083	13.11772	50.1506
2	26.752	MM	1.1196	788.89288	11.74333	49.8494

Totals : 1582.55371 24.86106

MWVD1 B, Sig=254,16 Ref=360,100 (XIJ\4017.D)

Fig. 22A



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Fig. 22B

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	7.429	VV	0.2103	7075.01709	484.78839	49.4591
2	8.556	VV	0.3014	7229.77734	338.16534	50.5409

Totals : 1.43048e4 822.95374

MWD1 B, Sig=254,16 Ref=360,100 (XIJ4018.D)

Fig. 22C

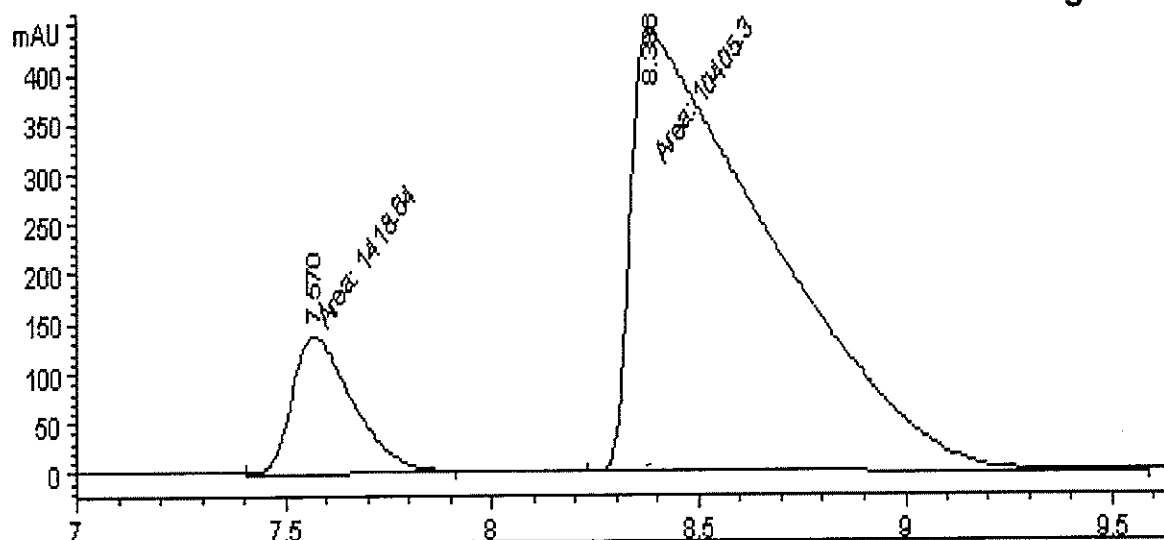


Fig. 22D

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	7.570	MM	0.1713	1418.63843	138.00569	11.9980
2	8.386	MM	0.3941	1.04053e4	439.99146	88.0020

Totals : 1.18240e4 577.99715

MWD1 B, Sig=254,16 Ref=360,100 (XIJ2119.D)

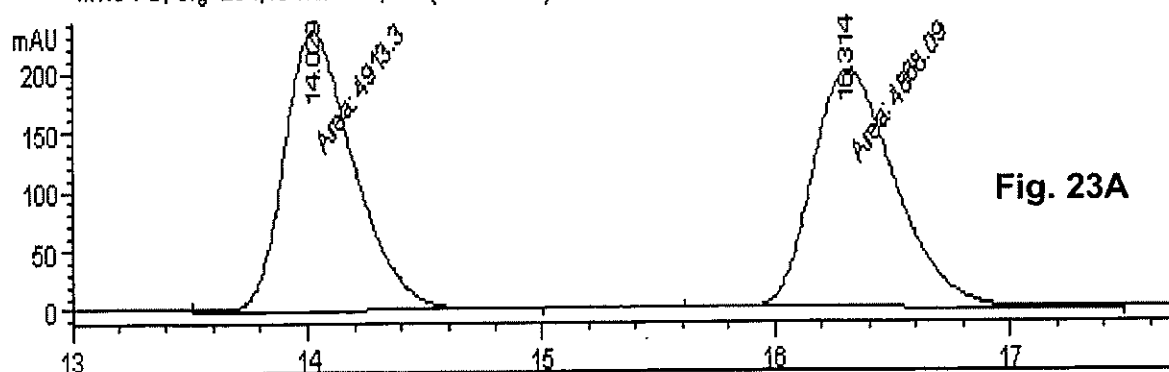
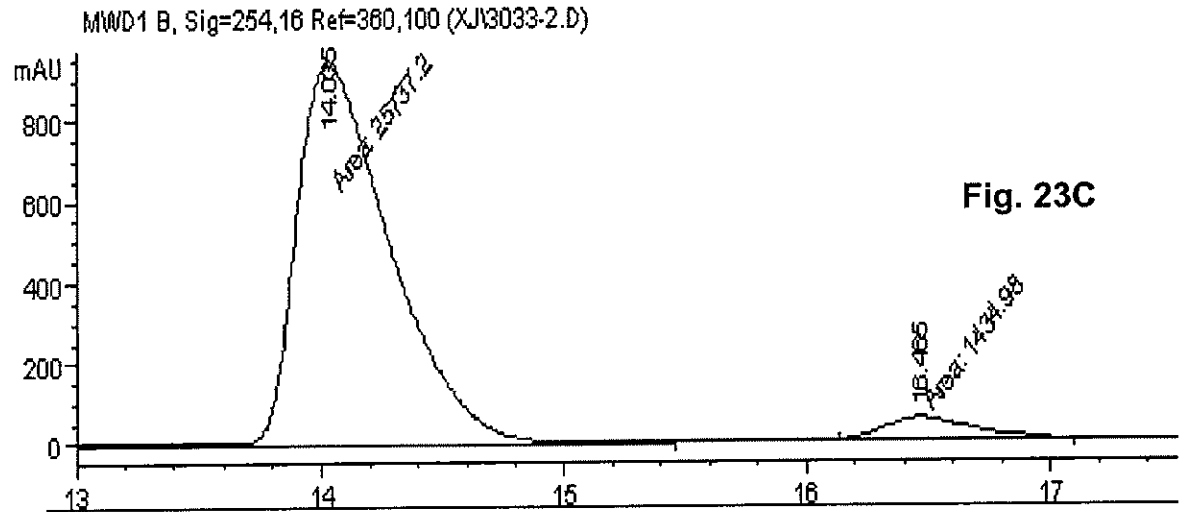


