SUNSHELL DICTIONARY

APPLICATION DATA 2018-2019

BIOTECH

ChromaNik Technologies Inc.

No.	Title	Sample	Column	Pdf
1127	Ingredients in an eye drop	Pyridoxine HCl	SunShell PFP 2.6 μm, 150 x 4.6 mm i.d.	PDF
		Neostigmine methylsulfate	SunShell Phenyl 2.6 μm, 150 x 4.6 mm i.d.	
		Naphazoline HCl	SunShell C18 2.6 μm, 150 x 4.6 mm i.d.	
		Chlorpheniramine		
		Glycyrrhizin		
1126H	Tar pigment	wTartrazine	SunShell C18 2.6 μm, 150 x 4.6 mm i.d.	PDF
		Amaranth	Sunniest C18 5 μm, 150 x 4.6 mm i.d.	
		Indigo carmine		
		New Coccine		
		Sunset Yellow FCF		
		Allura Red AC		
		Fast Green FCF		
		Brilliant Blue FCF		
		Erythrosine B		
		Furoxan		
		Acid Red 52		
		Rose bengal		
1125H	o, m, p-Toluidine	cis-Stilbene	SunShell PFP 2.6 μm, 150 x 4.6 mm i.d.	PDF
		trans-Stilbene	SunShell Phenyl 2.6 μm, 150 x 4.6 mm i.d.	
			SunShell C18 2.6 μm, 150 x 4.6 mm i.d.	
1124H	Stilbene	cis-Stilbene	SunShell PFP 2.6 μm, 150 x 4.6 mm i.d.	PDF
		trans-Stilbene	SunShell C18 2.6 μm, 150 x 4.6 mm i.d.	
1123	Stantins (2)	Pravastatin	Sunnist C18 5 μm, 150 x 4.6 mm i.d.	PDF
		Fluvastatin		
		Mevastatin		
		Lovastatin		
		Simvastatin		
1122	Anthraquinone dye (2)	Alizalin	Sunnist C18 5 μm, 150 x 4.6 mm i.d.	PDF
		Chrysazin		
		Anthrarufin		
1121	Ethynylestradiol and its	17β-Estradiol	SunShell C18 2.6 μm, 100 x 4.6 mm i.d.	PDF
	metabolites (2)	Estrone	Sunnist C18 5 μm, 150 x 4.6 mm i.d.	
		Ethynylestradiol		
1120	Corticosteroids (2)	Prednisone	Sunnist C18 5 μm, 150 x 4.6 mm i.d.	PDF
		Cortisone	SunShell C18 2.6 μm, 150 x 4.6 mm i.d.	
		Prednisolone	SunShell PFP 2.6 μm, 150 x 4.6 mm i.d.	
		Hydrocortisone		

No.	Title	Sample	Column	Pdf
1119	Neurotransmitter	Serotonin Dopamine Epinephrine Norepinephrine	SunShell HILIC-S 2.6 μm, 100 x 2.1 mm i.d. SunShell HILIC-Amide 2.6 μm, 100 x 2.1 mm i.d. SunShell RP-AQUA 2.6 μm, 100 x 2.1 mm i.d.	
1118	Local anesthetic (2)	Benzocaine Procaine Cinchonine Lidocaine Tetracaine	Sunniest C18 5 μm, 150 x 4.6 mm i.d.	
1117	Endocrine disruptors (2)	Phenol Bisphenol-A 2,4-Dichlorophenol Diethylphthalate	Sunniest C18 5 μm, 150 x 4.6 mm i.d.	
1116	Hypotensive diuretic	4-Amino-6-chloro-1,3-benzenedisulfonamide Hydrochlorothiazide p-Aminoacetophenone	Sunniest C18 5μm, 150 x 4.6 mm i.d.	
1115	Analgesics (3)	Acetaminophen Antipyrine Aspirin Ethenzamide	SunShell C18 2.6μm, 100 x 4.6 mm i.d.	
1114H	Isoflavone	Daidzein Genistein	SunShell C18 2.0 μm, 50 x 2.1 mm i.d.	
1113H	Resveratrol	Resveratrol	SunShell C18 2.6 μm, 50 x 2.1 mm i.d.	
1112H	Triton X-100	Triton X-100	SunShell C18 2.6 μm, 150 x 3.0 mm i.d.	
1111	Cyclodextrin	α-Cyclodextrin β-Cyclodextrin γ-Cyclodextrin	SunArmor NH2 5 μm, 250 x 4.6 mm i.d.	
1110H	Coffee polyphenol	Caffeine Caffeic acid	SunShell C18 2.6 μm, 100 x 4.6 mm i.d.	

No.	Title	Sample	Column	Pdf
1109H	phenolic antioxidants	PG THBP TBHQ NDGA BHA HMBP OG BHT DG	Sunniest C18 5 µm, 150 x 4.6 mm i.d., SunShell C18 2.6 µm, 100 x 4.6 mm i.d.	PDF
1108	Sugar alcohol	Grycerine Erythritol Xylitol Sorbitol Mannitol	SunArmor NH2 5 µm, 250 x 4.6 mm i.d.	PDF
1107H	Ascorbic acid and Erythorbic acid	Ascorbic acid Erythorbic acid	SunArmor NH2 5 µm, 250 x 4.6 mm i.d.	PDF
1106	Sucrose and Palatinose	Sucrose Palatinose	SunArmor NH2 5 µm, 250 x 4.6 mm i.d.	PDF
1105	Comparison of injection volume of water-dissolved sample(nucleobases)	Uridine Cytosine	SunArmor NH2 5 µm, 250 x 4.6 mm i.d.	PDF
1104	Branched-chain amino acids	L-Leucine L-Isoleucine L-Valine	SunArmor NH2 5 µm, 250 x 4.6 mm i.d.	PDF
1103H	Local anesthetic (1)	Benzocaine Procaine Cinchonine Lidocaine Tetracaine	SunShell C18 2.6 µm, 100 x 4.6 mm i.d.	PDF
1102	Simultaneous Analysis of Pesticide (LC/MS) (2)	Pesticide	SunShell C18 2.6 µm, 100 x 2.1 mm i.d.	PDF
1101B	Simultaneous Analysis of Pesticide (LC/MS) (1)- B	Pesticide	SunShell C18 2.6 µm, 150 x 2.1 mm i.d.	PDF
1101A	Simultaneous Analysis of Pesticide (LC/MS) (1)- A	Pesticide	SunShell C18 2.6 µm, 100 x 2.1 mm i.d.	PDF

