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Guy Felix[a]; Alain Berthod[b]; Patrick Piras[c]; Christian Roussel[c]
[a] Laboratoire de Chimie Organique et des Matériaux Moléculaires, CNRS, Département de Chimie, Faculté des Sciences de Luminy, Université de la Méditerranée, Marseille, France [b] Laboratoire des Sciences Analytiques, CNRS, Université de Lyon, Bâtiment CPE, Villeurbanne, France [c] Laboratoire de Stéréochimie Dynamique et Chiralité, Chiro Sciences CNRS, Campus Scientifique de Saint Jérôme, France

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COMMERCIAL CHIRAL STATIONARY PHASES FOR THE SEPARATIONS OF CLINICAL RACEMIC DRUGS

Part III: Supercritical Fluid Chromatographic Separations

Guy Felix,[1] Alain Berthod,[2] Patrick Piras,[3] and Christian Roussel[3]

[1]Laboratoire de Chimie Organique et des Matériaux Moléculaires, CNRS, Département de Chimie, Faculté des Sciences de Luminy, Université de la Méditerranée, Marseille, France
[2]Laboratoire des Sciences Analytiques, CNRS, Université de Lyon, Bâtiment CPE, Villeurbanne, France
[3]Laboratoire de Stéréochimie Dynamique et Chiralité, Chiro Sciences CNRS, Campus Scientifique de Saint Jérôme, Avenue escadrille Normandie-Niemen, France

Abstract: The enantioseparation of 123 clinically used racemic drugs by supercritical fluid chromatography (SFC) on commercial chiral stationary phases (CSPs) available in 2006 is reviewed. The CSPs were briefly described in Part I of this work. The mobile phase compositions, with organic modifier and additives, are listed. The data was extracted and compiled from the ChirBase database (Marseille, France). All the drugs included are listed according to the thirteen therapeutic classes of the Anatomical Therapeutic Chemical (ATC) classification. It is evident that the nature of the SF mobile phase precludes the use of several classes of CSPs such as the crown ethers, ligand-exchange or protein-based CSPs. The polysaccharide based CSPs were responsible for two third of the enantiomer separation listed.

Keywords: Supercritical fluid chromatography, chiral drugs, enantiomers, therapeutic activity, SFC chiral separations, enantioseparations, chiral stationary phases

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Address correspondence to Guy Félix, GCOM2, CNRS-UMR 6114, Faculté des Sciences de Luminy, 163, Avenue de Luminy, 13 288 Marseille cedex 9, Marseille, France. E-mail: felix@luminy.univ-mrs.fr

INTRODUCTION

Supercritical fluid chromatography (SFC) uses carbon dioxide whose critical temperature (31.3°C) is easy to reach. The drawback of SFC is that special equipment is needed. To be metered correctly, CO_2 must be pumped in the liquid state. It means that a chilled pump must be connected to the CO_2 gas cylinder. An oven is needed to work at supercritical temperature above 31.3°C and a restrictor and pressure regulator is needed to maintain the required pressure. These technical problems must be compensated by significant advantages to justify the use of the SFC technique.

The advantages of critical CO_2 are (i) a reduced viscosity giving a low column pressure drop allowing for high flow rates and fast analyses, (ii) high solute diffusion coefficients giving fast mass transfer and high efficiency, (iii) ease of disposal and solute recovery in preparative separations, (iv) with 100% pure CO_2 GC detectors, such as the sensitive flame ionization detector, can be used. Unfortunately, it was rapidly realized that a 100% pure CO_2 mobile phase was not very useful having a weak solvent strength with solvent properties comparable to pentane (48). It is necessary to add significant amount of polar solvents to the CO_2 eluent to enhance the mobile phase solvent strength. When such large proportion of polar solvent is added to the mobile phase, it is very often not sure that the chromatographic process takes place inside the column in the supercritical state. Super- or sub-critical fluid chromatography will not be differentiated.

RESULTS AND COMMENTS

Chiral Compounds

Parts I and II of this series presented the HPLC chiral separations of active drugs found in the ChirBase database and arranged according to the thirteen classes of the Anatomical Therapeutic Chemical (ATC) classification (49–51). This part presents the SFC chiral separations found in ChirBase similarly arranged. However, only 123 chiral compounds were found separated by SFC in the database compared to the 442 compounds separated by HPLC and listed in Parts I and II. Furthermore, only three of the 123 compounds were not separated by HPLC. The three compounds are two adrenergic agonists: ephedrine and fenoterol, and an anesthetic: ketamine. The molecular structure of the compounds is given in the cumulative table that have the same organization of the Part I and II tables.

Mobile Phases

Alcohols are the most common additives in supercritical mobile phases. Methanol, ethanol, 1- or 2-propanol is added with a second pump to liquid CO_2. pH additives are often needed to adapt the ionization of the CSP to the solute. Trifluoroacetic acid (TFA) is the most common acid additive. Di- and tri-ethyl amine (Et_2NH and Et_3N, respectively) and n- and isopropyl amine (n-Pr and i-$PrNH_2$, respectively) are the most popular basic additives. The mobile phase mixture is heated above 30°C before entering the column at the desired pressure. Raising the temperature does not produce faster analyses but deteriorates the enantioselectivity (52). So the working temperature was the critical CO_2 temperature (31°C) unless otherwise indicated in the tables. Raising the working pressure does produce faster analyses, not always at the cost of poorer separations. The working pressure is indicated in bars (1 bar is 14 p.s.i. or 0.1 MPa) with the mobile phase composition and any eventual gradient.

Chiral Stationary Phases

The chiral stationary phases (CSPs) used in SFC were mostly those also used in HPLC. Only 22 different CSPs were used in SFC compared to 100 used in HPLC with only two CSPs that were used only in SFC separations. The two CSPs are the Cyclose-beta 2-OH and Cyclose-beta 6-OH cyclodextrin-based CSPs. Table 1 lists the 22 CSPs, giving the molecular structures of these two cyclodextrin CSPs only. The structure of the 20 other CSPs can be found in Part I (50).

Table 1 uses the CSP code used in Part I: the molecular CSPs include Pirkle of π-complex types (I-A), Ligand Exchanges (I-B) and Organometallics (I-C). The small macromolecular CSPs comprise Crown ethers (II-A), Cyclodextrins (II-B), Antibiotics (II-C). The large macromolecular CSPs include Polysaccharides (Cellulose and Amylose) (III-A), Polymers (III-B) and Proteins (III-C). The SFC mobile phase is not suited to CSPs of the I-B, I-C, II-A and III-C categories. All these excluded phases work with charge-charge and/or very polar interactions that cannot take place in SFC mobile phases.

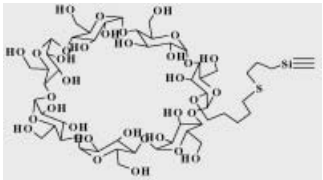
Figure 1 shows the pre-eminence of the polysaccharide CSPs that were successful for two thirds or 64% of the SFC chiral separations exactly shared between the cellulose based CSP (Chiralcel) and the amylose based CSP (Chiralpak). The macrocyclic antibiotic CSPs produced 16% of the separations followed by the π-complex (or Pirkle) for 11% and cyclodextrin CSPs for 9%.

Table 2 lists the results obtained with the 123 compounds found in the ChirBase database (49). Faster analyses are the most important

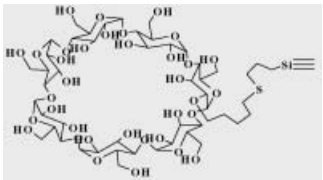
Table 1. The chiral stationary phases used in SFC enantio-separations

Gr	Trade Name	Structure	Chemical Name	Supplier	Country
I-A	S-DNB-Leu		(S)-N-(3,5-Dinitrobenzoyl)leucine bonded to aminopropyl silica	Regis	USA
I-A	Chirachrom A1		(S)-N-(3,5-DNB)-phenylalanine bonded to aminopropyl silica	Interchim	France
I-A	ChyRoSine-A		(S)-dinitrobenzoyltyrosine amide bonded to mercaptopropyl silica	Sedere	France
I-A	(S,S) Whelk-O1		(3R,4S)-4-(3,5-Dinitrobenzamido)-3-[3-(dimethylsilyloxy)propyl]-1,2,3,4-tetrahydrophenanthrene silica	Regis	USA
I-A	(S)-Naphthylurea		(S) Naphthylethylurea bonded to silica	Shandon	UK
I-A	Chirex 3005		N-Dinitrobenzoyl-(R)-1-Naphthylglycine bonded to aminopropyl silica	Phenomenex	USA
I-A	Chirex 3022 or Sumichiral OA-4900		(S)-Benzoproline-(R)-1-naphthylethylurea derivative bonded to aminopropyl silica	Phenomenex	USA
II-B	Cyclobond I 2000 SN		β-Cyclodextrin-(S)-Naphthylethyl carbamate derivative bonded to silica	Astec	USA
II-B	Cyclobond I 2000 RN		(R)-naphthylethylisocyanate derivatized β-cyclodextrin bonded to silica	Astec	USA

II-B	Cyclose beta-2-OH(-T)	Mono-2-pentyl-β-Cyclodextrin covalently bonded to thioether-propyl silica	Chiralsep	France



II-B	Cyclose beta-6-OH(-T)	Mono-6-pentyl- β -Cyclodextrin covalently bonded to thioether-propyl silica	Chiralsep	France



II-C	Chirobiotic R	Ristocetin A bonded to silica	Astec	USA
II-C	Chirobiotic T	Amphoteric Teicoplanin bonded to silica	Astec	USA
II-C	Chirobiotic V	Vancomycin bonded to silica	Astec	USA
II-C	Chirobiotic TAG	Teicoplanin aglycone covalently bonded to silica	Astec	USA

(*continued*)

Table 1. Continued

Gr	Trade Name	Structure	Chemical Name	Supplier	Country
III-A	Chiralcel OC		Cellulose triphenylcarbamate coated on macroporous silica	Daicel	Japan
III-A	Chiralcel OD or OD-H		Cellulose tris(3,5-dimethylphenylcarbamate) coated on macroporous silica	Daicel	Japan
III-A	Chiralcel OF		Cellulose tris(4-Chloro-phenylcarbamate) coated on macroporous silica	Daicel	Japan
III-A	Chiralcel OJ		Cellulose tris(4-methyl-benzoate) coated on macroporous silica	Daicel	Japan
III-A	Chiralpak AD or AD_H		Amylose tris(3,5-dimethylphenylcarbamate) coated on macroporous silica	Daicel	Japan
III-A	Chiralpak AS		Amylose tris[(S)alpha-phenethyl]carbamate coated on macroporous silica	Daicel	Japan
III-B	Kromasil CHI-TBB		O,O′-di(4-tBu-phenyl)-(2R,3R)-diallyl-tartardiamide-crosslinked in network and immobilized by hydrosilylation on vinyl silica	EKA Chemical	Sweden

The shaded CSPs were not used in HPLC. The structure is given. The molecular structure of the other CSPs can be found in Table 1 of Part 1 of this series.

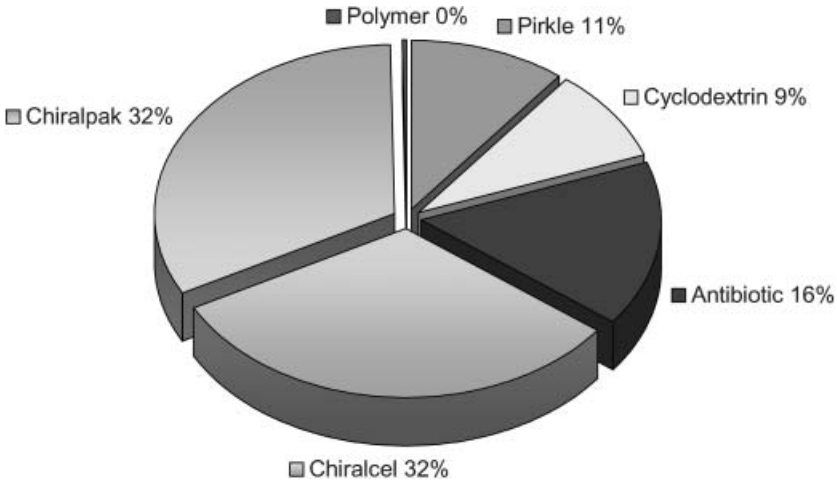


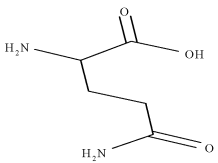
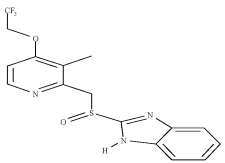
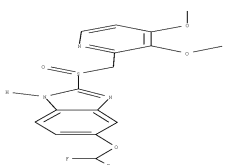
Figure 1. Chiral stationary phases used to resolve the 123 chiral drugs separated by SFC. The percentages indicate the number of enantiomers successfully separated by the class of CSP.

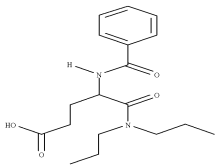
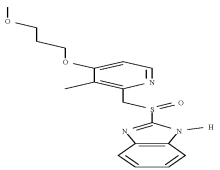
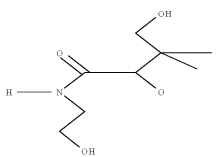
results evident when comparing SFC and HPLC for chiral separations. HPLC has a wider capability in term of interaction and hydrophobic range and can separate much more compounds than SFC. If many HPLC enantio separations could not be done by SFC, almost all SFC separations can be done by HPLC often with comparable or better enantio-resolution. However, for the same compound, the SFC analyses are always faster than the corresponding HPLC separation.