Fig. 23A

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	14.029	MM	0.3488	4913.30078	234.77055	50.2311
2	16.314	MM	0.4066	4868.09326	199.54494	49.7689

Totals : 9781.39404 434.31549 **Fig. 23B**



Signal 2: MWD1 B, Sig=254,16 Ref=360,100 **Fig. 23D**

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	14.035	MM	0.4564	2.57372e4	939.79205	94.7189
2	16.465	MM	0.4318	1434.98071	55.38373	5.2811

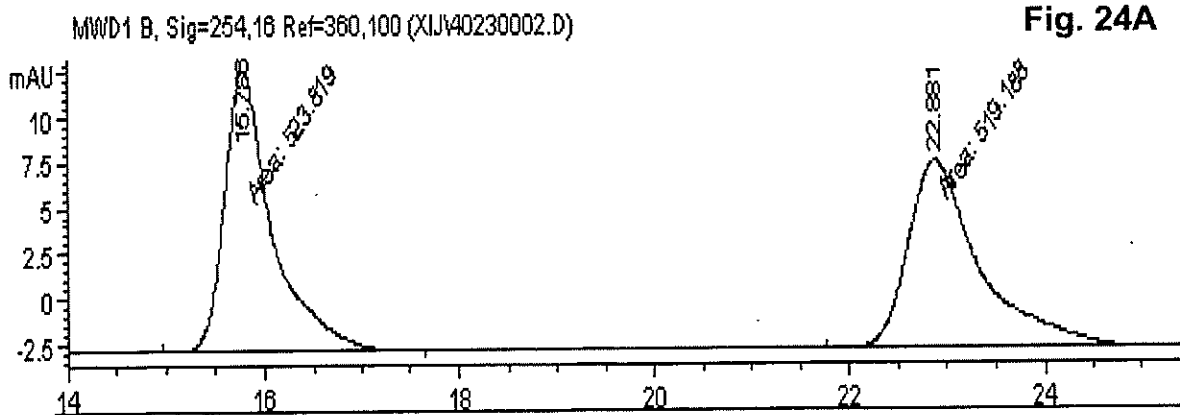


Fig. 24B

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	15.786	MM	0.5623	523.81909	15.52557	50.2220
2	22.881	MM	0.8419	519.18811	10.27842	49.7780

Totals : 1043.00720 25.80399

MWD1 B, Sig=254,16 Ref=360,100 (XIJV40210001.D)

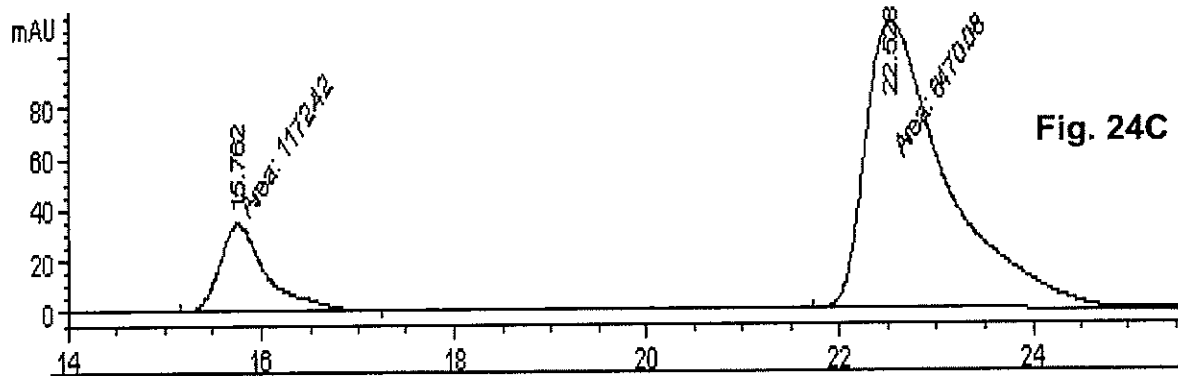


Fig. 24D

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	15.762	MM	0.5698	1172.42358	34.29093	15.3408
2	22.528	MM	0.9628	6470.07617	112.00441	84.6592

Totals : 7642.49976 146.29534

MWD1 A, Sig=250,100 Ref=360,100 (XIJV4013D.D)