No.	Title	Sample	Column	Pdf
1100H	Continuous analysis under basic pH condition	Uracil Propranolol Nortriptyline Amitriptyline	SunShell C18 2.6 μm, 50 x 2.1 mm i.d.	PDF
1099H	Continuous analysis under acidic pH condition	Benzydamine Krtoprofen Indomethacin	SunShell C18 2.6 μm, 50 x 2.1 mm i.d.	PDF
1098H	Vitamin K1 (Phylloquinone)	Vitamin K1 (trans) Vitamin K1 (cis)	SunShell C30 2.6 μm, 100 x 2.1 mm i.d.	PDF
1097H	Vitamin E (Tocopherol)	δ-Tocopherol γ-Tocopherol β-Tocopherol α-Tocopherol	SunShell C30 2.6 μm, 150 x 3.0 mm i.d.	PDF
1096H	Catechins (3)	(-)-Epigallocatechin (±)-Catechin (-)-Epicatechin (-)- Epigallocatechin gallate (-)-Epicatechin gallate (-)-Catechin gallate	SunShell C18 2.6 μm, 100 x 2.1 mm i.d.	PDF
1095H	Food additives	4-Hydroxybenzoate Sorbic acid Benzoic acid Dehydroacetic acid Na Methyl 4-hydroxybenzoate Ethyl 4-hydroxybenzoate Isopropyl 4-hydroxybenzoate Propyl 4-hydroxybenzoate Butyl 4-hydroxybenzoate	SunShell C18 2.6 μm, 150 x 4.6 mm i.d. SunShell C18 2 μm, 100 x 2.1 mm i.d.	PDF
1094H	Nucleic acid	Cytosine Uracil Cytidine Uridine Thymine Adenine Inosine	SunShell RP-AQUA 2.6 μm, 150 x 4.6 mm i.d. SunShell HILIC-Amide 2.6 μm, 150 x 4.6 mm i.d.	PDF

No.	Title	Sample	Column	Pdf
1093H	Organic acids (4)	Tartaric acid Formic acid Malic acid Lactic acid Acetic acid Diglycolic acid Maleic acid Citric acid Succinic acid Fumaric acid	SunShell RP-AQUA 2.6 mm, 150 x 4.6 mm i.d.	PDF
1092H	Artificial sweeteners	Acesulfame K Saccharin Aspartame	SunShell HILIC-Amide 2.6 mm, 150 x 4.6 mm i.d.	PDF
1091H	Water-soluble vitamins in the drinks	Nicotinic acid Pyridoxine HCl (Vitamin B6) Nicotinamide Thiamine HCl (Vitamin B1) Folic acid Caffeine Riboflavin (Vitamin B2)	SunShell RP-AQUA 2.6mm□100 x 4.6 mm i.d.	PDF
1090	Cis-trans isomers of 9-cotadecenoic acid (2)	Oleic acid Elaidic acid	SunShell C18 2.6 mm, 150 x 4.6 mm i.d. SunShell C30 2.6 mm, 150 x 4.6 mm i.d.	PDF
1089	Sugar	Fructose Glucose Sucrose Maltose	Sunniest NH2 5 μm, 250 x 4.6 mm i.d.	PDF
1088	Vitamin D2 and D3	Vitamin D2 Vitamin D3	Sunrise C18-SAC 3 μm, 150 x 4.6 mm i.d. SunShell C18 2.6 μm, 150 x 4.6 mm i.d.	PDF
1087	Fluorobenzene and benzene	Benzene Fluorobenzene Toluene α,α,α-Trifluorotoluene	Sunrise C28 3 μm(150 x 4.6 mm) SunShell C18, PFP 2.6 μm(150 x 4.6 mm)	PDF
1086	Components of explosive	1,3-Dinitrobenzene 1,3,5-Trinitrobenzene 2,4-Dinitrotoluene 2,4,6-Trinitrotoluene	SunShell C18, PFP, RP-AQUA, Phenyl 2.6 μm(100 x 4.6 mm)	PDF

No.	Title	Sample	Column	Pdf
1085	Naphthols	2-Naphthol 1-Naphthol	SunShell C18 2.6 μm(150 x 4.6 mm)	PDF
1084	Hypotensive diuretic	4-Amino-6-chloro-1,3-benzenedisulfon-amide Hydrochlorothiazide p-Aminoacetophenone	SunShell C18 2.6 μm(100 x 4.6 mm)	PDF
1083	Endocrine disruptors (1)	Phenol Bisphenol-A 2,4-Dichlorophenol Diethylphthalate	SunShell C18 2.6 μm(100 x 4.6 mm)	PDF
1082	o, p, m-Terphenyl	o-Terphenyl p-Terphenyl m-Terphenyl	SunShell RP-AQUA 2.6 μm(150 x 4.6 mm) SunShell C18 2.6 μm(150 x 4.6 mm) Sunrise C28 3 μm(150 x 4.6 mm)	PDF
1081	Clotrimazole	Clotrimazole	Sunrise C18-SAC 5 μm(150 x 4.6 mm)	PDF
1080	Cis-trans isomers of 9-cotadecenoic acid (1)	Oleic acid Elaidic acid	SunShell C18 2.6 μm(150 x 4.6 mm)	PDF
1079	Stantins (1)	Pravastatin Fluvastatin Mevastatin Lovastatin Simvastatin	SunShell C18 2.6 μm(100 x 4.6 mm)	PDF
1078	Benzophenones	2,2',4,4'-Tetrahydroxybenzophenone 2,4-Dihydroxybenzo-phenone Benzophenone 2,2'-Dihydroxy-4,4'-dimethoxylbenzopheno-ne 2-Hydroxy-4-methoxybenzophenone	SunShell PFP 2.6 μm(150 x 4.6 mm)	PDF
1077	Anthraquinone dye (1)	Alizalin Chrysazin Anthrarufin	SunShell C18 2.6 μm(100 x 4.6 mm)	PDF
1076	Ethynylestradiol and its metabolites (1)	17β-Estradiol Estrone,	SunShell C18 2.6 μm(100 x 4.6 mm)	PDF
1075	Resorcinol and reated substances	Hydroquinone Resorcinol Pyrocatechol Phenol	SunShell C18 2.6 μm(100 x 4.6 mm)	PDF
1074	Corticosteroids (1)	Prednisone Cortisone Prednisolone Hydrocortisone	Sunniest C18 5 μm(150 x 4.6 mm) SunShell C18 2.6 μm(150 x 4.6 mm) SunShell C18 2.6 μm(250 x 4.6 mm)	PDF

No.	Title	Sample	Column	Pdf
1073	Flavonoids	Myricetin,Quercetin Apigenin,Baicalein	SunShell C18 2.6 μm(100 x 4.6 mm)	PDF
1072	Tetracyclines	Tetracycline Oxytetracycline Chlortetracycline	SunShell C18 2.6 μm(150 x 4.6 mm)	PDF
1071	Nucleic acid	Sodium nitrite Cytosine,Uracil Guanine,Thymine Adenine	SunShell RP-AQUA 2.6 μm(150 x 4.6 mm)	PDF
1070	Calcium antagonisits (Sunniest C18)	Nifedipine Nitredipine Diltiazem Hydrochloride Verapamil Hydrochloride Nicardipine Hydrochloride	Sunniest C18 (150x4.6mm)	PDF
1069	β blocker	Atenolol Metoprolol Timolol Propranolol	SunShell C18 (100x4.6mm)	PDF
1068	H2 blockers	Famotidine Cimetidine Ranitidine	SunShell C18 (100x4.6mm)	PDF
1067	Calcium antagonisits	Nifedipine Nitredipine Diltiazem Hydrochloride Verapamil Hydrochloride Nicardipine Hydrochloride	SunShell C18, C8, RP-AQUA, Phenyl(150x4.6mm)	PDF
1066	Standard peptides using 1.0 mm i.d. column	Gly-Tyr Val-Tyr-Val Met enkephalin Leu enkephalin Angiotensin II	SunShell RP-AQUA (100x1.0mm)	PDF
1065	Arbutin and related substances	Arbutin Hydroquinone Gallic acid	SunShell RP-AQUA (150x4.6mm)	PDF
1064	Purine analogue	Uric acid Hypoxanthine Xanthine Oxipurinol Allopurinol	SunShell RP-AQUA (100x4.6mm)	PDF