ACRONYMS

ATC	Anatomical therapeutic chemical
BuOH	Butanol
CSP	Chiral stationary phases
Et_2NH	Diethylamine
Et_3N	Triethylamine
EtOH	Ethanol
$EtSO_3H$	Ethylsulfuric acid
GORD	Gastro-oesophageal reflux disease
i-$PrNH_2$	Iso-propylamine
PrOH	Propanol
MeCN	Acetonitrile
MeOH	Methanol
TFA	Trifluoroacetic acid

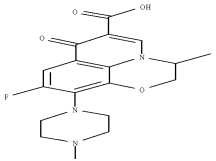
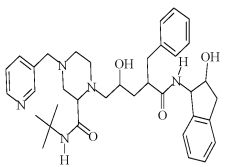
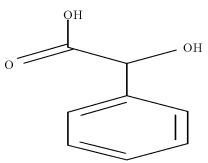
Table 2. Chromatographic parameters of the ChirBase SFC separations of pharmaceutical drugs arranged according to the ATC classification

Drug Name	Structure	Therapeutic Cat.	Csp Trade Name	Mobile Phase	First	Second	α	Rs	Ref.
ALIMENTARY TRACT AND METABOLISM									
Glutamine		Diet	Chirobiotic R	P=100 bars. 52.5/47.5-CO_2/MeOH, Et_3N (0.15%) TFA (0.15%) H_2O (2.5%) Glycerol (0.3%)	L	D	1.21	1.2	(1)
			Chirobiotic T	P=100 bars. 42.4/57.6 CO_2/MeOH, Et_3N (0.15%) TFA (0.15%) H_2O (2.4%)	L	D	1.36	1.8	(1)
			Chirobiotic TAG	P=100 bars. 32.8/67.2-CO_2/MeOH Et_3N (0.15%) TFA (0.15%) H_2O (2.8%)	L	D	1.5	1.5	(1)
Lansoprazole		G.O.R.D.	Chiralpak AD	P=200 bars. 60/40-CO_2/MeCN			1.3	1.54	(2)
			Chiralpak AD	P=200 bars. 85/15-CO_2/MeOH			1.36	3.58	(2)
Pantoprazole		G.O.R.D.	Chiralpak AD	P=200 bars. 60/40-CO_2/MeCN			1.22	0.88	(2)
			Chiralpak AD	P=200 bars. 75/25-CO_2/i-PrOH			1.54	4.41	(2)

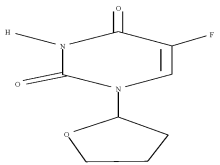
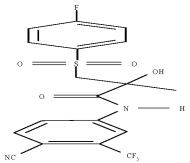
Proglumide		G.O.R.D.	Cyclobond I SN Cyclobond I 2000 RN	92/8-CO_2/MeOH P=150 bars. 92/8 CO_2/MeOH			1.04 1.1	0.6 1.9	(3) (4)
Rabeprazole		G.O.R.D.	Chiralpak AD	P=200 bars. 90/10-CO_2/i-PrOH			1.38	4.01	(2)
Dexpanthenol		Vitamin	Chiralpak AS	95/5-CO_2/MeOH	2.7	3.7			(5)

(*continued*)

Table 2. Continued

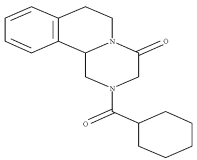
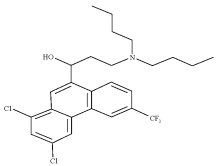
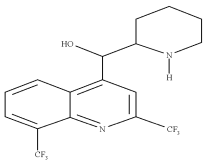
Drug Name	Structure	Therapeutic Cat.	Csp Trade Name	Mobile Phase	First	Second	α	Rs	Ref.
ANTI-INFECTIVES FOR SYSTEMIC USE									
Ofloxacin		Antibacterial	Chiralcel OD	73/27-CO_2/EtOH			1.07	1.66	(6)
			Chiralcel OJ	73/27-CO_2/EtOH			1.04	0.87	(6)
Indinavir		Antiviral	Chiralpak AD	P=250 bars. 90/10 CO_2/MeOH			1.85		(7)
Mandelic acid		Urinary antiseptic	Chiralcel OD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				4.8	(8)
			Chiralpak AD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				1.2	(8)
			Chiralpak AD	80/20/0.5-CO_2/i-PrOH/TFA				1.97	(9)

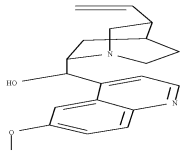
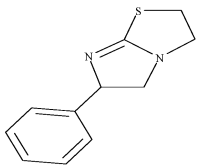
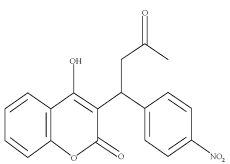
ANTINEOPLASTIC AND IMMUNOMODULATING AGENTS

Tegafur 	Antimetabolite	Chirobiotic V	38.4/21.6-CO_2/Hexane, EtOH 40 mol%	1.05	0.45	(10)
		Chirobiotic V	25.6/14.4- CO_2/Hexane, EtOH 60 mol%	1.06	0.51	(10)
Bicalutamide 	Hormone antagonist	Chiralcel OD	P=200 bars. 90/10/1-CO_2/EtOH/n-$PrNH_2$	1.13		(11)

(*continued*)

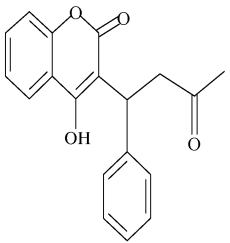
Table 2. Continued

Drug Name	Structure	Therapeutic Cat.	Csp Trade Name	Mobile Phase	First	Second	α	Rs	Ref.
ANTIPARASITIC PRODUCTS, INSECTICIDES AND REPELLENTS									
Praziquantel		Anticesdotal	Chiralcel OD	80/20/0.5-CO_2/i-PrOH/i-$PrNH_2$				1.79	(9)
			Chiralpak AD	70/30/0.5-CO_2/i-PrOH/i-$PrNH_2$				2.78	(9)
			Chiralpak AS	80/20/0.5-CO_2/MeOH/i-$PrNH_2$				0.95	(9)
Halofantrine		Antimalarial	(S)-Naphthylurea	P=150 bars. 97/3- CO_2/MeOH, Et_3N (0.1%)	(+)	(−)		1	(12)
Mefloquine		Antimalarial	(S)-Naphthylurea	P=125 bars. 80/20-CO_2/MeOH, Et_3N (0.1%)	(+)	(−)		1	(12)
			Chiralcel OD	P=200 bars. 90/10/1-CO_2/EtOH/n-$PrNH_2$			1.6		(11)

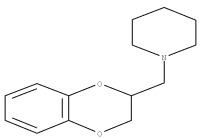
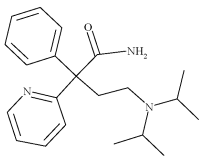
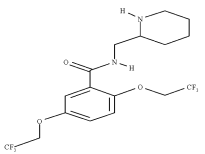
Quinine		Antimalarial	(S)-Naphthylurea	P=125 bars. 80/20-CO_2/MeOH, Et_3N (0.1%)	Quinidine	Quinine	1	(12)
Levamisole		Antinematodal	Chiralcel OD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]			1.2	(8)
			Chiralcel OJ	90/10/0.5-CO_2/MeOH/i-$PrNH_2$			2.73	(9)
			Chiralpak AD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]			0.2	(8)
			Chiralpak AD	90/10/0.5-CO_2/MeOH/i-$PrNH_2$			1.64	(9)
			Chiralpak AS	80/20/0.5-CO_2/i-PrOH/i-$PrNH_2$			0.74	(9)
BLOOD AND BLOOD-FORMING ORGANS								
Acenocoumarol		Antithrombotic	Chiralcel OD	80/20/0.5-CO_2/i-PrOH/TFA			4.39	(9)
			Chiralcel OJ	90/10/0.5-CO_2/MeOH/TFA			4.36	(9)
			Chiralpak AD	75/25/0.5-CO_2/MeOH/TFA			6.02	(9)
			Chiralpak AS	80/20/0.5-CO_2/i-PrOH/TFA			2.23	(9)

(*continued*)

Table 2. Continued

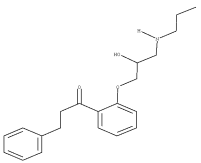
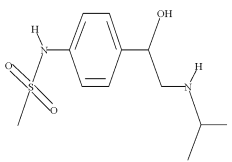
Drug Name	Structure	Therapeutic Cat.	Csp Trade Name	Mobile Phase	First	Second	α	Rs	Ref.
Warfarin		Antithrombotic	Chirex 3005	85/15-CO_2/MeOH, i-PrNH_2 (0.5%)			1.07	1.33	(13)
			Chirex 3022	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				1	(10)
			Chirex 3022	80/20-CO_2/MeOH, TFA (0.5%)			1.05	1.2	(14)
			Cyclose beta-6-OH-T	P=150 bars. 80/20-CO_2/MeCN [5min gradient to 20/80 in 10min]			1.06		(15)
			Chirobiotic R	P=150 bars. 75/25-CO_2/MeOH, TFA 10mM				2.2	(16)
			Chirobiotic T	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				1.3	(10)
			Chirobiotic V	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				3.9	(10)
			Chirobiotic V	85/15-CO_2/MeOH, i-PrNH_2 (0.5%)			1.02	0.73	(13)
			Chiralcel OD	90/10/0.5-CO_2/MeOH/TFA				11.15	(9)
			Chiralcel OD	P=200 bars. 80/20-CO_2/EtOH			1.57		(11)
			Chiralcel OD	80/20-CO_2/MeOH, i-PrNH_2 (0.5%)			1.72	5.64	(13)
			Chiralcel OJ	90/10/0.5-CO_2/MeOH/TFA				3.01	(9)
			Chiralpak AD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				8.1	(8)
			Chiralpak AD	80/20-CO_2/MeOH, i-PrNH_2 (0.5%)			1.94	14.72	(13)
			Chiralpak AS	93/7/0.5-CO_2/MeOH/TFA				1.88	(9)
			Chiralpak AS	60/40- CO_2/MeOH	1.2	2.25			(21)
			Chiralpak AS	50/50-CO_2/MeCN	1.25	2.9			(20)

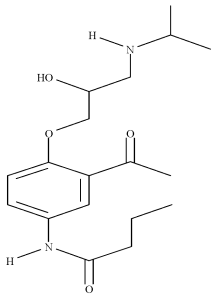
CARDIOVASCULAR SYSTEM

Piperoxan 	Anti-adregenic agent	Cyclobond I SN	90/10-CO_2/MeOH	1.08	0.7	(3)
		Cyclobond I 2000 SN	P=150 bars. 90/10-CO_2/MeOH	1.08	0.7	(4)
Disopyramide 	Anti-arrhythmic	Chirobiotic V	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]		1.4	(8)
		Chiralpak AD	73/27-CO_2/EtOH	1.48	2.59	(6)
		Chiralpak AD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]		1.2	(8)
Flecainide 	Anti-arrhythmic	Chiralcel OJ	73/27-CO_2/EtOH	1.18	1.01	(6)

(*continued*)

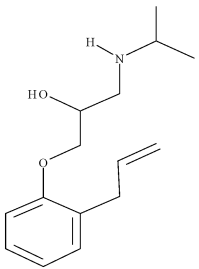
Table 2. Continued

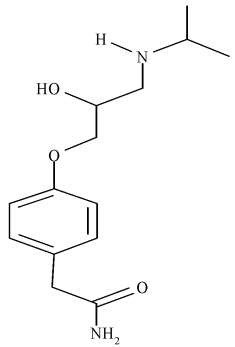
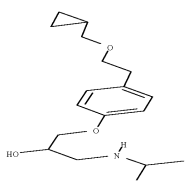
Drug Name	Structure	Therapeutic Cat.	Csp Trade Name	Mobile Phase	First	Second	α	Rs	Ref.
Propafenone		Anti-arrhythmic	Chiralcel OD	73/27-CO_2/EtOH			1.03	0.93	(6)
			Chiralpak AD	73/27-CO_2/EtOH			1.04	1.24	(6)
Sotalol		Alpha, beta-blocker	Chiralcel OD	80/20/0.5-CO_2/i-PrOH/i-PrNH_2				0.54	(9)
			Chiralpak AD	90/10/0.5-CO_2/MeOH/i-PrNH_2				1.67	(9)
			Chiralpak AS	80/20/0.5-CO_2/MeOH/i-PrNH_2				0.74	(9)

Acebutolol 	Beta-blocker	ChyRoSine-A	95/5-CO_2/[MeOH/Dioxane (2/1), n-$PrNH_2$ (1%)]			1.11	1.1	(18)
		ChyRoSine-A	95/5-CO_2/MeOH, n-$PrNH_2$ (1%)			1.11		(19)
		Chirex 3022	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				0.8	(8)
		Chirex 3022	85/15-CO_2/MeOH, TFA (0.5%)			1.06	1.1	(14)
		Chirobiotic T	P=100 bars. 40/60/0.1-CO_2/MeOH/Et_3N			1.1	1.1	(1)
		Chirobiotic T	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				09	(8)
		Chirobiotic TAG	P=100 bars. 60/40-CO_2/MeOH, Et_3N (0.1%) TFA (0.1%)			1.11	1	(1)
		Chirobiotic V	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				2	(8)
		Chiralcel OD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				1	(8)
		Chiralcel OD	90/10-CO_2/MeOH, i-$PrNH_2$			1.08	1.5	(14)
		Chiralpak AD	85/15/0.5-CO_2/i-PrOH/i-$PrNH_2$				1.19	(9)
		Chiralpak AD	P=180 bars. 90/10-CO_2/i-PrOH			1.12		(11)
		Chiralpak AS	80/20/0.5-CO_2/i-PrOH/i-$PrNH_2$				0.31	(9)
		ChiraChrom A1	96/4-CO_2/MeOH, n-$PrNH_2$ (1%)			1.01		(19)
		ChyRoSine-A	96/4-CO_2/MeOH, n-$PrNH_2$ (1%)	(−)	(+)	1.22	1.5	(18)
		Chirex 3022	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				0,6	(8)
		Chirobiotic T	P=100 bars. 60/40-CO_2/MeOH, Et_3N (0.1%) TFA (0.1%)			1.15	1.5	(1)
		Chirobiotic TAG	P=100 bars. 70/30-CO_2/MeOH, Et_3N (0.1%) TFA (0.1%)			1.08	1	(1)