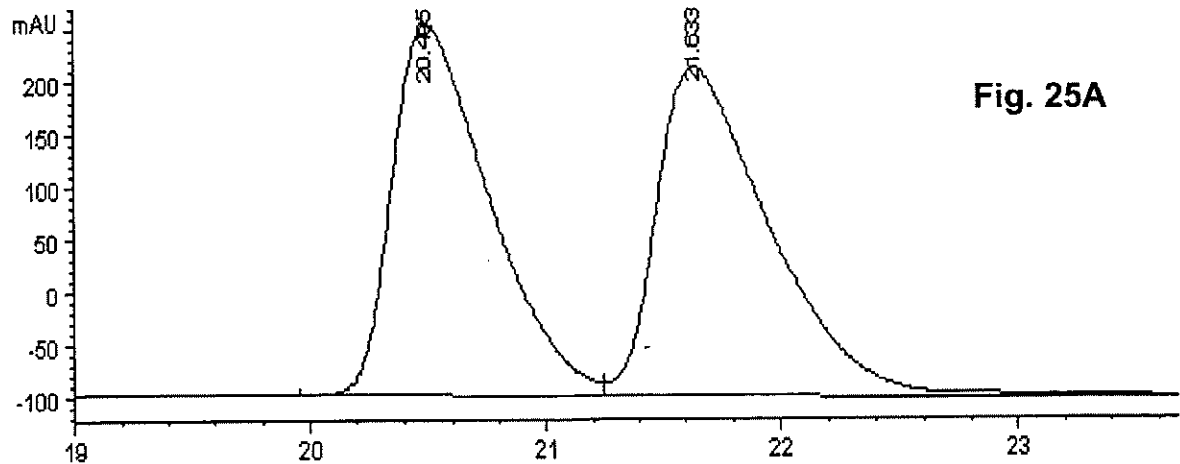


Fig. 25A

Fig. 25B

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	20.495	BV	0.4338	1.00781e4	352.21884	48.9305
2	21.633	VP	0.5050	1.05187e4	312.25781	51.0695
Totals :				2.05969e4	664.47665	

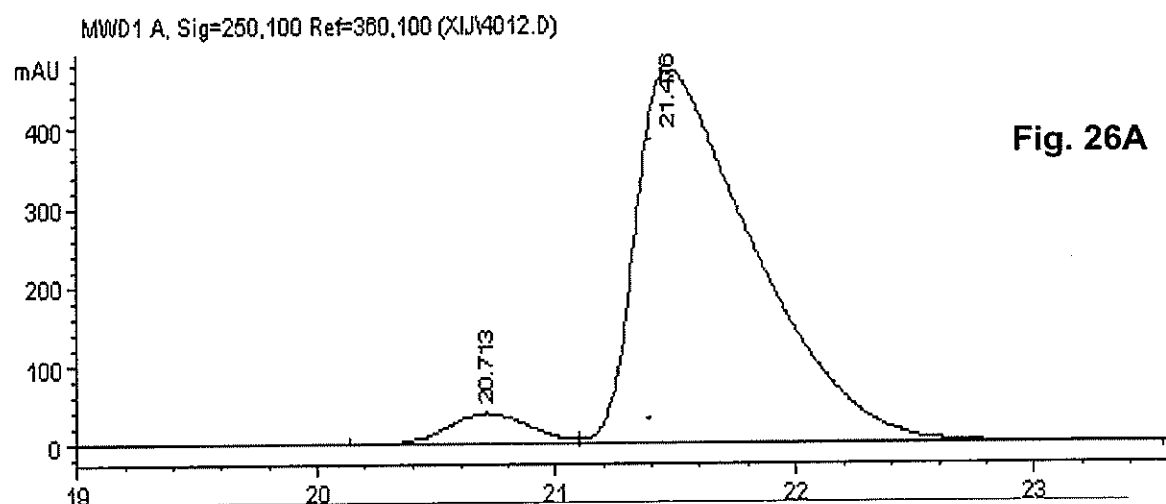


Fig. 26A

Fig. 26B

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	20.713	VV	0.3898	980.59454	39.48236	5.6858
2	21.476	VB	0.5068	1.62657e4	473.49759	94.3142
Totals :				1.72463e4	512.97995	

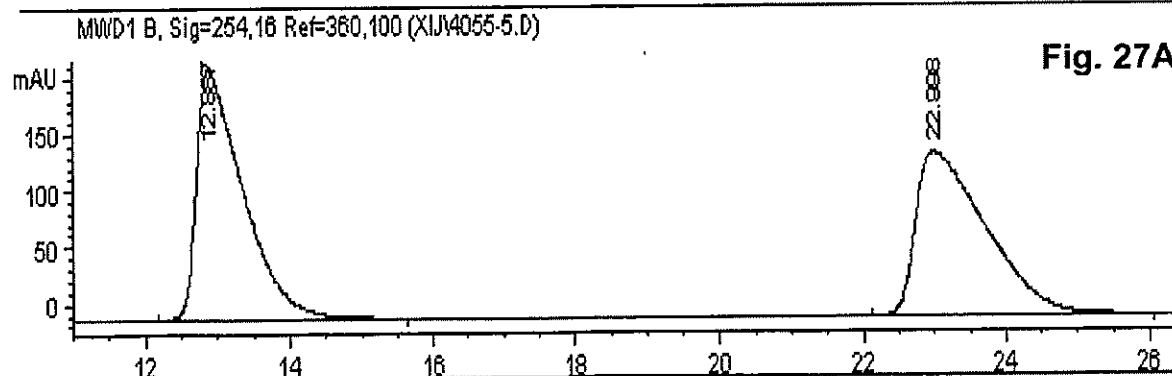


Fig. 27A

Fig. 27B

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	12.887	BB	0.6461	1.00125e4	222.02794	49.9770
2	22.998	BB	1.0194	1.00217e4	145.52457	50.0230

Totals : 2.00342e4 367.55251

MWD1 B, Sig=254,16 Ref=360,100 (XIJV4060-2.D)

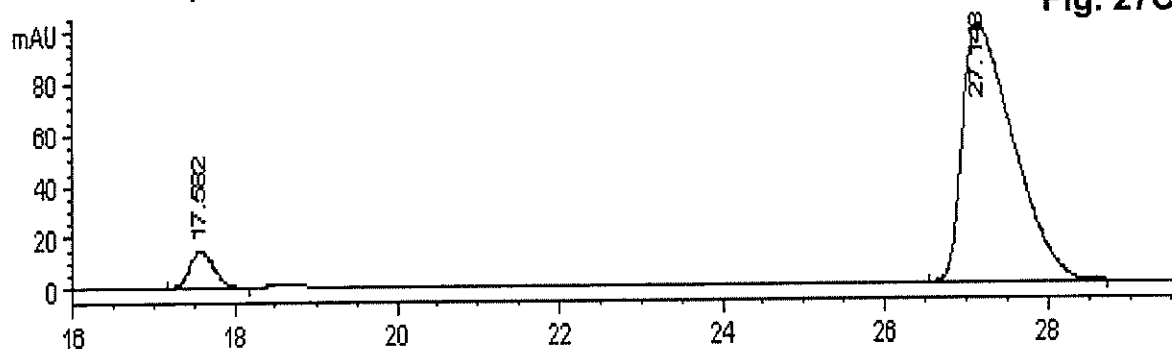


Fig. 27C

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	17.582	BB	0.3293	315.22769	14.75312	6.7544
2	27.143	BB	0.6577	4351.79395	100.80508	93.2456