No.	Title	Sample	Column	Pdf
1063	Monosaccharides derivatized with L-Tryptphan	D-Galactose L-Galactose D-Glucose L-Mannose L-Glucose D-Mannose	SunShell RP-AQUA (100x4.6mm)	
1062	Proteins Comparison of thickness of porous layer	Cytochrome C Lysozyme BSA Myoglobin Ovalbumin	SunShell C8-30 (100x2.1mm)	
1061	Proteins Effect of gradient time	Cytochrome C Lysozyme BSA Myoglobin Ovalbumin	SunShell C8-30 (100x2.1mm)	
1060	Proteins Effect of temperature	Cytochrome C Lysozyme BSA Myoglobin Ovalbumin	SunShell C8-30 (100x2.1mm)	
1059	Organic acids (3)	Oxalic acid Tartaric acid Formic acid Malic acid Lactic acid Acetic acid Diglycolic acid Maleic acid Citric acid Succinic acid Fumaric acid	SunShell RP-AQUA (150x4.6mm)	
1058	Organic acids (2)	Oxalic acid Tartaric acid Formic acid Malic acid Lactic acid Acetic acid Diglycolic acid Maleic acid Citric acid Succinic acid Fumaric acid	Sunniest RP-AQUA (150x4.6mm)	

No.	Title	Sample	Column	Pdf
1057	Amino acids LC/MS (2)	20 kinds of amino acids	SunShell RP-AQUA (150x2.1mm)	PDF
1056	Melamine and cyanuric acid	Cyanuric acid Melamine	SunShell HILIC-Amide (100x4.6mm)	PDF
1055	Glycoside	Helicin Salicin Arbutin Rutin	SunShell HILIC-Amide (100x4.6mm)	PDF
1054	Artificial sweeteners	Aspartame Saccharin Acesulfame K	SunShell HILIC-Amide (100x4.6mm)	PDF
1053	Water- soluble vitamins	Nicotinic acid Ascorbic acid Pyridoxine	SunShell HILIC-Amide (100x4.6mm)	PDF
1052	Nucleic acid bases	Thymine Uracil Uridine Cytosine Cytidines	SunShell HILIC-Amide (100x4.6mm)	PDF
1051A	Erythromycin Estolate	Erythromycin Estolate	Sunniest C18 (250x4.6mm)	PDF
1050	Alpha Casein Digest using SunShell C18-16	Alpha Casein Digest	SunShell C18-16 (100x2.1mm)	PDF
1049	BSA Digest using SunShell C18-16	Bovine Serum Albumin Digest	SunShell C18-16 (100x2.1mm)	PDF
1048	Lipase using SunShell C8-30	Lipase Impurity Lipase	SunShell C8-30 (100x2.1mm)	PDF
1047	Peptide Mix using SunShell C18-16	Angiotensin I Somatostatin Glu-1-fibrinopeptide	SunShell C18-16 (100x2.1mm)	PDF
1046	Oxidized Insulin using SunShell C18-30	Oxidized insulin	SunShell C18-30 (100x2.1mm)	PDF
1045	Ribonuclease A/B Mix using SunShell C8-30	Ribonuclease B Ribonuclease A	SunShell C18-30 100x2.1mm)	PDF
1044	Ribonuclease A/B Mix using SunShell C18-30	Ribonuclease B Ribonuclease A	SunShell C18-30 (100x2.1mm)	PDF

No.	Title	Sample	Column	Pdf
1043	Ribonuclease A/B Mix using SunShell C18-16	Ribonuclease B Ribonuclease A	SunShell C18-16 (100x2.1mm)	PDF
1042	Protein Mix using SunShell C4-30	Cytochrome C Bovine Serum Albumin Myoglobin Carbonic Anhydrase Phosphorylase B	SunShell C4-30 (100x2.1mm)	PDF
1041	Protein Mix using SunShell C18-30	Angiotensin I Ribonuclease A Lysozyme Transferrin Bovine Serum Albumin	SunShell C18-30	PDF
1040	Protein Mix using SunShell C4-30	Angiotensin I Ribonuclease A Lysozyme Transferrin Bovine Serum Albumin	SunShell C4-30 (100x2.1mm)	PDF
1039	Protein Mix using SunShell	Angiotensin I Ribonuclease A Cytochrome C Lysozyme Transferrin Bovine Serum Albumin Myoglobin Carbonic Anhydrase	SunShell C8-30 (150x 2.1mm)	PDF
1038A	Ethambutol Hydrochloride	Ethambutol	SunShell C18 (100x4.6mm)	PDF
1033	SunShell High through-put separation	Hydroxybenzophenone and similar articles	SunShell C18 (30x3.0mm)	PDF
1032	PFP Basic compounds (PFP phase)	Uracil Propranolol Nortriptyline Amitriptyline	SunShell PFP (150x4.6mm)	PDF
1031	Amino Acids derivatized with OPA and FMOC (2)	Amino Acids derivatized with OPA	SunShell C18 (150x2.1mm)	PDF
1030	Amino Acids derivatized with OPA and FMOC (1)	Amino Acids derivatized with OPA	Sunniest C18-HT (100x2.1mm)	PDF
1029	Amino acids (LC/MS)	Amino acids	Sunniest RP-AQUA (150x2.0mm)	PDF

No.	Title	Sample	Column	Pdf
1028	Black Cohosh	Black Cohosh (Natural products)	SunShell C18 (150x2.1mm)	PDF
1027	Dansylated estrogen hormones	Dansylated estriol Dansylated 17beta-estradiol Dansylated 17alpha-estradiol Dansylated estrone	SunShell C18 (100x2.1mm)	PDF
1026	Peptides (BSA)	Tryptic digest of BSA	SunShell C18-WP (150x4.6mm)	PDF
1025	Peptides (1)	Tryptic digest of myoglobin and cytochrome C	SunShell C18-WP (150x4.6mm)	PDF
1024A	Leuprolide Acetate	Leuprolide Acetate	SunShell C18 (100x4.6mm)	PDF
1023	Oolong tea	Gallocatechin Epigallocatechin Catechin Caffeine Epicatechin Epigallocatechin gallate Gallocatechin gallate Epicatechin gallate Catechin gallate	SunShell C18 (75x4.6mm)	PDF
1022	SunShell Comparison of SunShell phases	Uracil Caffeine Phenol Butylbenzene o-Terphenyl Amylbenzene Triphenylene	SunShellC18, C8, PFP, PhE, RP-AQUA, C18-WP	PDF
1021	Nucleotides	5'-GDP 5'-ATP 5'-ADP 5'-AMP	SunShell RP-AQUA (150x4.6mm)	PDF
1020	Water-soluble vitamins (3)	Nicotinic acid Pyridoxal Pyridoxine HCl Vitamin B6 Nicotinamide	SunShell RP-AQUA (150x4.6mm)	PDF
1019	Xanthines	Theobromine Theophyline Caffeine Phenol	SunShell PFP (150x4.6mm)	PDF