(*continued*)

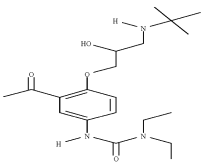
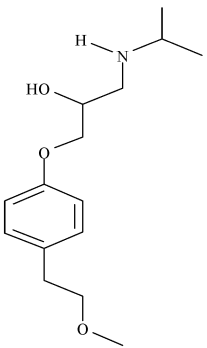
Table 2. Continued

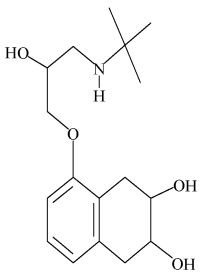
Drug Name	Structure	Therapeutic Cat.	Csp Trade Name	Mobile Phase	First	Second	α	Rs	Ref.
			Chirobiotic V	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				0.4	(8)
			Chiralcel OD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				5.1	(8)
Alprenolol		Beta-blocker	Chiralcel OD	90/10/0.5-CO_2/MeOH/i-$PrNH_2$				4.27	(9)
			Chiralcel OD	P=180 bars. 85/15-CO_2/i-PrOH			1.8		(11)
			Chiralcel OD	P=200 bars. 80/20-CO_2/MeOH, DMOA 10mM, $MeCO_2H$ 50mM			1.36		(20)
			Chiralcel OD-H	P=180 bars. 80/20-CO_2/i-PrOH, $EtSO_3H$ (0.1%)			2.05	6.73	(21)
			Chiralpak AD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [MeOH gradient from 5% (5min) to 30% (5min)]				0,2	(8)
			Chiralpak AD	90/10/0.5-CO_2/MeOH/i-$PrNH_2$				1.61	(9)
			Chiralpak AD	P=180 bars. 96.5/3.5-CO_2/EtOH			2.16		(11)
			Chiralpak AD	P=200 bars. 80/20-CO_2/MeOH, DMOA 10mM, $MeCO_2H$ 50mM			1.08		(20)
			Chiralpak AD-H	P=180 bars. 80/20-CO_2/i-PrOH, $EtSO_3H$ (0.1%)			1.27	2.4	(21)

Atenolol		Beta-blocker	ChyRoSine-A	94/6-CO_2/[MeOH/Dioxane (2/1), n-$PrNH_2$ (1%)]	S	R	1.11	1.1	(18)
			ChyRoSine-A	94/6-CO_2/MeOH, n-$PrNH_2$ (1%)			111		(19)
			Chirex 3022	85/15-CO_2/MeOH, TFA (0.5%)			1.07	0.8	(14)
			Chiralcel OC	P=180 bars. 87/13-CO_2/MeOH			1.24		(11)
			Chiralcel OD	80/20-CO_2/MeOH,i-$PrNH_2$ (0.5%)			2.2	11.2	(14)
			Chiralcel OD	P=180 bars. 85/15-CO_2/MeOH			2.21		(11)
			Chiralcel OD	P=225 bars. 78/22-CO_2/MeOH, DMOA 10mM, $MeCO_2H$ 50mM			1.76		(20)
			Chiralcel OD	P=150 bars. 80/20/0.1-CO_2/MeOH/ i$PrNH_2$			2	9.34	(22)
			Chiralcel OD-H	P=180 bars. 80/20-CO_2/MeOH, $EtSO_3H$ (0.1%)			2.6	13.84	(21)
			Chiralpak AD	P=180 bars. 93/7-CO_2/EtOH			1.07		(11)
			Chiralpak AD-H	P=180 bars. 80/20-CO_2/EtOH, $EtSO_3H$ (0.1%)			1.34	4.59	(21)
			ChiraChrom A1	96/4-CO_2/MeOH, n-$PrNH_2$ (1%)			1.05		(19)
			ChyRoSine-A	94/6-CO_2/MeOH, n-$PrNH_2$ (1%)			1.17	1.5	(18)
Betaxolol		Beta-blocker	Chiralcel OC	P=180 bars. 96/4-CO_2/MeOH			1.2		(11)
			Chiralcel OD	P=180 bars. 90/10-CO_2/EtOH			3.64		(11)
			Chiralpak AD	P=180 bars. 95/5-CO_2/EtOH			1.55		(11)

(*continued*)

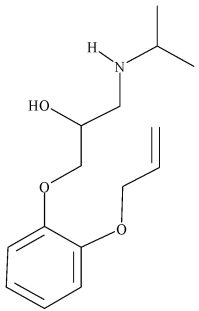
Table 2. Continued

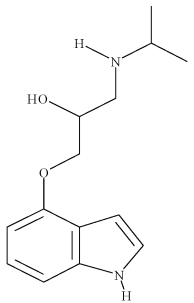
Drug Name	Structure	Therapeutic Cat.	Csp Trade Name	Mobile Phase	First	Second	α	Rs	Ref.
Celiprolol		Beta-blocker	Chiralcel OD	80/20-CO_2/MeOH			1.76	0.97	(23)
Metoprolol		Beta-blocker	Chirobiotic T	P=100 bars. 60/40-CO_2/MeOH, Et_3N (0.1%) TFA (0.1%)			1.14	1.5	(1)
			Chirobiotic TAG	P=100 bars. 40/60-CO_2/MeOH, Et_3N (0.1%) TFA (0.1%)			1,07	0,8	(1)
			Chirobiotic V	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				0.4	(8)
			Chiralcel OC	P=180 bars. 96/4-CO_2/MeOH			1,2		(11)
			Chiralcel OD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				10	(8)
			Chiralcel OD	P=180 bars. 85/15-CO_2/i-PrOH			3.46		(11)
			Chiralcel OD	80/20-CO_2/MeOH,i-$PrNH_2$ (0.5%)			2.77	12.7	(14)
			Chiralcel OD	80/20-CO_2/MeOH, DMOA 10mM			2.99		(20)
			Chiralcel OD	80/20-CO_2/MeOH, DMOA 10mM, TFA 50mM			3.04		(20)
			Chiralcel OD-H	P=180 bars. 80/20-CO_2/i-PrOH, $EtSO_3H$ (0.1%)			4.28	16.31	(21)

			Chiralpak AD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]			2.9	(8)
			Chiralpak AD	80/20/0.5-CO_2/i-PrOH/i-$PrNH_2$			1.81	(9)
			Chiralpak AD	P=180 bars. 95/5-CO_2/EtOH		1.5		(11)
			Chiralpak AD-H	P=180 bars. 80/20-CO_2/i-PrOH, $EtSO_3H$ (0.1%)		1.19	1.85	(21)
Nadolol		Beta-blocker	Chirobiotic T	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]			1.1	(8)
Nadolol			Chirobiotic V	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]			0.2	(8)
Nadolol A+B			Chiralcel OD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]			1.8	(8)
Nadolol A+B			Chiralcel OD	80/20-CO_2/MeOH		1.7	0.97	(23)
Nadolol			Chiralpak AD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]			0.4	(8)
Nadolol A+B			Chiralpak AD-H	P=180 bars. 80/20-CO_2/EtOH, $EtSO_3H$ (0.1%)	3.21	6.01		(21)

(*continued*)

Table 2. Continued

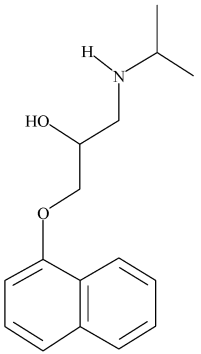
Drug Name	Structure	Therapeutic Cat.	Csp Trade Name	Mobile Phase	First	Second	α	Rs	Ref.
Oxprenolol		Beta-blocker	ChiraChrom A1	96/4-CO_2/MeOH, n-$PrNH_2$ (1%))			1.01		(19)
			ChyRoSine-A	94/6-CO_2/MeOH, n-$PrNH_2$ (1%)			1.2	2	(18)
			Chirex 3022	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				0.2	(8)
			Chirobiotic T	P=100 bars. 40/60/0.1-CO_2/MeOH, Et3N (0.1%)			1.14	1.8	(1)
			Chirobiotic T	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				1.7	(8)
			Chirobiotic V	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				0,4	(68)
			Chiralcel OC	P=180 bars. 95/5-CO_2/MeOH			1.22		(11)
			Chiralcel OD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				6.8	(8)
			Chiralcel OD	P=180 bars. 85/15-CO_2/i-PrOH			3.6		(11)
			Chiralcel OD	P=150 bars. 80/20/0.1-CO_2/MeOH/ $iPrNH_2$			2.02	6.77	(22)
			Chiralcel OD-H	P=180 bars. 80/20-CO_2/i-PrOH, $EtSO_3H$ (0.1%)			4,06	15,89	(21)
			Chiralpak AD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				1.2	(8)
			Chiralpak AD	90/10/0.5-CO_2/MeOH/i-$PrNH_2$				1.9	(9)
			Chiralpak AD	P=180 bars. 95/5-CO_2/EtOH			2.29		(11)

Pindolol		Beta-blocker	ChiraChrom A1	90/10-CO_2/MeOH, n-$PrNH_2$ (1%)	1.16		(19)
			ChyRoSine-A	90/10-CO_2/MeOH, n-$PrNH_2$ (1%)	1.71	4.5	(18)
			Chirobiotic T	P=100 bars. 60/40-CO_2/MeOH, Et3N (0.1%) TFA (0.1%)	1.12	1.4	(1)
			Chirobiotic V	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]		0.6	(8)
			Chiralcel OC	P=180 bars. 90/10-CO_2/MeOH)	1.23		(11)
			Chiralcel OD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]		11.7	(8)
			Chiralcel OD	90/10-CO_2/MeOH, i-$PrNH_2$ (0.5%)	4.49	17.6	(14)
			Chiralcel OD	P=180 bars. 80/20-CO_2/EtOH	4.96		(11)
			Chiralcel OJ	73/27-CO_2/EtOH	1.03	0.72	(6)
			Chiralcel OJ	90/10/0.5-CO_2/MeOH/i-$PrNH_2$		1.51	(9)
			Chiralpak AD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]		1.2	(8)
			Chiralpak AD	P=180 bars. 93/7-CO_2/EtOH	1.17		(11)
			Chiralpak AS	80/20/0.5-CO_2/MeOH/i-$PrNH_2$		1.67	(9)
			(S)-DNB-Leu	96/4-CO_2/MeOH, n-$PrNH_2$ (1%)	1.03	0.1	(24)

(*continued*)

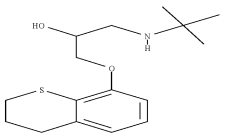
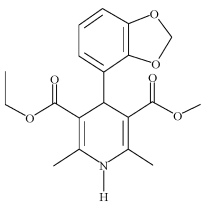
Table 2. Continued

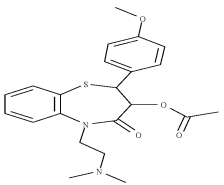
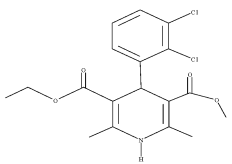
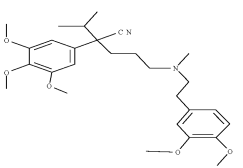
Drug Name	Structure	Therapeutic Cat.	Csp Trade Name	Mobile Phase	First	Second	α	Rs	Ref.
			ChiraChrom A1	93/7-CO_2/MeOH, n-$PrNH_2$ (1%))	S	R	1.18		(19)
			Chiraline	91/9-CO_2/MeOH, n-$PrNH_2$ (1%)			1.13	1.4	(24)
			ChyRoSine-A	90/10-CO_2/MeOH, n-$PrNH_2$ (1%)	S	R	1.71	4.1	(18)
			Whelk-O1	70/30/0.1-CO_2/i-PrOH/Et_3N			1.23	0.81	(25)
			Chirex 3005	85/15-CO_2/MeOH, TFA (0.5%)				0.2	(8)
			Chirex 3022	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				0.3	(8)
			Chirex 3022	85/15-CO_2/MeOH, TFA (0.5%)			1.07	1.1	(14)
			Chirobiotic T	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				2	(8)

Propranolol 	Beta-blocker	Chirobiotic T	85/15-CO_2/MeOH, i-PrNH_2 (0.5%)	1.09	3.51	(13)
		Chirobiotic V	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]		1.3	(8)
		Chirobiotic V	85/15-CO_2/MeOH, i-PrNH_2 (0.5%)	1.07	2.45	(13)
		Chiralcel OD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]		6	(8)
		Chiralcel OD	P=180 bars. 85/15-CO_2/EtOH	2.24		(11)
		Chiralcel OD	80/20-CO_2/MeOH, i-PrNH_2 (0.5%)	1.74	8.6	(14)
		Chiralcel OD-H	P=180 bars. 80/20-CO_2/i-PrOH, $EtSO_3H$ (0.1%)	2.23	8.03	(21)
		Chiralpak AD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]		1.4	(8)
		Chiralpak AD	P=180 bars. 95/5-CO_2/EtOH	1.55		(11)
		Chiralpak AD	90/10-CO_2/MeOH, i-PrNH_2 (0.5%)	1.3	7.19	(13)
		Chiralpak AD-H	70/30-CO_2/EtOH/Et_2NH (0.5%)	1.27	7.5	(26)
		Chiralpak AS	80/20/0.5-CO_2/MeOH/i-PrNH_2		0.47	(9)