Totals : 4667.02164 115.55820

MWD1 B, Sig=254,16 Ref=360,100 (XIJV4058.D)

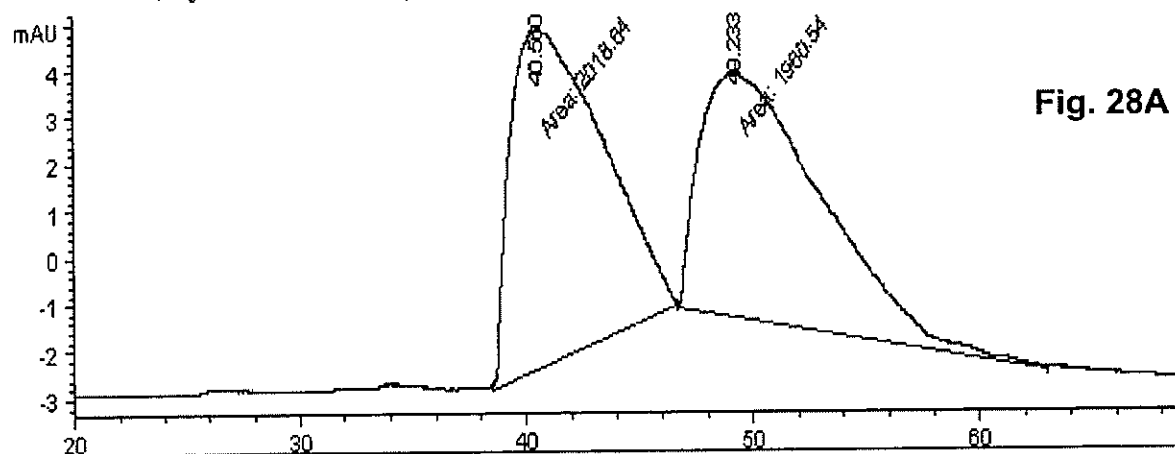
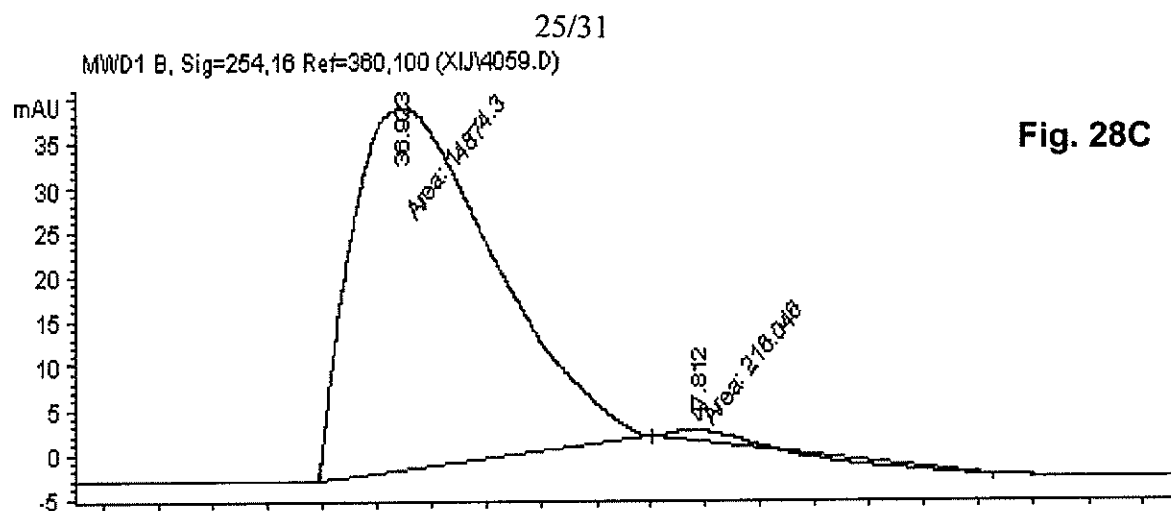


Fig. 28A

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	40.560	MM	4.6565	2018.64404	7.22515	50.7301
2	49.233	MM	6.3145	1960.54309	5.17473	49.2699