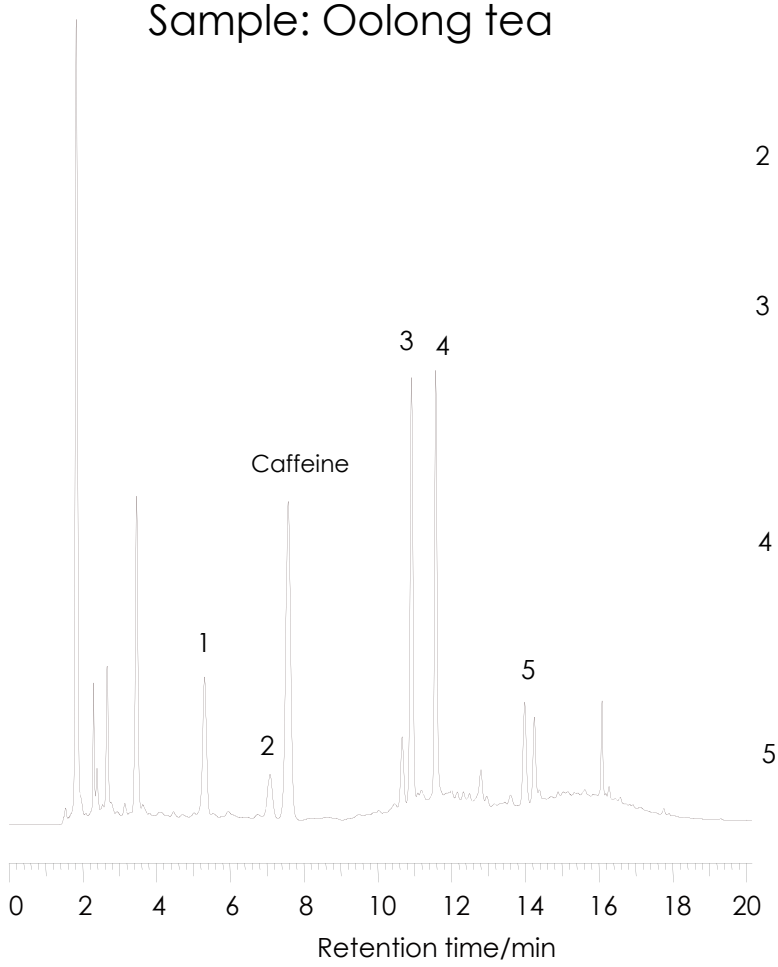
No.	Title	Sample	Column	Pdf
1018	Nucleic acid bases	Cytosine Uracil Thymidine Uridine Thymine	SunShell RP-AQUA (150x4.6mm)	PDF
1017	Isomers (ortho, meta and para) of xylene and cresol (Renewal)	Isomers (ortho, meta and para) of xylene and cresol	Sunrise C28 (250x4.6mm), SunShell PFP (150x4.6mm)	PDF
1016	Tryptic digest of myoglobin	Tryptic digest of myoglobin	SunShell C18-WP (150x4.6mm)	PDF
1015A	Ritodrine Hydrochloride	Ritodrine Hydrochloride	Sunniest C8 (250 x 4.6 mm)	PDF
1014A	Separation of Clobetasol Propionate and Related Substances	Clobetasol Propionate	Sunniest C18 (150x4.6mm)	PDF
1013A	Separation of Valsartan and	Valsartan	Sunniest C18 (150x4.6mm)	PDF
1012A	Separation of Salbutamol Sulphate and Related Substances	Salbutamol Sulphate and Related Substances	Sunniest C8 (150 x 4.6 mm)	PDF
1011A	Separation of Lumazine and Related Substances	5.6 diamino-2,4-pyrimidinediol 6-amino-5-nitroso-2,4-pyrimidinediol Lumazine	Sunniest RP-AQUA (250x4.6mm)	PDF
1010	Analgesics (2)	Benzydamine,Ketoprofen Naproxen Indomethacin Ibuprofen	Sunniest C18 (250x4.6mm)	PDF
1009	Analgesics (1)	Acetaminophen Antipyrine Aspirin Ethenzamide	Sunniest C18 (150x4.6mm)	PDF
1008	Antihistamines	Chlorpheniramine Diphenhydramine Clemastine	Sunniest C18 (150x4.6mm)	PDF
1007	Organic acides (1)	Formic acid Acetic acid Citric acid Succinic acid Porpionic acid	Sunniest RP-AQUA (150x4.6mm)	PDF

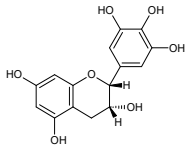
No.	Title	Sample	Column	Pdf
1006	Antidepressants	Uracil Propranolol Nortriptyline Amitriptyline Toluene	Sunniest C18 (150x4.6mm)	
1005	Nucleotides	5'-GDP 5'-GMP 5'-ATP 5'-ADP 5'-AMP	Sunniest RP-AQUA (150x4.6mm)	
1004	Water-soluble vitamins (2)	Nicotinic acid Pyridoxal Pyridoxine HCl Vitamin B6 Nicotinamide	Sunniest RP-AQUA (150x4.6mm)	
1003	Water-soluble vitamins (1)	Nicotinic acid Pyridoxine HCl Nicotinamide Thiamine HCl Folic acid Riboflavin	Sunniest RP-AQUA (150x4.6mm)	
1002	Catechins (2)	Oxalic acid Theanine Guanylic acid (-)-Epigallocatechin (+)-Catechin (-)-Epigallocatechin gallate (-)-Epicatechin (-)-Epicatechin gallate	Sunniest RP-AQUA (150x4.6mm)	
1001	Catechins (1)	(-)-Epigallocatechin (+)-Catechin (-)-Epigallocatechin gallate (-)-Epicatechin (-)-Epicatechin gallate	Sunniest C18 (150x4.6mm)	

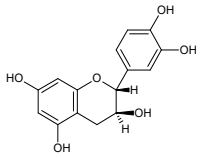
カテキン類 (1)

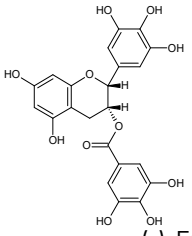
Catechins (1)

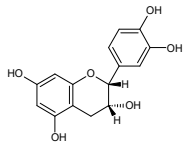
Sunniest C18 5µm, 150 x 4.6 mm i.d.

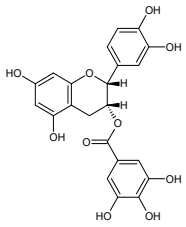


1  (-)-Epigallocatechin

2  (+)-Catechin

3  (-)-Epigallocatechin gallate

4  (-)-Epicatechin

5  (-)-Epicatechin gallate

Column: Sunniest C18 5 µm, 150 x 4.6 mm i.d.