(*continued*)

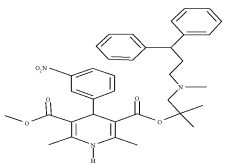
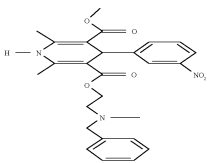
Table 2. Continued

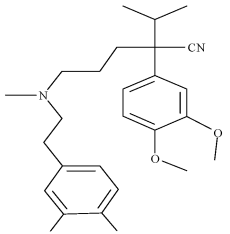
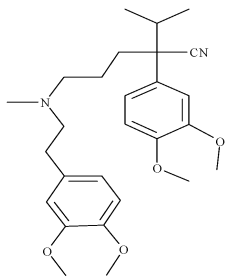
Drug Name	Structure	Therapeutic Cat.	Csp Trade Name	Mobile Phase	First	Second	α	Rs	Ref.
Tertatolol		Beta-blocker	Cyclose beta-6-OH-T	P=150 bars. 95/5-CO_2/MeOH [during 5min gradient to 50/50 in 10min]			1.01		(15)
Amlodipine		Calcium channel blocker	Chirex 3022	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				3.1	(8)
			Chirobiotic V	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				1	(8)

Diltiazem	Calcium channel blocke	Chiralcel OC	87/13-CO_2/i-PrOH, Et_2NH (0.5%)	R,R 10	S,S 14			(27)
Diltiazem		Chiralcel OD	95.2/4.8-CO_2/i-PrOH, Et_2NH (0.5%)	2S,3R	2R,3S	1.33	3.54	(27)
cis-Diltiazem		Chiralcel OD	87/13-CO_2/i-PrOH, Et_2NH (0.5%)	R,R	S,S	1.2	2.55	(27)
trans-Diltiazem		Chiralcel OF	77.5/22.5-CO_2/i-PrOH, Et_2NH (0.5%)	2S,3R	2R,3S	1.23		(28)
Diltiazem		Chiralcel OF	87/13-CO_2/i-PrOH, Et_2NH (0.5%)	2R,2R	2S,2S	1.63	4.85	(29)
Diltiazem		Chiralpak AD	90/10/0.5-CO_2/MeOH/i-$PrNH_2$				2.26	(9)
Felodipine	Calcium channel blocker	Chiralpak AD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				0.6	(8)
								
Gallopamil	Calcium channel blocker	Chirex 3022	80/20-CO_2/MeOH, TFA (0.5%)			1.13	2.2	(14)
								

(*continued*)

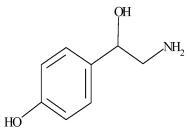
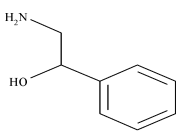
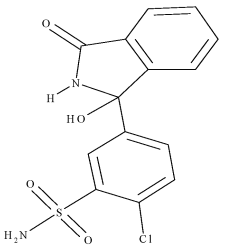
Table 2. Continued

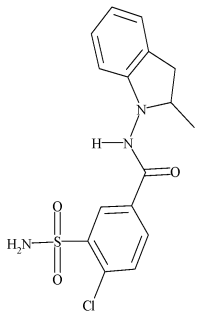
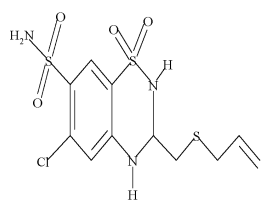
Drug Name	Structure	Therapeutic Cat.	Csp Trade Name	Mobile Phase	First	Second	α	Rs	Ref.
Lercanidipine		Calcium channel blocker	Chiralpak AD	73/27-CO_2/EtOH			1.03	0.83	(6)
Nicardipine		Calcium channel blocker	Chiralcel OJ	73/27-CO_2/EtOH			1.04	1.24	(6)
			Chiralpak AD-H	P=180 bars. 80/20-CO_2/EtOH, $EtSO_3H$ (0.1%)			1.14	1.31	(21)

Verapamil	Calcium channel blocker	Whelk-O1	75/25/0.1-CO_2/MeCN/Et_3N	1.19	1.48	(25)
		Whelk-O1	60/40/0.1-CO_2/i-PrOH/Et_3N	1.13	0.44	(25)
		Chirex 3022	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]		0.9	(8)
		Chirex 3022	80/20-CO_2/MeOH, TFA (0.5%)	1.09	1.8	(14)
		Cyclobond I SN	90/10-CO_2/MeOH	1.05	1	(3)
		Cyclobond I 2000 SN	P=150 bars. 90/10-CO_2/MeOH	1.05	1	(4)
		Chirobiotic V	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]		0.5	(8)
		Chiralcel OD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]		1.5	(8)
		Chiralcel OD	90/10/0.5-CO_2/MeOH/i-PrNH_2		0.81	(9)
Verapamil	Calcium channel blocker	Chiralcel OJ	95/5/0.5-CO_2/i-PrOH/i-PrNH_2		1.61	(9)
		Chiralpak AD	73/7-CO_2/EtOH	1.3	0.85	(6)
		Chiralpak AD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]		0.2	(8)
		Chiralpak AD	80/20/0.5-CO_2/i-PrOH/i-PrNH_2		1.69	(9)

(*continued*)

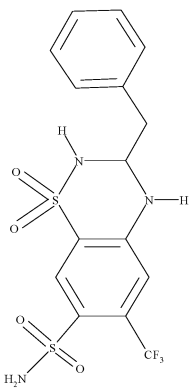
Table 2. Continued

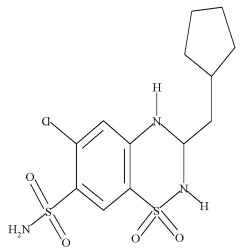
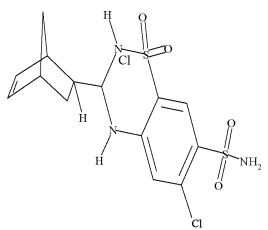
Drug Name	Structure	Therapeutic Cat.	Csp Trade Name	Mobile Phase	First	Second	α	Rs	Ref.
Octopamine		Cardiac stimulant	Chiralpak AD-H	P=180 bars. 80/20-CO_2/EtOH, $EtSO_3H$ (0.1%)			1.39	3.8	(21)
Phenyleth-anolamine		Cardiac stimulant	Chiralpak AD-H	P=180 bars. 80/20-CO_2/EtOH, $EtSO_3H$ (0.1%)			1.09	1.21	(21)
Chlorthalidone		Low-ceiling diuretic	Cyclose beta-6-OH	P=150 bars. 95/5-CO_2/MeOH [during 5min gradient to 50/50 in 10min]			1.02		(15)
			Cyclose beta-2-OH-T	P=150 bars. 95/5-CO_2/MeOH [during 5min gradient to 50/50 in 10min]			1.03		(15)
			Cyclose beta-6-OH-T	P=150 bars. 95/5-CO_2/MeOH [during 5min gradient to 50/50 in 10min]			1.02		(15)
			Chirobiotic R	P=100 bars. 70/30-CO_2/MeOH			1.08	1	(1)
			Chirobiotic T	P=100 bars 60/40-CO_2/MeOH, Et_3N (0.1%) TFA (0.1%)			1.37	2.9	(1)
			Chirobiotic TAG	P=100 bars. 55/45-CO_2/MeOH			1.82	3.6	(1)

Indapamide 	Low-ceiling diuretic	Chirex 3022	80/20-CO_2/MeOH/iPrNH_2 (0.5%)	1.05	1.4	(13)
		Cyclose beta-2-OH-T	P=150 bars. 95/5-CO_2/MeOH [during 5min gradient to 50/50 in 10min]	1.01		(15)
		Cyclose beta-6-OH-T	P=150 bars. 95/5-CO_2/MeOH [during 5min gradient to 50/50 in 10min]	1.01		(15)
		Chirobiotic T	85/15-CO_2/MeOH/i-PrNH_2 (0.5%)	1.03	1.08	(13)
		Chirobiotic V	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]		0.9	(8)
		Chirobiotic V	85/15-CO_2/MeOH/iPrNH_2 (0.5%)	1.04	1.12	(13)
		Chiralcel OD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]		2	(8)
		Chiralcel OD	70/30-CO_2/MeOH/iPrNH_2 (0.5%)	1.35	5.55	(13)
		Chiralpak AD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]		0.4	(8)
Altizide 	Thiazide diuretic	Chiralcel OD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]		2.6	(8)

(*continued*)

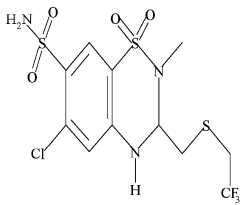
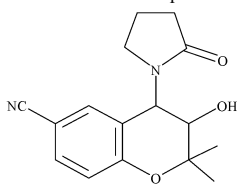
Table 2. Continued

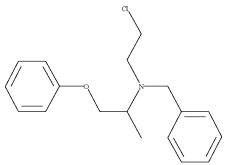
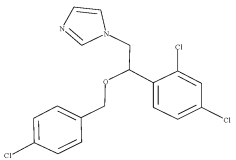
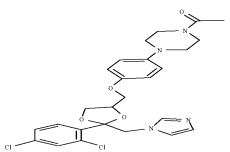
Drug Name	Structure	Therapeutic Cat.	Csp Trade Name	Mobile Phase	First	Second	α	Rs	Ref.
Bendroflu-methiazide		Thiazide diuretic	Cyclose beta-2-OH	P=150 bars. 95/5-CO_2/MeOH [during 5min gradient to 50/50 in 10min]			1.02		(15)
			Cyclose beta-6-OH-T	P=150 bars. 95/5-CO_2/EtOH [during 5min gradient to 50/50 in 10min]			1.04		(15)
			Cyclose beta-6-OH-T	P=150 bars. 95/5-CO_2/MeCN [during 5min gradient to 50/50 in 10min]			1.04		(15)
			Cyclobond I SN	70/30-CO_2/MeOH			1.11	1.9	(3)
			Cyclobond I 2000 SN	P=150 bars. 70/30-CO_2/MeOH			1.11	1.9	(4)
			Chirobiotic T	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				0.8	(8)
			Chirobiotic V	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				1.3	(8)
			Chiralcel OD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				0.3	(8)
			Chiralpak AD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				1.4	(8)

Cyclopenthiazide 	Thiazide diuretic	Chirex 3022	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]	1.4	(8)
		Chirobiotic T	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]	0.9	(8)
		Chirobiotic V	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]	1.5	(8)
		Chiralcel OD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]	2.6	(8)
		Chiralpak AD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]	1.5	(8)
Cyclothiazide 	Thiazide diuretic	Chirex 3022	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]	0.4	(8)
		Chiralcel OD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]	2.9	(8)
		Chiralpak AD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]	3.2	(8)

(*continued*)

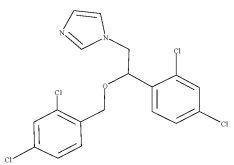
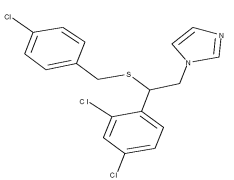
Table 2. Continued

Drug Name	Structure	Therapeutic Cat.	Csp Trade Name	Mobile Phase	First	Second	α	Rs	Ref.
Polythiazide		Thiazide diuretic	Chirobiotic T	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				0.4	(8)
			Chiralpak AD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				3.5	(8)
Cromakalim		Peripheral vasodilator diuretic	Cyclobond I SN	96/4-CO_2/MeOH			1.08	1.5	(3)
			Cyclobond I 2000 SN	P=150 bars. 96/4-CO_2/MeOH			1.08	1.5	(4)
			Cyclobond I 2000 RN	P=150 bars. 96/4-CO_2/MeOH			1.03	0.7	(4)
			Chiralcel OD	80/20-CO_2/MeOH, i-$PrNH_2$ (0.5%)			1.37	3.7	(14)

Phenoxy-benzamine 	Peripheral vasodilator diuretic	Chiralpak AD-H	P=180 bars. 80/20-CO_2/EtOH, $EtSO_3H$ (0.1%)			1.74	8.71	(21)
DERMATOLOGIGALS								
Econazole 	Antifungal	Chiralcel OD	73/27-CO_2/EtOH			1.02	0.6	(6)
		Chiralcel OJ	73/27-CO_2/EtOH			1.22	3.18	(6)
		Chiralpak AD	73/27-CO_2/EtOH			1.11	2.43	(6)
Ketoconazole 	Antifungal	Chiralcel OD	P=200 bars. 70/30-CO_2/i-PrOH			1.21	2.72	(30)
		Chiralpak AD	P=200 bars. 70/30-CO_2/EtOH			1.63	6.58	(30)
		Chiralpak AD	P=200 bars. 70/30-CO_2/EtOH, TFA (0.1%) Et_3N (0.1%	4.5	6.5			(30)

(*continued*)

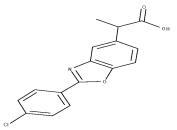
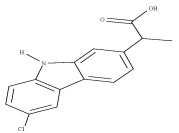
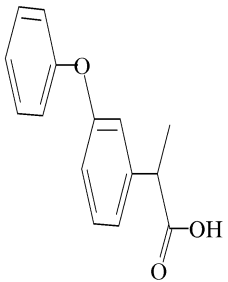
Table 2. Continued

Drug Name	Structure	Therapeutic Cat.	Csp Trade Name	Mobile Phase	First	Second	α	Rs	Ref.
Miconazole		Antifungal	Chiralcel OJ	73/27-CO_2/EtOH			1.13	3.63	(6)
			Chiralpak AD	73/27-CO_2/EtOH			1.22	4.82	(6)
Sulconazole		Antifungal	Chiralcel OJ	73/27-CO_2/EtOH			1.02	0.93	(6)
			Chiralpak AD	73/27-CO_2/EtOH			1.05	1.81	(6)