Totals : 3979.18713 12.39987

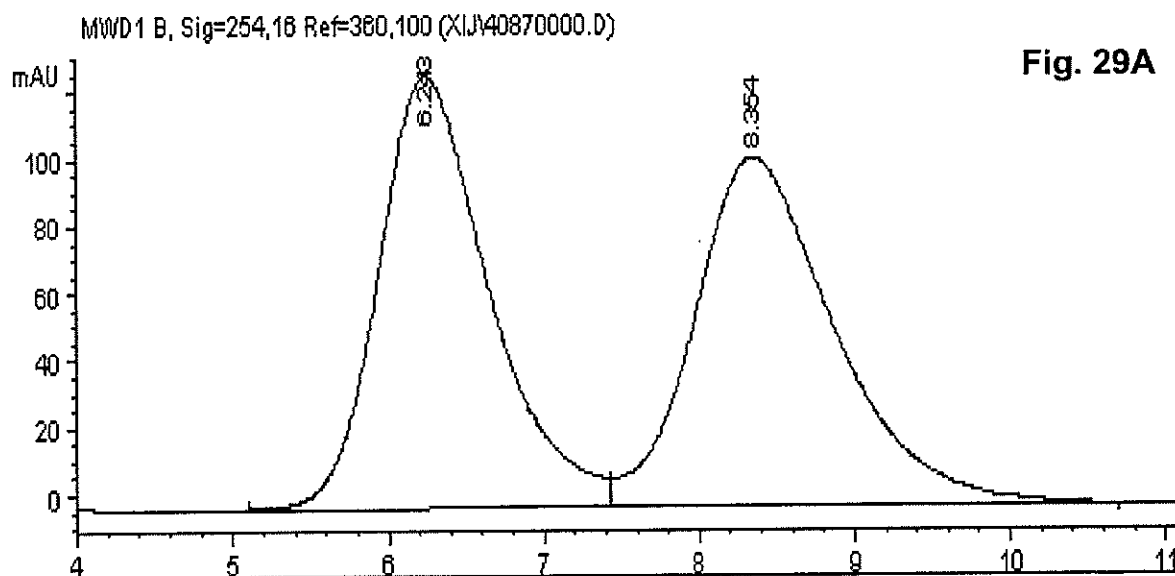
Fig. 28B



Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	36.923	MM	4.2583	1.48743e4	40.88338	98.5683
2	47.812	MM	2.7356	216.04626	1.31627	1.4317

Totals : 1.50904e4 42.19965

Fig. 28D



Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	6.243	BV	0.7385	6277.34180	127.91251	49.4684
2	8.354	VB	0.9268	6412.24951	103.22006	50.5316

Totals : 1.26896e4 231.13258

Fig. 29B

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MWVD1 B, Sig=254,16 Ref=360,100 (XIJV41090000.D)

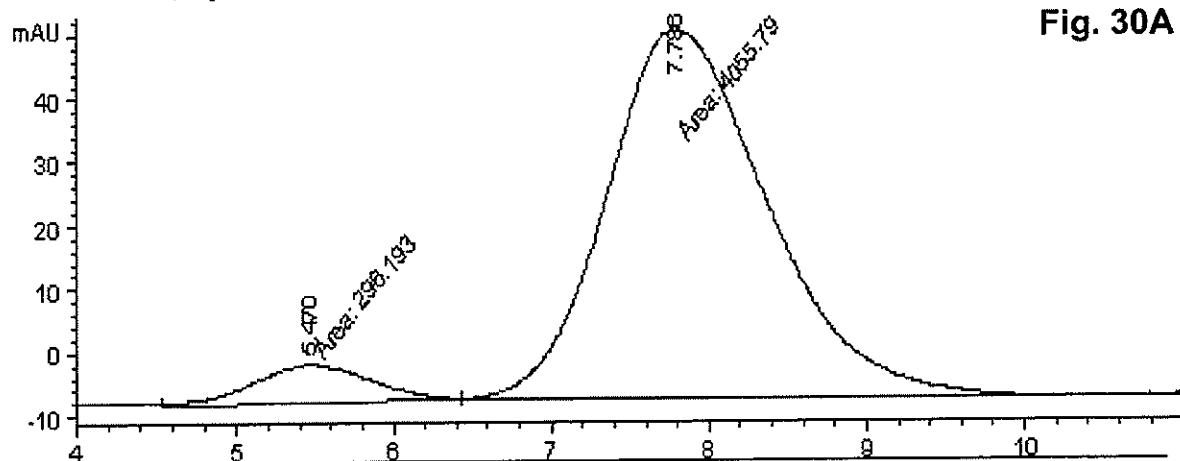


Fig. 30A

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	5.470	MM	0.8345	296.19272	5.91542	6.8059
2	7.786	MM	1.1686	4055.78931	57.84340	93.1941

Fig. 30B

Totals : 4351.98203 63.75881

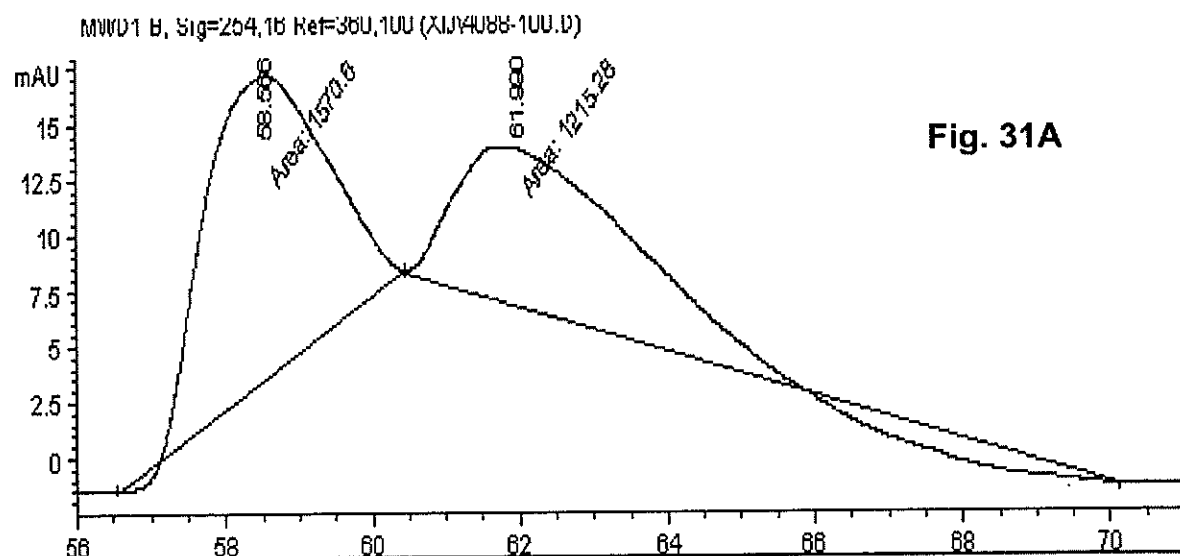


Fig. 31A

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	58.566	MM	1.4319	1570.59705	13.64452	56.3771
2	61.990	MM	2.8815	1215.27917	7.02910	43.6229