Mobile phase: A) $H_2O/CH_3CN/85\%\ H_3PO_4$ (95:5:0.05)

B) $H_2O/CH_3CN/85\%\ H_3PO_4$ (50:50:0.05)

Time (min)	0	5	8	10	15	20
%B	10	10	30	30	80	80

Flow rate: 1.0 mL/min

Temperature: 40 °C

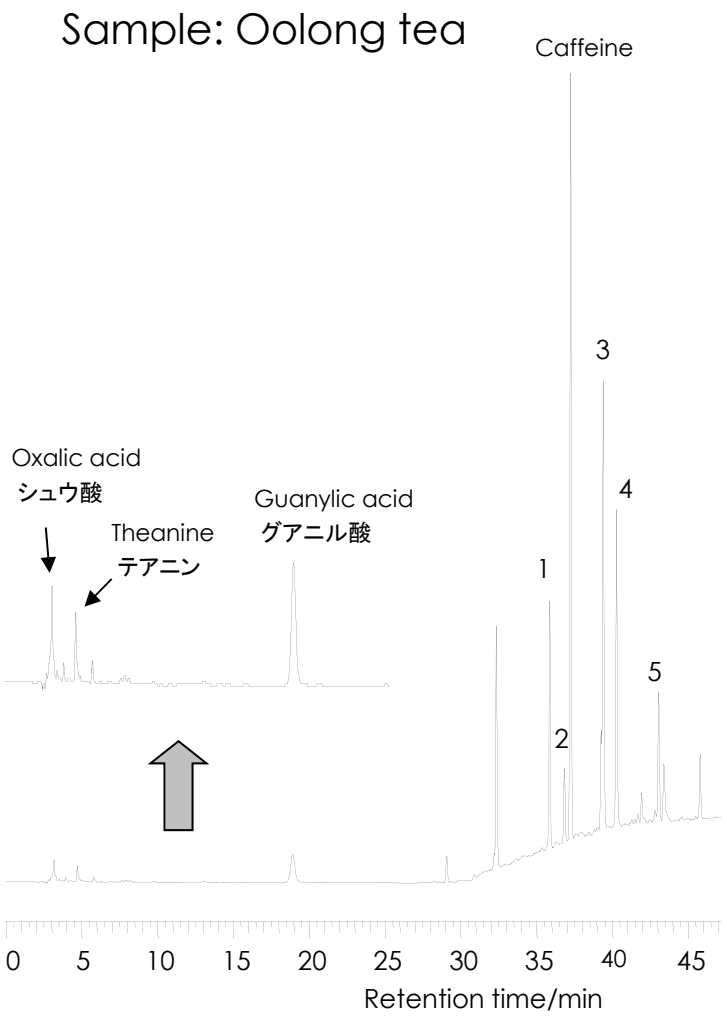
Detection: UV@230 nm

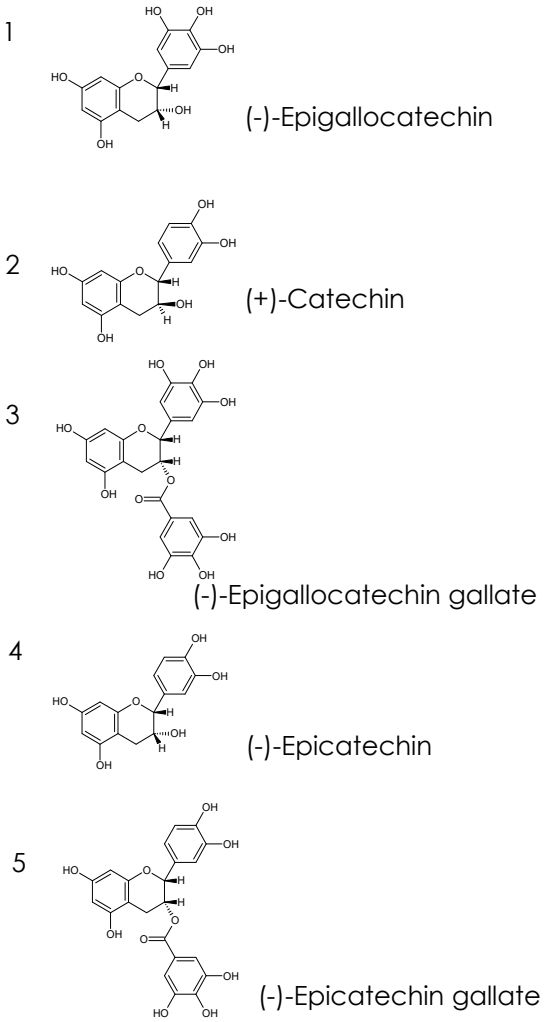
Injection volume: 10 µL

カテキン類 (2)

Catechins (2)

Sunniest RP-AQUA 5 µm, 150 x 4.6 mm i.d.





Column: Sunniest RP-AQUA 5 µm, 250 x 4.6 mm i.d.

Mobile phase: A) H_2O/H_3PO_4 (99.9:0.1)

B) CH_3CN

Time (min)	0	20	60
%B	0	0	50

Flow rate: 1.0 mL/min

Temperature: 40 °C

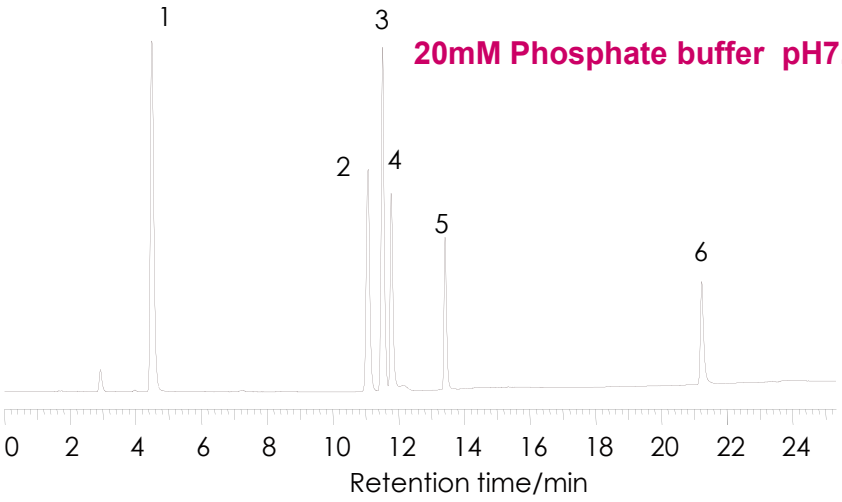
Detection: UV@210 nm

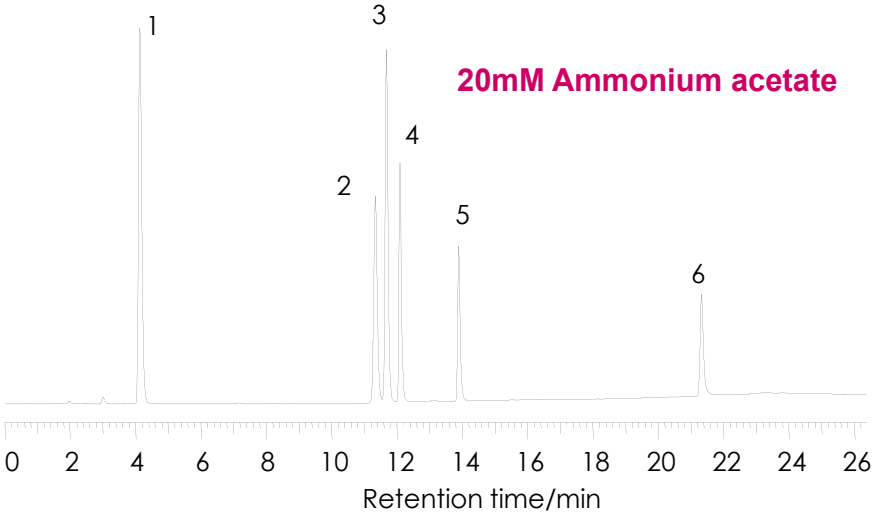
Injection volume: 10 µL

水溶性ビタミン類 (1)