GENITO-URINARY SYSTEM AND SEX HORMONES

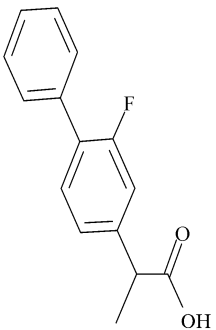
Not a single chiral drug found in this ATC class separated by SFC

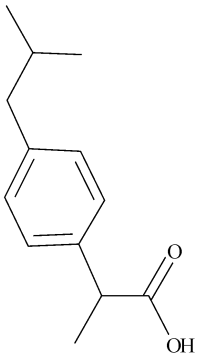
MUSCULO-SKELETAL SYSTEM

Benoxaprofen 	Anti-inflammatory	Chiralcel OJ	P=200 bars. 80/20-CO_2/MeOH, Et3N (0.5%) TFA (0.5%)	1.31	2.96	(31)
		Chiralcel OJ	P=200 bars. 80/20-CO_2/MeOH, Et3N (0.5%) TFA (0.5%)	1.27	2.87	(31)
Carprofen 	Anti-inflammatory	Chiralcel OJ	P=200 bars. 80/20-CO_2/MeOH, Et3N (0.5%) TFA (0.5%)	1.22	2.62	(31)
Fenoprofen 	Anti-inflammatory	Chirobiotic T	P=100 bars. 95/5-CO_2/MeOH, TFA (0.5%)	1.07	1.2	(1)
		Chirobiotic T	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]		0.8	(8)
		Chirobiotic TAG	P=100 bars. 95/5-CO_2/MeOH, TFA (0.5%)	1.05	1.1	(1)
		Chiralcel OJ	90/10/0.5-CO_2/i-PrOH/TFA		1.12	(9)
		Chiralcel OJ	P=200 bars. 85/15-CO_2/MeCN/Et_3N (0.5%) TFA (0.5%)	1.07	0.69	(31)
		Chiralpak AD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]		3.3	(8)

(*continued*)

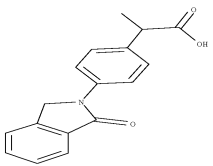
Table 2. Continued

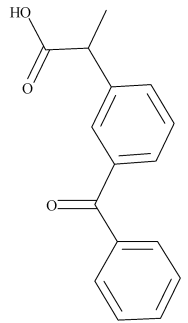
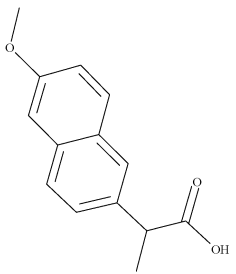
Drug Name	Structure	Therapeutic Cat.	Csp Trade Name	Mobile Phase	First	Second	α	Rs	Ref.
			Chiralpak AD	80/20/0.5-CO_2/i-PrOH/TFA				1.45	(9)
			Chiralpak AD	96/4-CO_2/MeOH			1.15	2.7	(32)
Flurbiprofen		Anti-inflammatory	Chirex 3005	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				0.5	(8)
			Chirobiotic T	P=100 bars. 95/5-CO_2/MeOH, TFA (0.5%)			1.07	1.2	(1)
			Chirobiotic T	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				0.6	(8)
			Chirobiotic TAG	P=100 bars. 95/5-CO_2/MeOH, TFA (0.5%)			1.06	1.2	(1)
			Chiralcel OJ	P=200 bars. 85/15-CO_2/MeCN/Et_3N (0.5%) TFA (0.5%)			1.11	1.27	(31)
			Chiralpak AD	96/4-CO_2/MeOH			1.77	12.5	(32)
			Chiralpak AD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				11.7	(8)
			Chiralpak AD	90/10/0.5-CO_2/MeOH/TFA				5.72	(9)
			Chiralpak AD	85/15-CO_2/EtOH (95%)	R	S	1.43		(33)
			Chiralpak AD	85/15-CO_2/i-PrOH, Citric acid 5mM.	R	S	1.24		(33)
			Chiralpak AD-H	85/15-CO_2/MeOH	(−)	(+)	1.66	1.7	(34)

Ibuprofen 	Anti-inflammatory	Whelk-O1	92/8/0.02 CO_2/i-PrOH/TFA			1.17	1.3	(25)
		Cyclobond I SN	95/5-CO_2/MeOH			1.06	1	(3)
		Cyclobond I 2000 SN	P=150 bars. 95/5-CO_2/MeOH			1.06	1	(4)
		Cyclobond I 2000 RN	P=150 bars. 95/5-CO_2/MeOH			1.04	0.5	(4)
		Chirobiotic R	P=100 bars. 93/7-CO_2/MeOH, TFA (0.5%)			1.14	2.2	(1)
		Chirobiotic T	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				0.9	(8)
		Chirobiotic T	93/7-CO_2/MeOH, TFA (0.5%)			1.13	1.5	(1)
		Chirobiotic T	97/3-CO_2/i-PrOH			1.35		(35)
		Chirobiotic TAG	93/7-CO_2/MeOH, TFA (0.5%)			1.14	2.2	(1)
		Chiralcel OJ	90/10/0.5-CO_2/MeOH/TFA				1.32	(9)
		Chiralcel OJ	P=200 bars. 97/3-CO_2/MeOH/Et_3N (0.5%) TFA (0.5%)			1.19	1.8	(31)
		Chiralpak AD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				3.1	(8)
		Chiralpak AD	96/4-CO_2/MeOH			1.26	3.5	(32)
		Chiralpak AD	90/10-CO_2/EtOH (95%)	R	S	1.07		(33)
		Chiralpak AD	90/10-CO_2/i-PrOH	S	R	1.04		(33)
		Chiralpak AD	90/10-CO_2/i-PrOH, Citric acid 5mM.	S	R	1.1		(33)
		Kromasil CHI-TBB	97/3-CO_2/i-PrOH			1.37	4.4	(35)

(*continued*)

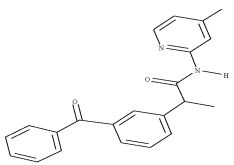
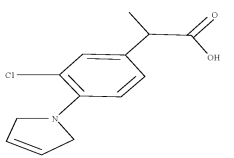
Table 2. Continued

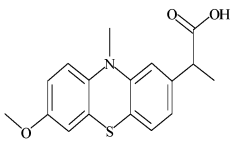
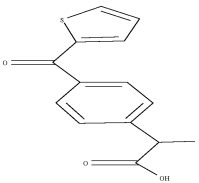
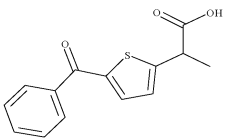
Drug Name	Structure	Therapeutic Cat.	Csp Trade Name	Mobile Phase	First	Second	α	Rs	Ref.
Indoprofen		Anti-inflammatory	Chirobiotic T	P=100 bars. 85/15-CO_2/MeOH, TFA (0.5%)			1.11	1.9	(1)
			Chirobiotic TAG	P=100 bars. 80/20-CO_2/MeOH, TFA (0.5%)			1.14	1.6	(1)
Ketoprofen		Anti-inflammatory	Whelk-O1	75/25/0.5-CO_2/i-PrOH/$MeCO_2H$			1.14	1.47	(25)
			Chirex 3005	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				04	(8)
			Chirex 3005	85/15-CO_2/MeOH, i-$PrNH_2$ (0.5%)			1.08	1.78	(13)
			Chirex 3005	70/30-CO_2/MeOH	R	S		1.48	(36)
			Chirobiotic T	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				1.1	(8)
			Chiralcel OJ	95/5/0.5-CO_2/i-PrOH/TFA				1.72	(9)

Ketoprofen 	Anti-inflammatory	Chiralcel OJ	P=200 bars. 95/5-CO_2/MeOH/Et_3N (0.5%) TFA (0.5%)			1.08	0.99	(31)
		Chiralcel OJ	P=200 bars. 85/15-CO_2/MeCN/Et_3N (0.5%) TFA (0.5%)			1.16	1.54	(31)
		Chiralpak AD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				1.2	(8)
		Chiralpak AD	90/10/0.5-CO_2/i-PrOH/TFA				1,16	(9)
		Chiralpak AD	95/5-CO_2/MeOH, i-$PrNH_2$ (0.5%)			1.11	3.17	(13)
		Chiralpak AD	96/4-CO_2/MeOH			1.09	1.8	(32)
		Chiralpak AD	90/10-CO_2/EtOH (95%)	S	R	1.03		(33)
		Chiralpak AD	90/10-CO_2/i-PrOH	R	S	1.06		(33)
		Chiralpak AD	90/10-CO_2/i-PrOH, citric acid 5mM	R	S	1,08		(33)
Naproxen 	Anti-inflammatory	(S,S)-Whelk-O1	P=200 bars. 80/20-CO_2/MeOH			2.52	8.68	(37)
		(S,S)-Whelk-O1	P=200 bars. 80/20-CO_2/MeOH, citric acid (0.1%)			2.53	8.44	(37)
		Chirex 3005	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				1.4	(8)
		Cyclose beta-6-OH	P=150 bars. 95/5-CO_2/MeOH [during 5min gradient to 50/50 in 10min]			1.03		(15)
		Chirobiotic T	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				1.6	(8)
		Chiralcel OD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				1.4	(8)

(*continued*)

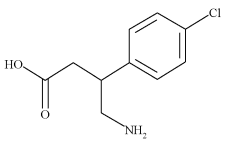
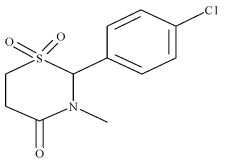
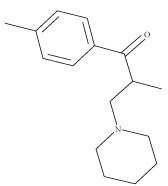
Table 2. Continued

Drug Name	Structure	Therapeutic Cat.	Csp Trade Name	Mobile Phase	First	Second	α	Rs	Ref.
			Chiralpak AD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				2.6	(8)
			Chiralpak AD	96/4-CO_2/MeOH			1.25	5	(32)
			Chiralpak AD	85/15-CO_2/MeOH	R	S	1.19		(33)
			Chiralpak AD	85/15-CO_2/EtOH (95%)	R	S	1.07		(33)
			Chiralpak AD	85/15-CO_2/i-PrOH	S	R	1.08		(33)
			Chiralpak AD	85/15-CO_2/i-PrOH, citric acid 5mM	S	R	1.09		(33)
			Kromasil CHI-TBB	94.3/4.7-CO_2/i-PrOH	S(+)	R(−)	1.44	5.76	(38)
Piketoprofen		Anti-inflammatory	Chiralcel OJ	P=200 bars. 85/15-CO_2/MeCN, Et3N (0.5%) TFA (0.5%)			1.4	2.4	(31)
Pirprofen		Anti-inflammatory	Chiralcel OJ	P=200 bars. 95/5-CO_2/MeOH, Et3N (0.5%) TFA (0.5%)			1.15	1.96	(31)

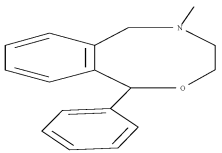
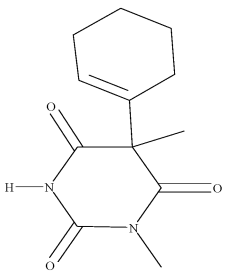
Protizinic acid		Anti-inflammatory	Chiralcel OJ	P=200 bars. 80/20-CO_2/MeCN, Et3N (0.5%) TFA (0.5%)	1.05	0.57 (31)
Suprofen		Anti-inflammatory	Cyclobond I SN	80/20-CO_2/EtOH	1.06	0.7 (3)
			Cyclobond I 2000 RN	P=15 bars. 80/20-CO_2/MeOH	1.05	0.6 (4)
			Chiralcel OD	88/12/0.5-CO_2/i-PrOH/TFA		1.6 (9)
			Chiralcel OJ	80/20/0.5-CO_2/MeOH/TFA		1.69 (9)
			Chiralpak AD	90/10/0.5-CO_2/MeOH/TFA		4.24 (9)
			Chiralpak AD	85/15-CO_2/MeOH	1.26	1.62 (39)
Suprofen		Anti-inflammatory	Chiralpak AS	80/20/0.5-CO_2/i-PrOH/TFA		1.69 (9)
Tiaprofenic acid		Anti-inflammatory	Chiralcel OJ	P=200 bars. 95/5-CO_2/MeOH, Et3N (0.5%) TFA (0.5%)	1.05	0.61 (31)
			Chiralpak AD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]		1.5 (8)
			Chiralpak AD	96/4-CO_2/MeOH	1.01	(32)

(*continued*)

Table 2. Continued

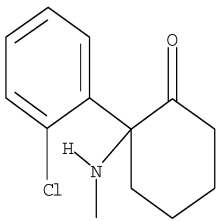
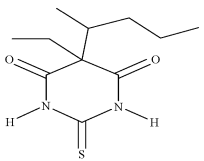
Drug Name	Structure	Therapeutic Cat.	Csp Trade Name	Mobile Phase	First	Second	α	Rs	Ref.
Baclofen		Muscle relaxant	Chiralpak AD-H	P=180 bars. 75/25-CO_2/EtOH, $EtSO_3H$ (0.1%)			2.93	7.31	(21)
Chlormezanone		Muscle relaxant	Chiralcel OD	P=200 bars. 80/20/1-CO_2/EtOH/n-$PrNH_2$			1.58		(11)
Tolperisone		Muscle relaxant	Cyclose beta-6-OH	P=150 bars. 95/5-CO_2/MeOH [during 5min gradient to 50/50 in 10min]			1.12		(15)
			Cyclose beta-2-OH-T	P=150 bars. 95/5-CO_2/MeOH [during 5min gradient to 50/50 in 10min]			1.07		(15)
			Cyclose beta-6-OH-T	P=150 bars. 95/5-CO_2/MeOH [during 5min gradient to 50/50 in 10min]			1.1		(15)
			Cyclose beta-6-OH-T	P=150 bars. 80/20-CO_2/MeCN [during 5min gradient to 50/50 in 10min]			1.06		(15)
			Chiralpak AD-H	P=180 bars. 80/20-CO_2/EtOH, $EtSO_3H$ (0.1%)			1.31	3.2	(21)