Totals : 2785.87622 20.67362

Fig. 31B

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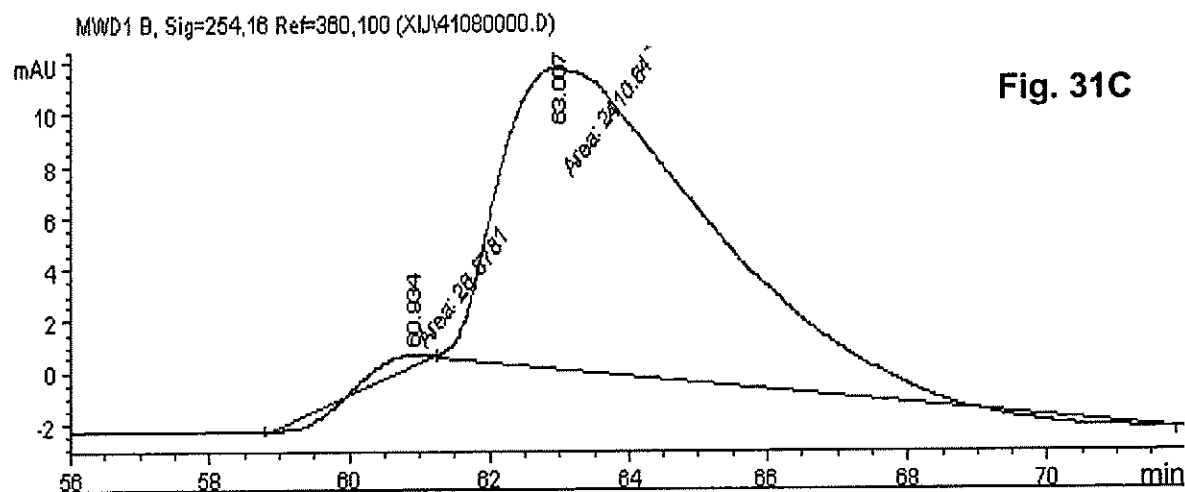
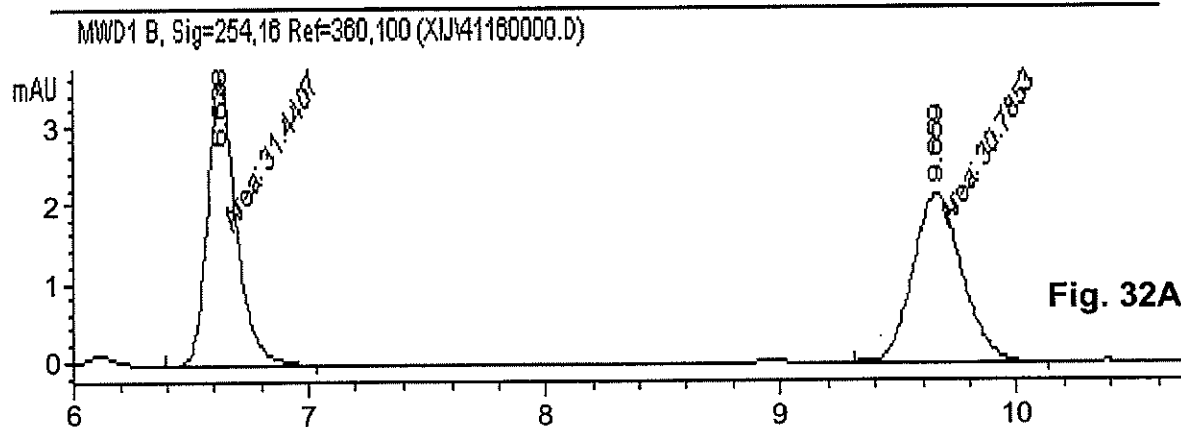


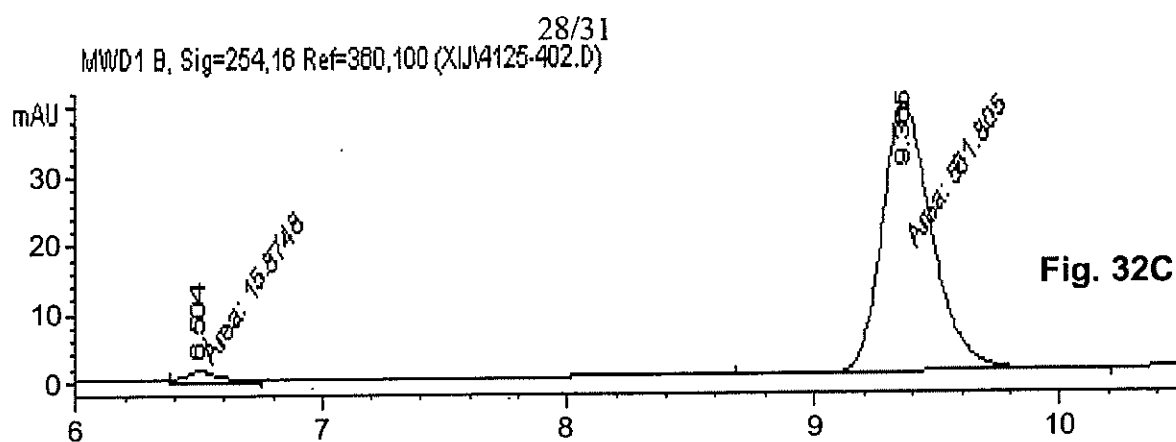
Fig. 31D

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	60.934	MM	1.1566	26.87814	3.87313e-1	1.1027
2	63.007	MM	3.4503	2410.64160	11.64453	98.8973
Totals :				2437.51974	12.03184	