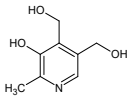
Water-soluble vitamins (1)

Sunniest RP-AQUA 5 µm, 150 x 4.6 mm i.d.

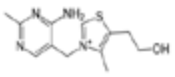


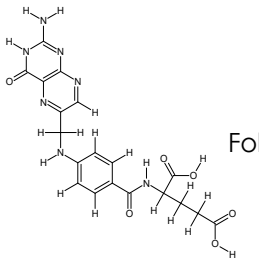


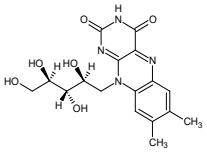
1  Nicotinic acid

2  Pyridoxine HCl
Vitamin B_6

3  Nicotinamide

4  Thiamine HCl
Vitamin B_1

5  Folic acid

6  Riboflavin
Vitamin B_2

Column: Sunniest RP-AQUA 5 µm, 150 x 4.6 mm i.d.

Mobile phase: A) 20mM Phosphate buffer pH7.0 or 20mM Ammonium acetate

B) Acetonitrile/ A solution (20:80)

Time (min)	0	5	20	25
%B	0	0	100	100

Flow rate: 1.0 mL/min

Temperature: 40 °C

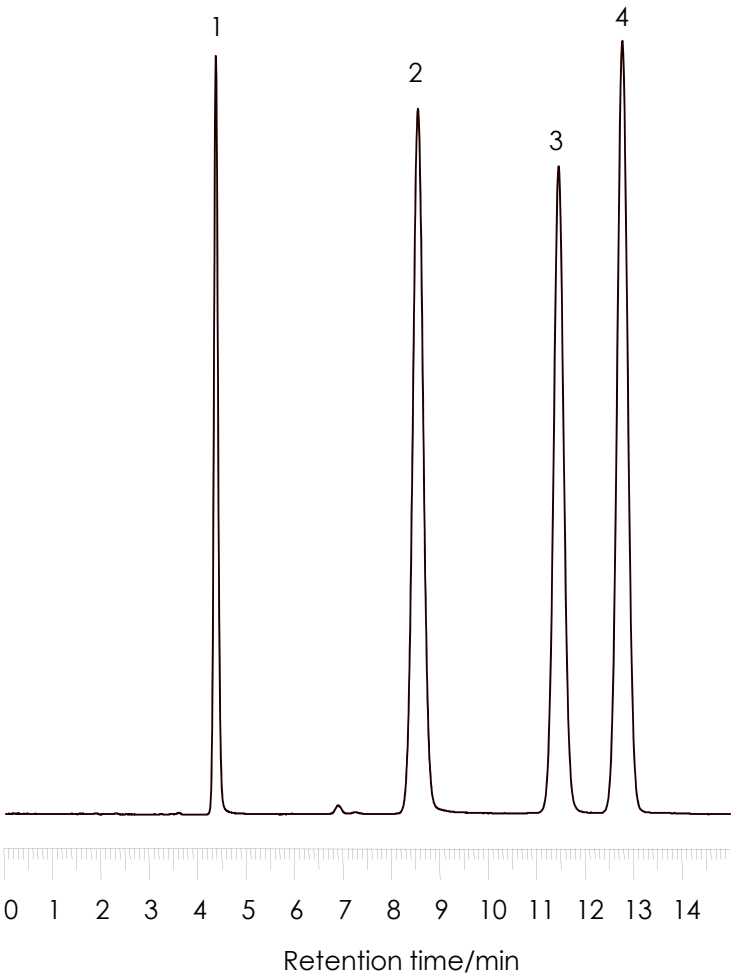
Detection: UV@250 nm

Injection volume: 10 µL

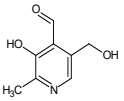
水溶性ビタミン類 (2)

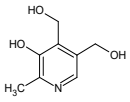
Water-soluble vitamins (2)

Sunniest RP-AQUA 5 µm, 150 x 4.6 mm i.d.



1  Nicotinic acid

2  Pyridoxal

3  Pyridoxine HCl
Vitamin B_6

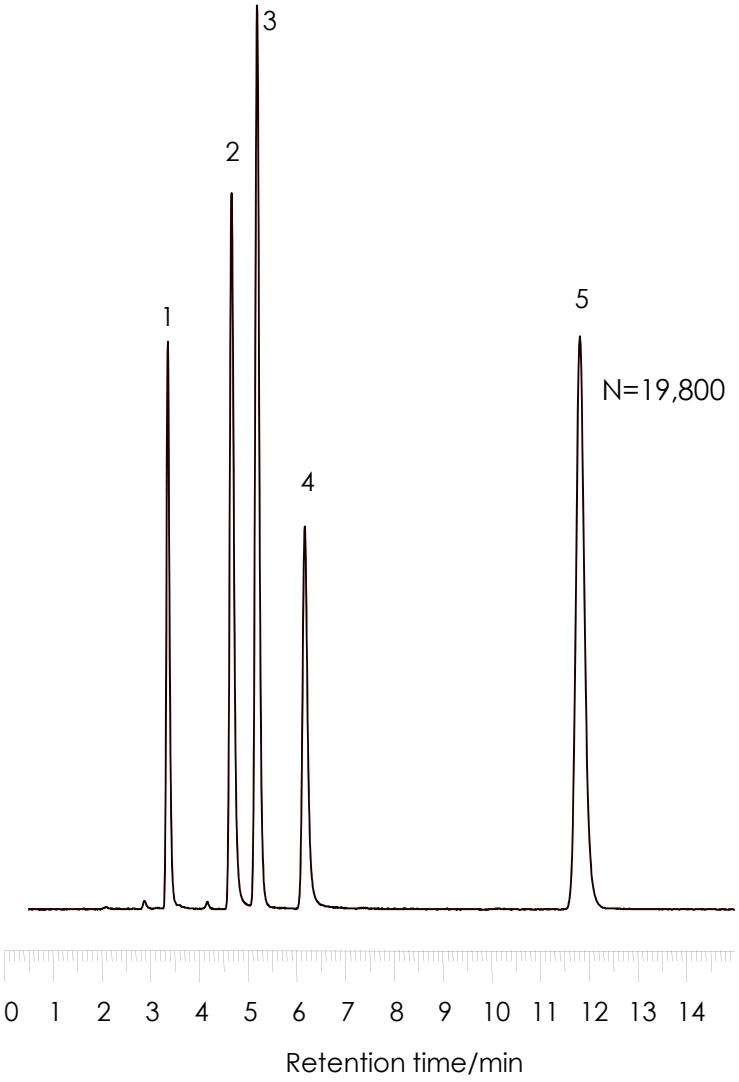
4  Nicotinamide

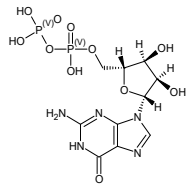
Column: Sunniest RP-AQUA 5 µm, 150 x 4.6 mm i.d.
Mobile phase: 40mM Phosphate buffer pH6.8
Flow rate: 1.0 mL/min
Temperature: 40 °C
Detection: UV@250 nm