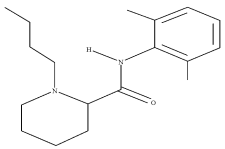
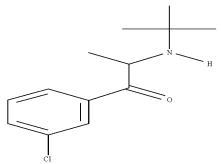
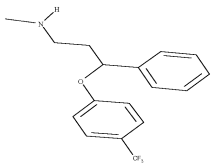
NERVOUS SYSTEM

Nefopam	Non-narcotic analgesic	Cyclose beta-2-OH-T	P=150 bars. 95/5-CO_2/MeOH [during 5min gradient to 50/50 in 10min]	1.09		(15)
		Cyclose beta-6-OH-T	P=150 bars. 95/5-CO_2/MeOH [during 5min gradient to 50/50 in 10min]	1.14		(15)
Hexobarbital	General anesthetic	Chirobiotic V	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]		0.9	(8)
		Chiralcel OD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]		0.7	(8)
		Chiralcel OD	93/7/0.5-CO_2/MeOH/TFA		1.62	(9)
		Chiralcel OJ	90/10/0.5-CO_2/i-PrOH/TFA		0.74	(9)
		Chiralcel OJ	P=200 bars. 95/5-CO_2/MeOH, Et3N (0.5%) TFA (0.5%)	1.09	0.54	(31)
		Chiralcel OJ	P=200 bars. 85/15-CO_2/MeCN, Et3N (0.5%) TFA (0.5%)	1.07	0.63	(31)
		Chiralpak AD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]		21.2	(8)
		Chiralpak AS	95/5/0.5-CO_2/MeOH/TFA		2.54	(9)

(*continued*)

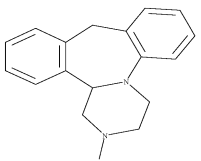
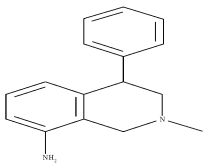
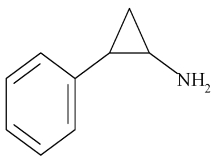
Table 2. Continued

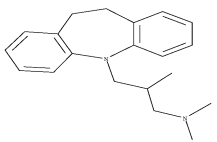
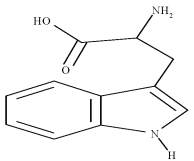
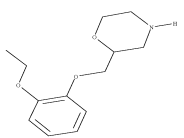
Drug Name	Structure	Therapeutic Cat.	Csp Trade Name	Mobile Phase	First	Second	α	Rs	Ref.
Ketamine		General anesthetic	Chirex 3022	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				0.9	(8)
			Chirobiotic T	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				1	(8)
			Chiralcel OD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				0.2	(8)
			Chiralcel OJ	90/10/0.5-CO_2/MeOH i-$PrNH_2$				2.06	(9)
			Chiralpak AD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				1.4	(8)
			Chiralpak AD	90/10/0.5-CO_2/MeOH/i-$PrNH_2$				1.49	(9)
			Chiralpak AD-H	P=180 bars. 80/20-CO_2/EtOH, $EtSO_3H$ (0.1%)			1.56	4.93	(21)
			Chiralpak AS	80/20/0.5-CO_2/i-PrOH/i-$PrNH_2$				1.96	(9)
Thiopental		General anesthetic	Chiralcel OD	95/5/0.5-CO_2/MeOH/i-$PrNH_2$				0.57	(9)
			Chiralcel OJ	95/5/0.5-CO_2/MeOH/i-$PrNH_2$				2.17	(9)
			Chiralpak AD	90/10/0.5-CO_2/MeOH/i-$PrNH_2$				0.55	(9)

Bupivacaine 	Local anesthetic	Chiralpak AD-H	P=180 bars. 80/20-CO_2/EtOH, $EtSO_3H$ (0.1%)	1.61		(21)
Bupropion 	Antidepressant	Chiralpak AD	95/5/0.5-CO_2/MeOH/i-$PrNH_2$		1.67	(9)
Fluoxetine 	Antidepressant	Chiralcel OD	95/5/0.5-CO_2/MeOH/i-$PrNH_2$		0.55	(9)
		Chiralpak AD	97/3/0.5-CO_2/MeOH/i-$PrNH_2$		1.56	(9)
		Chiralpak AD-H	P=180 bars. 80/20-CO_2/EtOH, $EtSO_3H$ (0.1%)	1.14	0.91	(21)

(*continued*)

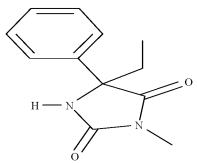
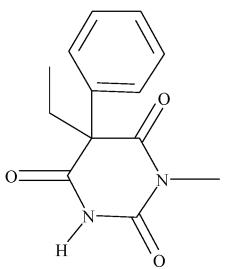
Table 2. Continued

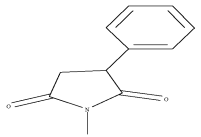
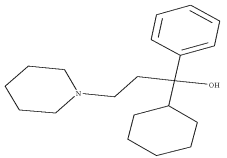
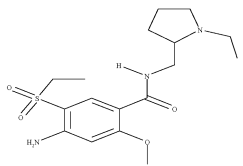
Drug Name	Structure	Therapeutic Cat.	Csp Trade Name	Mobile Phase	First	Second	α	Rs	Ref.
Mianserin		Antidepressant	Chiralcel OD	70/30-CO_2/MeOH, i$PrNH_2$ (0.5%)			1.5	3	(32)
			Chiralcel OJ	90/10/0.5-CO_2/MeOH/i-$PrNH_2$				3.64	(9)
			Chiralpak AD	90/10/0.5-CO_2/MeOH/i-$PrNH_2$				6.05	(9)
Nomifensine		Antidepressant	Chiralpak AD-H	P=180 bars. 80/20-CO_2/EtOH, $EtSO_3H$ (0.1%)			1.6	1.49	(21)
Tranylcypromine		Antidepressant	Chiralpak AD-H	P=180 bars. 80/20-CO_2/EtOH, $EtSO_3H$ (0.1%)			1.42	3.35	(21)

Trimipramine		Antidepressant	Chiralpak AD-H	P=180 bars. 80/20-CO_2/EtOH, $EtSO_3H$ (0.1%)			1.13	1.85	(21)
Tryptophan		Antidepressant	Chirobiotic R	P=100 bars. 30/70-CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) H_2O (2%) glycerol (0.3%)	L	D	1.2	0.7	(1)
			Chirobiotic T	P=100 bars. 30/70-CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) H_2O (2%) glycerol (0.3%)	L	D	1.71	1.8	(1)
			Chirobiotic T	P=200 bars. 60/40-CO_2/[MeOH/H_2O/ glycerol-92.8/7/0.2], Et_3N (0.1%)TFA (0.1%)				4.6	(8)
Tryptophan		Antidepressant	Chirobiotic TAG	P=100 bars. 30/70-CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) H_2O (2%) glycerol (0.3%)	L	D	2.02	2.3	(1)
Viloxazine		Antidepressant	Chiralcel OD	P=200 bars. 90/10/1-CO_2/EtOH/i-$PrNH_2$			1.17		(11)

(*continued*)

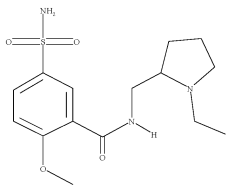
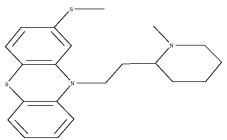
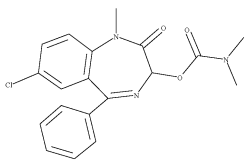
Table 2. Continued

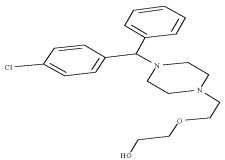
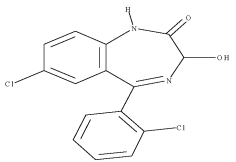
Drug Name	Structure	Therapeutic Cat.	Csp Trade Name	Mobile Phase	First	Second	α	Rs	Ref.
Mephenytoin		Antiepileptic	(S,S)-Whelk-O1	P=200 bars. 90/10-CO_2/MeOH			1.84	8.9	(40)
			Cyclobond I SN	97.5/2.5-CO_2/MeOH			1.32	3.9	(8)
			Cyclobond I 2000 SN	P=150 bars. 95/5-CO_2/MeOH			1.25	3	(4)
			Cyclobond I 2000 RN	P=150 bars. 95/5-CO_2/MeOH			1.09	1.2	(4)
Methylpheno-barbital		Anti-epileptic	Chirex 3005	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				0.6	(8)
			Chirobiotic V	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				1	(8)
			Chiralcel OD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				1.2	(8)
			Chiralcel OJ	P=200 bars. 95/5-CO_2/MeOH, Et3N (0.5%) TFA (0.5%)			1.34	4.67	(31)
			Chiralcel OJ	P=200 bars. 85/15-CO_2/MeCN, Et3N (0.5%) TFA (0.5%)			1.5	5.34	(31)
			Chiralpak AD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				25.6	(8)

Phensuximide 	Anti-epileptic	Cyclobond I SN	98/2-CO_2/MeOH	1.07	1	(3)
Trihexyphenidyl 	Anti-Parkinson/Anticholinergic	Chiralpak AD-H	P=180 bars. 80/20-CO_2/EtOH, $EtSO_3H$ (0.1%)	1.13	1.62	(21)
Amisulpride 	Antipsychotic	Chiralcel OD	80/20/0.5-CO_2/i-PrOH/i-$PrNH_2$		0.65	(9)
		Chiralpak AD	90/10/0.5-CO_2/MeOH/i-$PrNH_2$		1.51	(9)
		Chiralpak AS	80/20/0.5-CO_2/i-PrOH/i-$PrNH_2$		1.49	(9)

(*continued*)

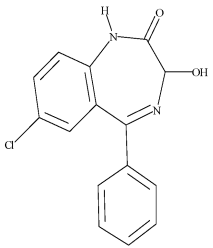
Table 2. Continued

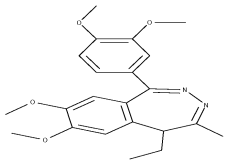
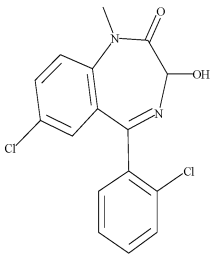
Drug Name	Structure	Therapeutic Cat.	Csp Trade Name	Mobile Phase	First	Second	α	Rs	Ref.
Sulpiride		Antipsychotic	Chiralcel OD	73/27-CO_2/EtOH			1.03	0.8	(6)
			Chiralcel OD	90/10/0.5-CO_2/MeOH/i-PrNH_2				1.09	(9)
			Chiralcel OJ	73/27-CO_2/EtOH			1.03	0.86	(6)
			Chiralpak AD	73/27-CO_2/EtOH			1.04	0.97	(6)
			Chiralpak AD	75/25/0.5-CO_2/MeOH/i-PrNH_2				2.36	(9)
			Chiralpak AS	75/25/0.5-CO_2/MeOH/i-PrNH_2				1.54	(9)
Thioridazine		Antipsychotic	Chiralpak AD	60/40-CO_2/EtOH	R(+)	S(−)	2.15		(41)
			Chiralpak AD	60/39.9/0.1-CO_2/EtOH/Et_2NH			2.08		(41)
			Chiralpak AD	60/39.9/0.1-CO_2/EtOH/TFA			3.9		(41)
Camazepam		Anxiolytic	Chiralcel OD-H	95/5-CO_2/EtOH	R	S	1.19	2.7	(42)

Hydroxyzine		Anxiolytic	Chiralcel OD	80/20/0.5-CO_2/MeOH/i-$PrNH_2$			1.5	(43)
Lorazepam		Anxiolytic	Chiralcel OD	P=200 bars. 90/10/0.05-CO_2/EtOH/ iPrNH_2	2.5	32.2		(22)
			Chiralcel OD	70/15/15-CO_2/EtOH/MeCN, Et_2NH (0.5%)	5.25	7		(32)

(*continued*)

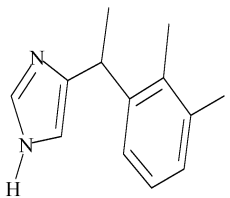
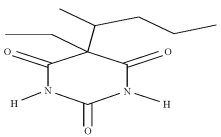
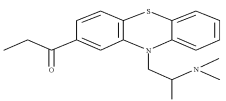
Table 2. Continued