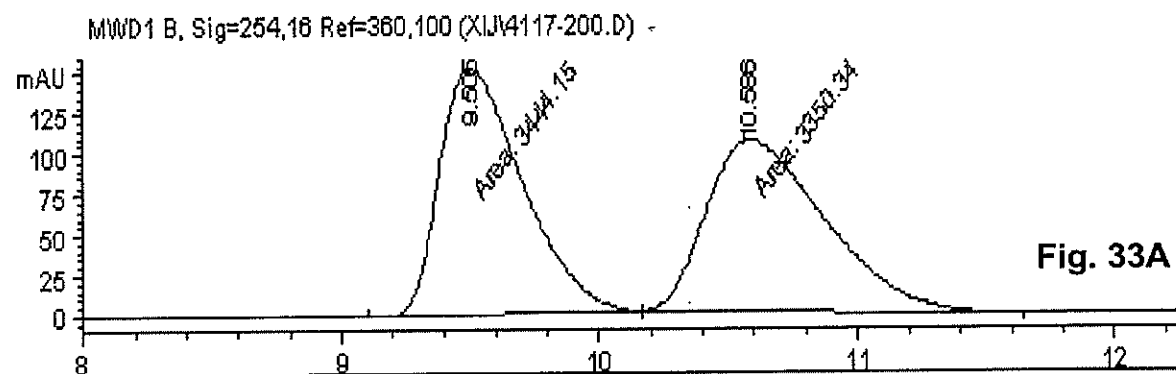
Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	6.628	MM	0.1435	31.44070	3.65059	50.5266
2	9.659	MM	0.2405	30.78528	2.13332	49.4734
Totals :				62.22598	5.78390	

Fig. 32B



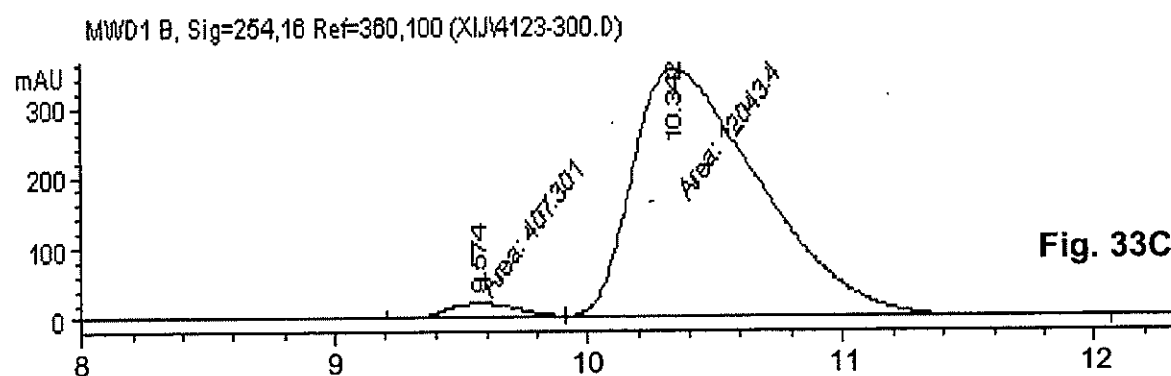
Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	6.504	MM	0.1612	15.87481	1.64112	2.7480
2	9.365	MM	0.2389	561.80481	39.19201	97.2520

Totals : 577.67962 40.83313 **Fig. 32D**



Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	9.505	MM	0.3755	3444.14771	152.86559	50.6903
2	10.586	MM	0.5267	3350.33813	106.01103	49.3097

Totals : 6794.48584 258.87662 **Fig. 33B**



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Fig. 33D

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	9.574	MM	0.3200	407.30142	21.21614	3.2713
2	10.342	MM	0.5756	1.20434e4	348.73599	96.7287

Totals : 1.24507e4 369.95213

MWD1 B, Sig=204,10 Ref=300,100 (XIJ41180000.D)

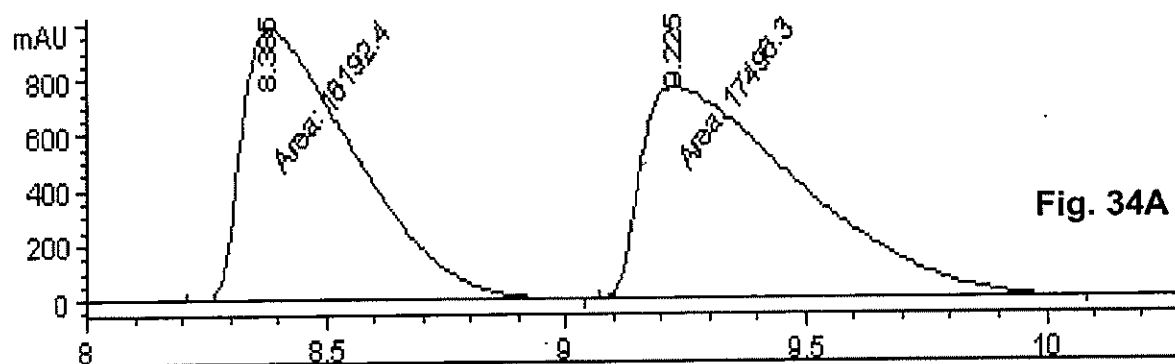


Fig. 34A

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	8.385	MM	0.2718	1.61924e4	992.88800	48.0647
2	9.225	MM	0.3803	1.74963e4	766.82971	51.9353

Totals : 3.36887e4 1759.71771

Fig. 34B

MWD1 B, Sig=254,16 Ref=380,100 (XIJ4124200.D)