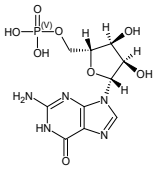
ヌクレオチドの分離

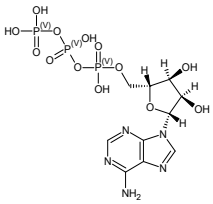
Nucleotides

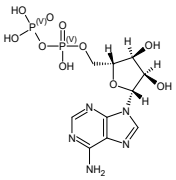
Sunniest RP-AQUA 3 µm, 150 x 4.6 mm i.d.

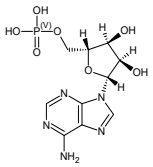


1 
5'-Ganosine diphosphate

2 
5'-Ganosine monophosphate

3 
5'-Adenosine triphosphate

4 
5'-Adenosine diphosphate

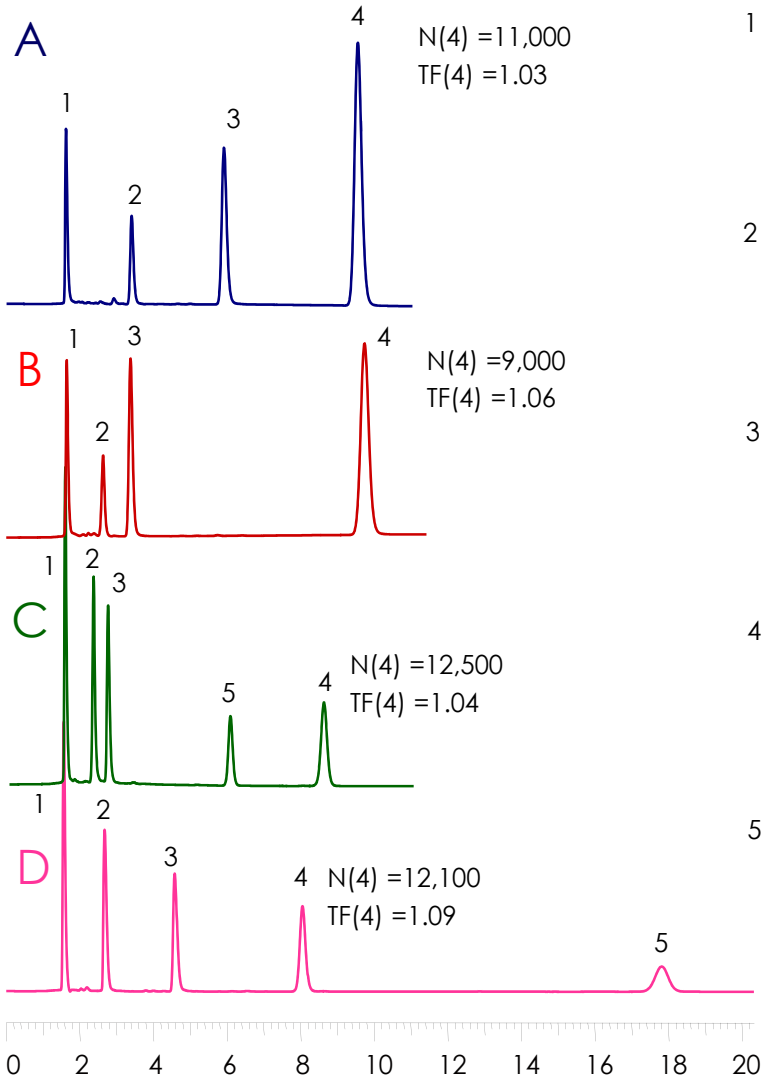
5 
5'-Adenosine monophosphate

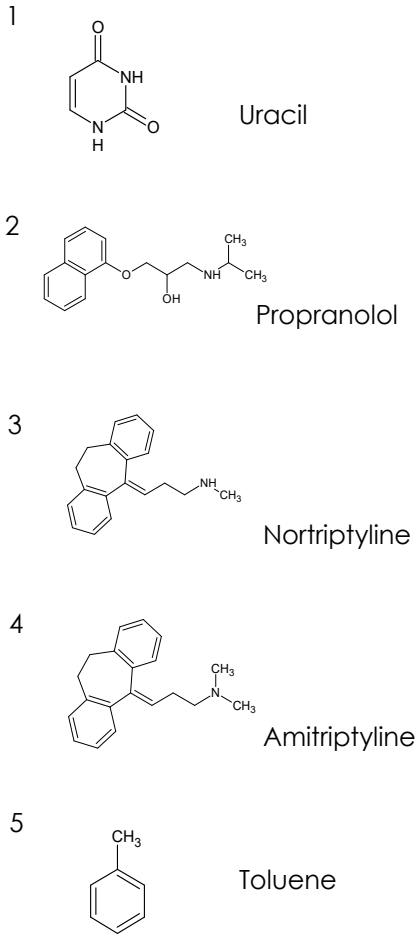
Column: Sunniest RP-AQUA 3 µm, 150 x 4.6 mm
Mobile phase: 20mM Phosphate buffer pH6.0
Flow rate: 1.0 mL/min
Temperature: 40 °C
Detection: UV@250nm
Sample: 1 = 5'-GDP, 2 = 5'-GMP, 3 = 5'-ATP, 4 = 5'-ADP, 5 = 5'-AMP

三環系抗うつ剤の分離

Antidepressants

Sunniest C18 5 µm, 150 x 4.6 mm i.d.