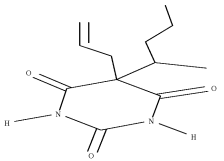
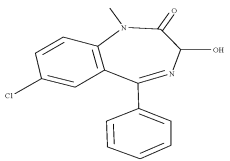
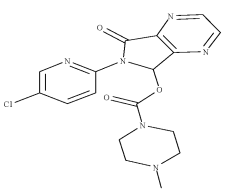
Drug Name	Structure	Therapeutic Cat.	Csp Trade Name	Mobile Phase	First	Second	α	Rs	Ref.
Oxazepam		Anxiolytic	ChyRoSine-A	82/18-CO_2/EtOH			1.46	2.6	(44)
			Chirex 3005	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				0.4	(8)
			Chirex 3022	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				0.8	(8)
			Chiralcel OD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				3	(8)
			Chiralcel OD	90/10/0.5-CO_2/MeOH/i-$PrNH_2$				6.44	(9)
			Chiralcel OD	P=200 bars. 3/7-CO_2/EtOH			1.53		(11)
			Chiralcel OD	P=200 bars 90/10/0.05-CO_2/EtOH/i-$PrNH_2$	25.5	40.51			(22)
			Chiralcel OD-H	92/8-CO_2/EtOH	S	R	1.09		(42)
			Chiralcel OJ	90/10/0.5-CO_2/i-PrOH/i-$PrNH_2$				1.71	(9)
			Chiralcel OJ	P=200 bars. CO_2/MeOH, Et3N (0.5%) TFA (0.5%) [Modifier gradient from 5% to 30% (5min)]			1.01	0.45	(31)
			Chiralcel OJ	P=200 bars. 70/30-CO_2/MeCN, Et3N (0.5%) TFA (5%)			1.09	0.57	(31)
			Chiralpak AD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				4.7	(8)
			Chiralpak AD	80/20/0.5-CO_2/i-PrOH/i-$PrNH_2$				12.93	(9)
			Chiralpak AS	80/20/0.5-CO_2/MeOH/i-$PrNH_2$				5.68	(9)

Tofisopam		Anxiolytic	Chiralcel OD	P=200 bars. 90/10/1-CO_2/EtOH/n-$PrNH_2$			1.16	(11)
Lormetazepam		Sedative-hypnotic	Chirex 3022	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]			1.6	(8)
			Chirobiotic T	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]			2.2	(8)
			Chirobiotic V	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]			1.1	(8)
			Chiralcel OD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]			1.3	(8)
			Chiralcel OD	P=200 bars. 90/10/0.05-CO_2/EtOH/ $iPrNH_2$	14.28	16.81		(22)
			Chiralpak AD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]			11.2	(8)
			Chiralpak AD	70/30-CO_2/EtOH			2.07 7.63	(39)

(*continued*)

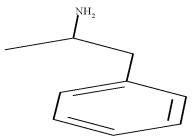
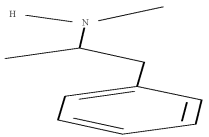
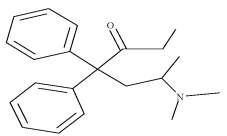
Table 2. Continued

Drug Name	Structure	Therapeutic Cat.	Csp Trade Name	Mobile Phase	First	Second	α	Rs	Ref.
Medetomidine		Sedative-hypnotic	Chirex 3022	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				3.3	(8)
			Chirobiotic V	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				3.4	(8)
			Chiralcel OD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				3.3	(8)
Pentobarbital		Sedative-hypnotic	Chiralcel OJ	P=200 bars. 98/2-CO_2/MeOH, Et3N (0.5%) TFA (5%)			1.24	2.64	(31)
			Chiralcel OJ	P=200 bars. 90/10-CO_2/MeCN, Et3N (0.5%) TFA (5%)			1.14	1.26	(31)
Propiomazine		Sedative-hypnotic	Chiralcel OJ	80/20/0.5-CO_2/i-PrOH/i-$PrNH_2$				1.49	(9)
			Chiralpak AD	95/5/0.5-CO_2/i-PrOH/i-$PrNH_2$				2.48	(9)
			Chiralpak AS	80/20/0.5-CO_2/i-PrOH/i-$PrNH_2$				1.11	(9)

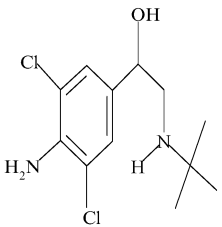
Secobarbital		Sedative-hypnotic	Chiralcel OJ	P=200 bars. 98/2-CO_2/MeOH, Et3N (0.5%) TFA (5%)			1.24	2.12 (31)
			Chiralcel OJ	P=200 bars. 90/10-CO_2/MeCN, Et3N (0.5%) TFA (5%)			1.14	1 (31)
Temazepam		Sedative-hypnotic	Chiralcel OJ	P=200 bars. 95/5-CO_2/MeOH, Et3N (0.5%) TFA (5%)			1.15	1.36 (31)
			Chiralcel OJ	P=200 bars. 90/10-CO_2/MeCN, Et3N (0.5%) TFA (5%)			1.2	1.72 (31)
			Chiralcel OD	P=200 bars. 90/10/0.05-CO_2/EtOH/ $iPrNH_2$	13.37	14.28		(22)
Zopiclone		Sedative-hypnotic	Cyclose beta-2-OH-T	P=150 bars. 95/5-CO_2/MeOH [during 5min gradient to 50/50 in 10min]			1.11	(15)
			Cyclose beta-6-OH-T	P=150 bars. 95/5-CO_2/MeOH [during 5min gradient to 50/50 in 10min]			1.07	(15)
			Chiralcel OD	P=200 bars. 80/20/1-CO_2/EtOH/$iPrNH_2$			1.56	(11)

(*continued*)

Table 2. Continued

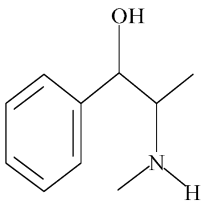
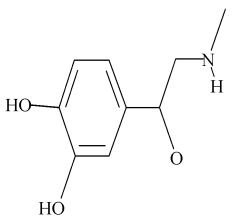
Drug Name	Structure	Therapeutic Cat.	Csp Trade Name	Mobile Phase	First	Second	α	Rs	Ref.
Amfetamine		Psychostimulant	Chiralpak AD-H	90/10-CO_2/i-PrOH/Cyclohexylamine (0.5%)	S 3.75	R 4.37			(45)
Metamfetamine		Psychostimulant	Chiralpak AD-H	90/10-CO_2/i-PrOH/Cyclohexylamine (0.5%)	S 2.94	R 3.28			(45)
Methadone		Analgesic, Narcotic	Chiralcel OJ	95/5/0.5-CO_2/MeOH/i-$PrNH_2$				1.94	(9)
			Chiralcel OD	90/10/0.5-CO_2/MeOH/i-$PrNH_2$				1.16	(9)
			Chiralpak AD	80/20/0.5-CO_2/i-PrOH/i-$PrNH_2$				0.66	(9)

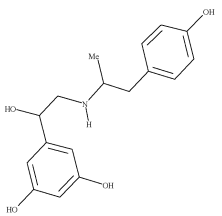
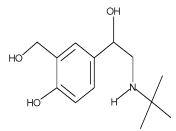
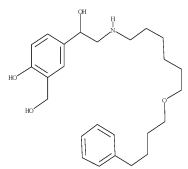
RESPIRATORY SYSTEM

Clenbuterol 	Adrenergic	Chirex 3022	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]		0.7	(8)
		Chirex 3022	85/15-CO_2/MeOH, TFA (0.5%)	1.27	4.1	(14)
		Chirobiotic T	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]		1.7	(8)
		Chirobiotic V	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]		1.5	(8)
		Chiralcel OD	73/27-CO_2/EtOH	1.06	0.57	(6)
		Chiralcel OD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]		0.4	(8)
		Chiralcel OD	95/5/0.5-CO_2/MeOH/i-$PrNH_2$		1.47	(9)
		Chiralcel OJ	73/27-CO_2/EtOH	1.14	1	(6)
		Chiralpak AD	73/27-CO_2/EtOH	1.29	1.53	(6)
		Chiralpak AD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]		0.9	(8)
		Chiralpak AD	90/10/0.5-CO_2/MeOH/i-$PrNH_2$		3.59	(9)
		Chiralpak AS	90/10/0.5-CO_2/MeOH/i-$PrNH_2$		2.76	(9)

(*continued*)

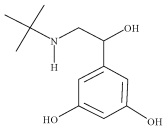
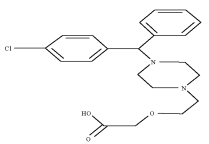
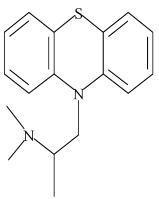
Table 2. Continued

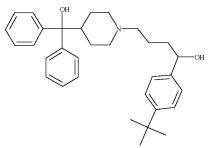
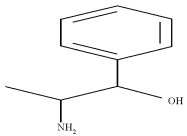
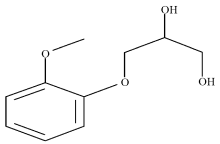
Drug Name	Structure	Therapeutic Cat.	Csp Trade Name	Mobile Phase	First	Second	α	Rs	Ref.
Ephedrine		Adrenergic	Chiralcel OD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				1.4	(8)
			Chiralpak AD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				0.2	(8)
			Chiralpak AD-H	P=180 bars. 80/20-CO_2/EtOH, $EtSO_3H$ (0.1%)			1.18	1.43	(21)
			Chiralpak AS	85/15/0.5-CO_2/EtOH/i-$PrNH_2$				1.37	(9)
Epinephrine		Adrenergic	Chiralcel OD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				1.4	(8)
			Chiralpak AD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				0.2	(8)
			Chiralpak AD-H	P=180 bars. 80/20-CO_2/EtOH, $EtSO_3H$ (0.1%)			1.18	1.43	(21)
			Chiralpak AS	85/15/0.5-CO_2/EtOH/i-$PrNH_2$				1.37	(9)

Fenoterol		Adrenergic	Chirex 3022	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]		0.7	(8)
			Chirobiotic T	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]		1.6	(8)
			Chirobiotic V	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]		1.8	(8)
			Chiralpak AD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]		3.2	(8)
Salbutamol		Adrenergic	Chiralpak AD	73/27-CO_2/EtOH	1.15	0.58	(6)
Salmeterol		Adrenergic	Chirex 3022	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]		1	(8)
			Chirobiotic T	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]		0.6	(8)
			Chirobiotic V	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]		1.3	(8)

(*continued*)

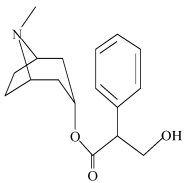
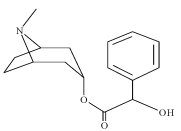
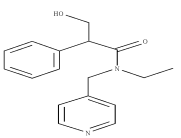
Table 2. Continued

Drug Name	Structure	Therapeutic Cat.	Csp Trade Name	Mobile Phase	First	Second	α	Rs	Ref.
Terbutaline		Adrenergic	Chirex 3022	85/15-CO_2/MeOH, TFA (0.5%)			1.17	2.2	(14)
			Chiralpak AD-H	P=180 bars. 80/20-CO_2/EtOH, $EtSO_3H$ (0.1%)			1.27	1.81	(21)
Cetirizine		Antihistaminic	Chiralpak AD	P=200 bars. 75/25-CO_2/i-PrOH			1.36	0.87	(46)
			Chiralpak AD	80/20-CO_2/i-PrOH, Et3N (0.1%) TFA (0.1%)			1.74	2.2	(46)
			Chiralpak AD	80/20-CO_2/i-PrOH, TFA (0.1%)			1.68	1.66	(46)
			Chirex 3022	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				0.8	(8)
			Chirobiotic V	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				1.4	(8)
Promethazine		Antihistaminic	Chiralcel OJ	95/5/0.5-CO_2/i-PrOH/i-$PrNH_2$				1.5	(9)
			Chiralpak AD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				0.8	(8)
			Chiralpak AD	80/20/0.5-CO_2/i-PrOH/i-$PrNH_2$				1.5	(9)
			Chiralpak AD-H	P=180 bars. 80/20-CO_2/EtOH, $EtSO_3H$ (0.1%)			1.11	1.95	(21)

Terfenadine		Antihistaminic	Chiralcel OD	P=200 bars. 80/20/1-CO_2/EtOH/i-$PrNH_2$			1.21		(11)
Phenylpro-panolamine		Decongestant	Chiralpak AD-H	P=180 bars. 80/20-CO_2/EtOH, $EtSO_3H$ (0.1%)			1.24	2.07	(21)
			Chiralpak AD-H	80/20-CO_2/i-PrOH			1.22	4.09	(26)
Guaifenesine		Expectorant	Chirex 3005	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				0.7	(8)
			Chiralcel OD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				3.6	(8)
			Chiralcel OD	86/7/7-CO_2/MeOH/i-PrOH	7	13			(47)
			Chiralpak AD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				1.6	(8)

(*continued*)

Table 2. Continued

Drug Name	Structure	Therapeutic Cat.	Csp Trade Name	Mobile Phase	First	Second	α	Rs	Ref.
SENSORY ORGANS									
Atropine		Mydriatic	Chiralcel OD	73/27-CO_2/EtOH			1.04	0.94	(6)
			Chiralcel OD	P=200 bars. CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) [modifier gradient from 5% (5min) to 30% (5min)]				1.6	(8)
			Chiralcel OD	90/10/0.5-CO_2/MeOH/i-$PrNH_2$				1.54	(9)
			Chiralpak AD	73/27-CO_2/EtOH			1.21	1.19	(6)
			Chiralpak AD	90/10/0.5-CO_2/MeOH/i-$PrNH_2$				1.13	(9)
			Chiralpak AD-H	P=180 bars. 80/20-CO_2/EtOH, $EtSO_3H$ (0.1%)			1.11	1.61	(21)
			Chiralpak AS	80/20/0.5-CO_2/i-PrOH/i-$PrNH_2$				0.45	(9)
Homatropine		Mydriatic	Chiralcel OD	73/27-CO_2/EtOH			1.34	4.84	(6)
			Chiralcel OJ	73/27-CO_2/EtOH			1.16	0.91	(6)
			Chiralpak AD	73/27-CO_2/EtOH			1.14	1.01	(6)
			Chiralpak AD-H	P=180 bars. 80/20-CO_2/EtOH, $EtSO_3H$ (0.1%)			1.57	8.68	(21)
Tropicamide		Mydriatic	Cyclobond I SN	90/10-CO_2/EtOH			1.15	2.1	(3)
			Cyclobond I 2000 SN	P=150 bars. 90/10-CO_2/MeOH			1.15	2.1	(4)
			Chiralcel OD	73/27-CO_2/EtOH			1.07	0.86	(6)
			Chiralcel OJ	73/27-CO_2/EtOH			2.31	4.27	(6)
			Chiralpak AD	73/27-CO_2/EtOH			1.3	2.38	(6)