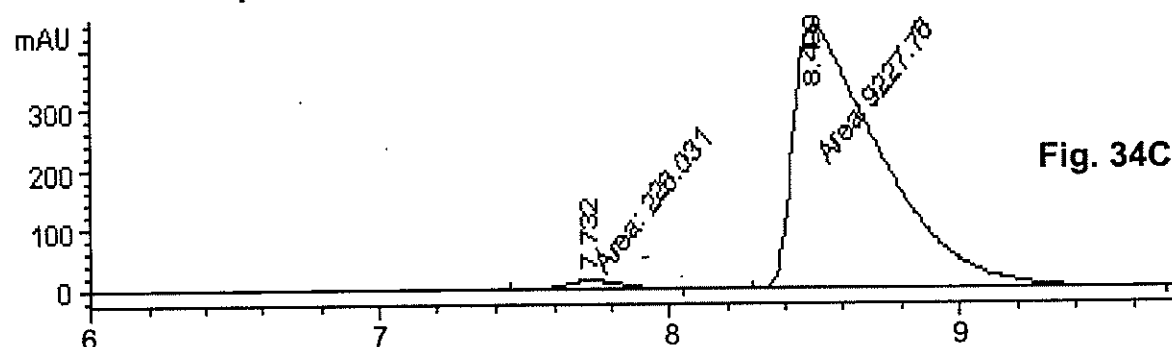


Fig. 34C

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	7.732	MM	0.2474	226.03139	15.22993	2.3909
2	8.499	MM	0.3492	9227.76465	440.42603	97.6091

Totals : 9453.79604 455.65595

Fig. 34D

Fig. 35

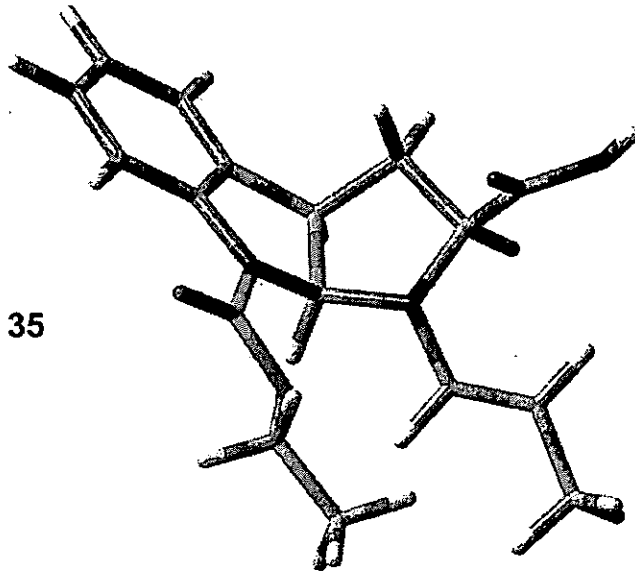


Fig. 36

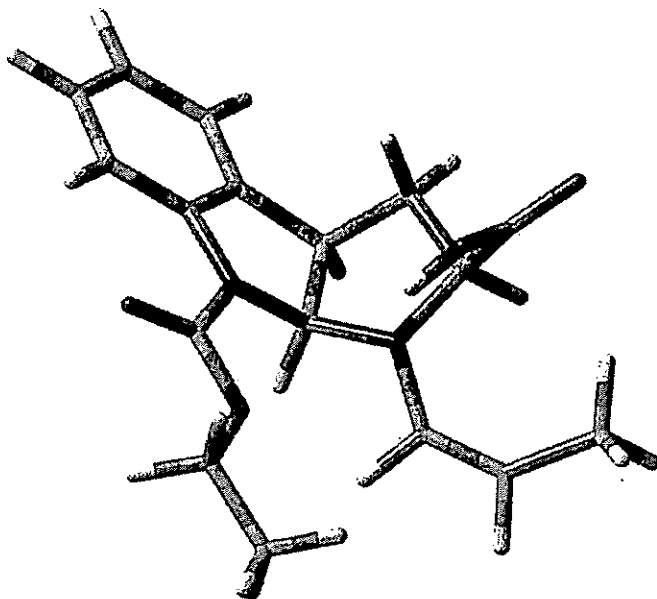


Fig. 37

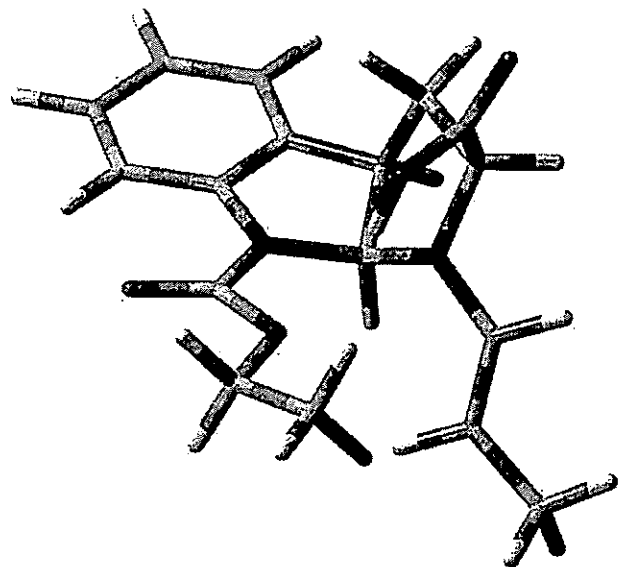


Fig. 38

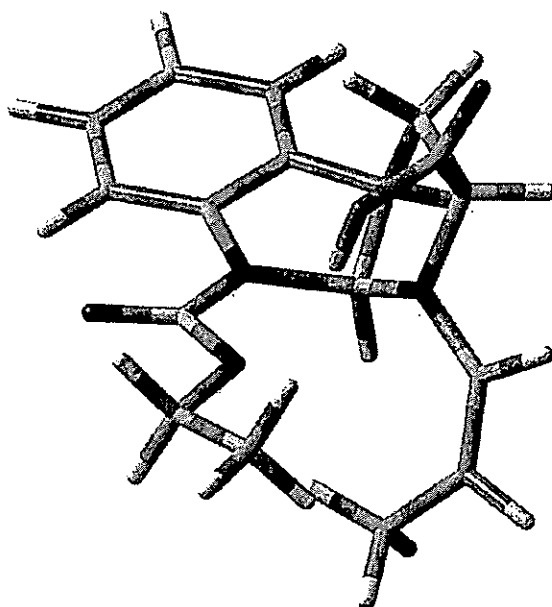


Fig. 39