VARIOUS DRUGS

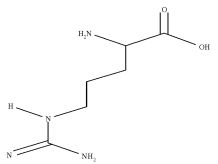
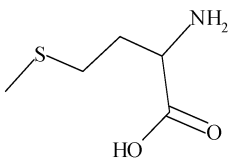
Arginine 	Antidote	Chirobiotic R	P=100 bars. 52.5/47.5-CO_2/MeOH, Et_3N (0.15%) TFA (0.15%) H_2O (2.5%) Glycerol (0.3%)	L	D	1.5	1.8	(1)
		Chirobiotic T	P=100 bars. 42.4/57.6-CO_2/MeOH, Et_3N (0.15%) TFA (0.15%) H_2O (2.4%)	L	D	1.8	3.4	(1)
Methionine 	Antidote	Chirobiotic R	P=100 bars. 30/70-CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) H_2O (2%)	L	D	1.32	1.1	(1)
		Chirobiotic T	P=100 bars. 30/70-CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) H_2O (2%) Glycerol (0.3%)	L	D	2.14	3	(1)
		Chirobiotic TAG	P=100 bars. 30/70-CO_2/MeOH, Et_3N (0.1%) TFA (0.1%) H_2O (2%) Glycerol (0.3%)	L	D	4.09	3.7	(1)

Table 3. Alphabetic Index of enantiomeric drugs separated by SFC

Compound	Therapeutic Category	ATC Classification	ATC Code
Acebutolol	Beta-blocker	CARDIOVASCULAR SYSTEM	C07AB04
Acenocoumarol	Antithrombotic	BLOOD AND BLOOD FORMING ORGANS	B01AA07
Alprenolol	Beta-blocker	CARDIOVASCULAR SYSTEM	C07AA01
Altizide	Thiazide diuretic	CARDIOVASCULAR SYSTEM	C04EA04
Amfetamine	Psychostimulant	NERVOUS SYSTEM	N06BA01
Amisulpride	Antipsychotic	NERVOUS SYSTEM	N05AL05
Amlodipine	Calcium channel blocker	CARDIOVASCULAR SYSTEM	C08CA01
Arginine	Antidote	VARIOUS DRUGS	B05XB01
Atenolol	Beta-blocker	CARDIOVASCULAR SYSTEM	C07AB03
Atropine	Mydriatic	SENSORY ORGANS	S01FA01
Baclofen	Muscle relaxant	MUSCULO-SKELETAL SYSTEM	M03BX01
Bendroflumethiazide	Thiazide diuretic	CARDIOVASCULAR SYSTEM	C03AA01
Benoxaprofen	Anti-inflammatory	MUSCULO-SKELETAL SYSTEM	M01AE06
Betaxolol	Beta-blocker	CARDIOVASCULAR SYSTEM	C07AB05
Bicalutamide	Hormone antagonist	ANTINEOPLASTIC AND IMMUNOMODULATING AGENTS	L02BB03
Bupivacaine	Local anesthetic	NERVOUS SYSTEM	N01BB01
Bupropion	Antidepressant	NERVOUS SYSTEM	N07BA02
Camazepam	Anxiolytic	NERVOUS SYSTEM	N05BA15
Carprofen	Anti-inflammatory	MUSCULO-SKELETAL SYSTEM	M01A
Celiprolol	Beta-blocker	CARDIOVASCULAR SYSTEM	C07AB08
Cetirizine	Antihistaminic	RESPIRATORY SYSTEM	R06AE07
Chlormezanone	Muscle relaxant	MUSCULO-SKELETAL SYSTEM	M03BB02
Chlorthalidone	Low-ceiling diuretic	CARDIOVASCULAR SYSTEM	C03BA04
Clenbuterol	Adrenergic	RESPIRATORY SYSTEM	R03CC13

Cromakalim	Peripheral vasodilator diuretic	CARDIOVASCULAR SYSTEM	C04A
Cyclopenthiazide	Thiazide diuretic	CARDIOVASCULAR SYSTEM	C03AA07
Cyclothiazide	Thiazide diuretic	CARDIOVASCULAR SYSTEM	C03AA09
Dexpanthenol	Vitamin	ALIMENTARY TRACT and METABOLISM	A11HA30
Diltiazem	Calcium channel blocker	CARDIOVASCULAR SYSTEM	C08DB01
Disopyramide	Antiarrhythmic	CARDIOVASCULAR SYSTEM	C01BA03
Econazole	Antifungal	DERMATOLOGICALS	D01AC03
Ephedrine	Adrenergic	RESPIRATORY SYSTEM	R01AA03
Epinephrine	Adrenergic	RESPIRATORY SYSTEM	R03AA01
Felodipine	Calcium channel blocker	CARDIOVASCULAR SYSTEM	C08CA02
Fenoprofen	Anti-inflammatory	MUSCULO-SKELETAL SYSTEM	M01AE04
Fenoterol	Adrenergic	RESPIRATORY SYSTEM	R03AC04
Flecainide	Antiarrhythmic	CARDIOVASCULAR SYSTEM	C01BC04
Fluoxetine	Antidepressant	NERVOUS SYSTEM	N06AB03
Flurbiprofen	Anti-inflammatory	MUSCULO-SKELETAL SYSTEM	M01AE09
Gallopamil	Calcium channel blocker	CARDIOVASCULAR SYSTEM	C08DA02
Glutamine	Diet	ALIMENTARY TRACT and METABOLISM	A16AA03
Guaifenesin	Expectorant	RESPIRATORY SYSTEM	R05CA03
Halofantrine	Antimalarial	ANTIPARASITIC PRODUCTS, INSECTICIDES and REPELLENTS	P01BX01
Hexobarbital	General anesthetic	NERVOUS SYSTEM	N01AF01
Homatropine	Mydriatic	SENSORY ORGANS	S01FA05
Hydroxyzine	Anxiolytic	NERVOUS SYSTEM	N05BB01
Ibuprofen	Anti-inflammatory	MUSCULO-SKELETAL SYSTEM	M01AE01
Indapamide	Low-ceiling diuretic	CARDIOVASCULAR SYSTEM	C03BA11
Indinavir	Antiviral	ANTIINFECTIVES FOR SYSTEMIC USE	J05AE02

(*continued*)

Table 3. Continued

Compound	Therapeutic Category	ATC Classification	ATC Code
Indoprofen	Anti-inflammatory	MUSCULO-SKELETAL SYSTEM	M01AE10
Ketamine	General anesthetic	NERVOUS SYSTEM	N01AX03
Ketoconazole	Antifungal	DERMATOLOGICALS	D01AC08
Ketoprofen	Anti-inflammatory	MUSCULO-SKELETAL SYSTEM	M01AE03
Lansoprazole	G.O.R.D.	ALIMENTARY TRACT and METABOLISM	A02BC03
Lercanidipine	Calcium channel blocker	CARDIOVASCULAR SYSTEM	C08CA13
Levamisole	Antinematodal	ANTIPARASITIC PRODUCTS, INSECTICIDES and REPELLENTS	P02CE01
Lorazepam	Anxiolytic	NERVOUS SYSTEM	N05BA06
Lormetazepam	Sedative-hypnotic	NERVOUS SYSTEM	N05CD06
Mandelic acid	Urinary antiseptic	ANTIINFECTIVES FOR SYSTEMIC USE	J01XX06
Medetomidine	Sedative-hypnotic	NERVOUS SYSTEM	N05CM18
Mefloquine	Antimalarial	ANTIPARASITIC PRODUCTS, INSECTICIDES and REPELLENTS	P01BC02
Mephenytoin	Anti-epileptic	NERVOUS SYSTEM	N03AB04
Metamfetamine	Psychostimulant	NERVOUS SYSTEM	N06BA03
Methadone	Analgesic, Narcotic	NERVOUS SYSTEM	N07BC02
Methionine	Antidote	VARIOUS DRUGS	V03AB26
Methylphenobarbital	Antiepileptic	NERVOUS SYSTEM	N03AA01
Metoprolol	Beta-blocker	CARDIOVASCULAR SYSTEM	C07AB02
Mianserin	Antidepressant	NERVOUS SYSTEM	N06AX03
Miconazole	Antifungal	DERMATOLOGICALS	D01AC02
Nadolol	Beta-blocker	CARDIOVASCULAR SYSTEM	C07AA12
Naproxen	Anti-inflammatory	MUSCULO-SKELETAL SYSTEM	M01AE02
Nefopam	Non-narcotic analgesic	NERVOUS SYSTEM	N02BG06
Nicardipine	Calcium channel blocker	CARDIOVASCULAR SYSTEM	C08CA04

Nomifensine	Antidepressant	NERVOUS SYSTEM	N06AX04
Octopamine	Cardiac stimulant	CARDIOVASCULAR SYSTEM	C01CA18
Oxazepam	Anxiolytic	NERVOUS SYSTEM	N05BA04
Oxprenolol	Beta-blocker	CARDIOVASCULAR SYSTEM	C07AA02
Pantoprazole	G.O.R.D.	ALIMENTARY TRACT and METABOLISM	A02BC02
Pentobarbital	Sedative-hypnotic	NERVOUS SYSTEM	N05CA01
Phenoxybenzamine	Peripheral vasodilator diuretic	CARDIOVASCULAR SYSTEM	C04AX02
Phensuximide	Antiepileptic	NERVOUS SYSTEM	N03AD02
Phenylethanolamine	Cardiac stimulant	CARDIOVASCULAR SYSTEM	C01CA
Phenylpropanolamine	Decongestant	RESPIRATORY SYSTEM	R01BA01
Piketoprofen	Anti-inflammatory	MUSCULO-SKELETAL SYSTEM	M01AE
Pindolol	Beta-blocker	CARDIOVASCULAR SYSTEM	C07AA03
Piperoxan	Anti-adregenic agent	CARDIOVASCULAR SYSTEM	C02CC
Pirprofen	Anti-inflammatory	MUSCULO-SKELETAL SYSTEM	M01AE
Polythiazide	Thiazide diuretic	CARDIOVASCULAR SYSTEM	C03AA
Praziquantel	Anticesdotal	ANTIPARASITIC PRODUCTS, INSECTICIDES and REPELLENTS	P02BA01
Proglumide	G.O.R.D.	ALIMENTARY TRACT and METABOLISM	A02BX06
Promethazine	Antihistaminic	RESPIRATORY SYSTEM	R06AD02
Propafenone	Antiarrhythmic	CARDIOVASCULAR SYSTEM	C01B
Propiomazine	Sedative-hypnotic	NERVOUS SYSTEM	N05CM06
Propranolol	Beta-blocker	CARDIOVASCULAR SYSTEM	C07AA05
Protizinic acid	Anti-inflammatory	MUSCULO-SKELETAL SYSTEM	M01A
Quinine	Antimalarial	ANTIPARASITIC PRODUCTS, INSECTICIDES and REPELLENTS	P01BC01
Rabeprazole	G.O.R.D.	ALIMENTARY TRACT and METABOLISM	A02BC04

(*continued*)

Table 3. Continued

Compound	Therapeutic Category	ATC Classification	ATC Code
Salbutamol	Adrenergic	RESPIRATORY SYSTEM	R03CC02
Salmeterol	Adrenergic	RESPIRATORY SYSTEM	R03AC12
Secobarbital	Sedative-hypnotic	NERVOUS SYSTEM	N05CA06
Sotalol	Alpha, beta-blocker	CARDIOVASCULAR SYSTEM	C07AA07
Sulconazole	Antifungal	DERMATOLOGICALS	D01AC09
Sulpiride	Antipsychotic	NERVOUS SYSTEM	N05AL01
Suprofen	Anti-inflammatory	MUSCULO-SKELETAL SYSTEM	M01AE07
Tegafur	Antimetabolite	ANTINEOPLASTIC AND IMMUNOMODULATING AGENTS	L01BC03
Temazepam	Sedative-hypnotic	NERVOUS SYSTEM	N05CD07
Terbutaline	Adrenergic	RESPIRATORY SYSTEM	R03CC03
Terfenadine	Antihistaminic	RESPIRATORY SYSTEM	R06AX12
Tertatolol	Beta-blocker	CARDIOVASCULAR SYSTEM	C07AA16
Thiopental	General anesthetic	NERVOUS SYSTEM	N01AF03
Thioridazine	Antipsychotic	NERVOUS SYSTEM	N05AC02
Tiaprofenic acid	Anti-inflammatory	MUSCULO-SKELETAL SYSTEM	M01AE11
Tofisopam	Anxiolytic	NERVOUS SYSTEM	N05BA23
Tolperisone	Muscle relaxant	MUSCULO-SKELETAL SYSTEM	M03BX04
Tranylcypromine	Antidepressant	NERVOUS SYSTEM	N06AF04
Trihexyphenidyl	Antiparkinson/Anticholinergic	NERVOUS SYSTEM	N04AA01
Trimipramine	Antidepressant	NERVOUS SYSTEM	N06AA06
Tropicamide	Mydriatic	SENSORY ORGANS	S01FA06
Tryptophan	Antidepressant	NERVOUS SYSTEM	N06AX02
Verapamil	Calcium channel blocker	CARDIOVASCULAR SYSTEM	C08DA01
Viloxazine	Antidepressant	NERVOUS SYSTEM	N06AX09
Warfarin	Antithrombotic	BLOOD AND BLOOD FORMING ORGANS	B01AA03
Zopiclone	Sedative-hypnotic	NERVOUS SYSTEM	N05CF01

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