TF: USP tailing factor

Column: Sunniest C18 5 µm, 150 x 4.6 mm

Mobile phase:

A) CH_3OH/20mM Phosphate buffer pH7.5 = 80/20

B) CH_3OH/20mM Phosphate buffer pH6.0 = 80/20

C) CH_3CN/20mM Phosphate buffer pH7.0 = 60/40

D) CH_3CN/10mM Ammonium acetate pH6.8 = 40/60

Flow rate: 1.0 mL/min

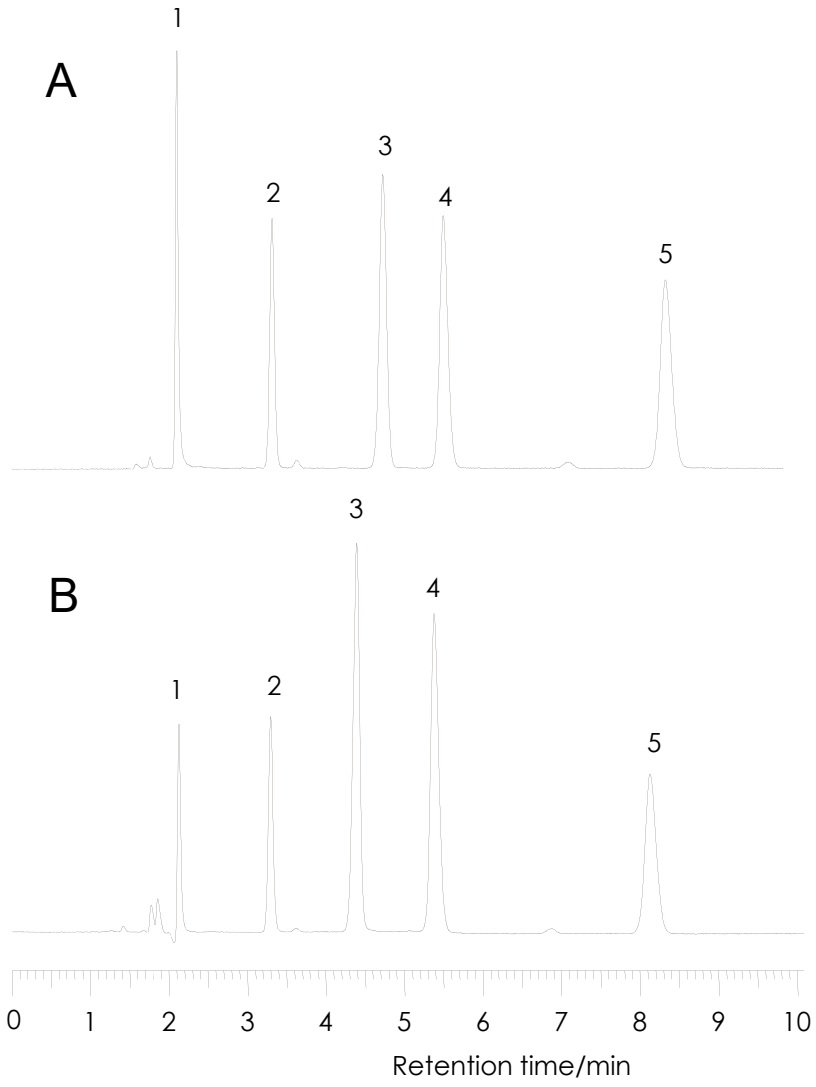
Temperature: 40 °C for **A**, **C** and **D**, 22 °C for **B**

Sample: 1 = Uracil, 2 = Propranolol, 3 = Nortriptyline, 4 = Amitriptyline, 5 = Toluene

有機酸の分離 (1)

Organic acids (2)

Sunniest RP-AQUA 5 µm, 150 x 4.6 mm i.d.



1 Formic acid

2 Acetic acid

3 Citric acid

4 Succinic acid

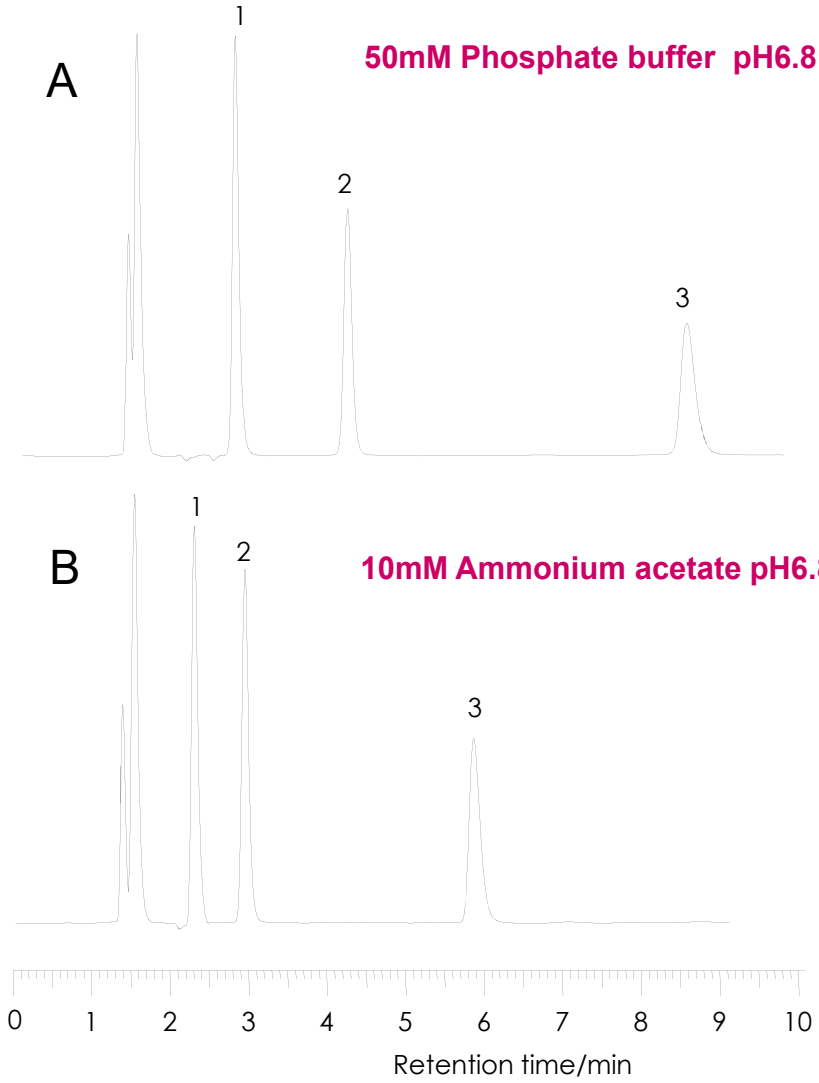
5 Propionic acid

Column: Sunniest RP-AQUA 5 µm, 150 x 4.6 mm i.d.
Mobile phase:
A) 50 mM Ammonium phosphate + Phosphoric acid (pH 2.4)
B) 0.01% Trifluoroacetic acid (pH 2.9)
Flow rate: 1.0 mL/min
Temperature: 40 °C
Detection: UV@210 nm

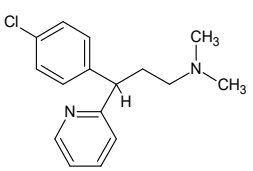
抗ヒスタミン剤の分離

Antihistamines

Sunniest C18 5 µm, 150 x 4.6 mm i.d.

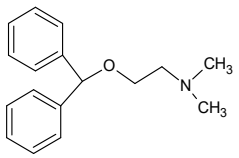


1



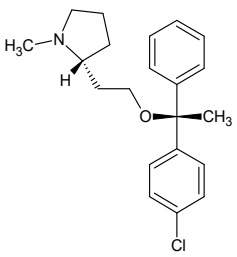
Chlorpheniramine

2



Diphenhydramine

3



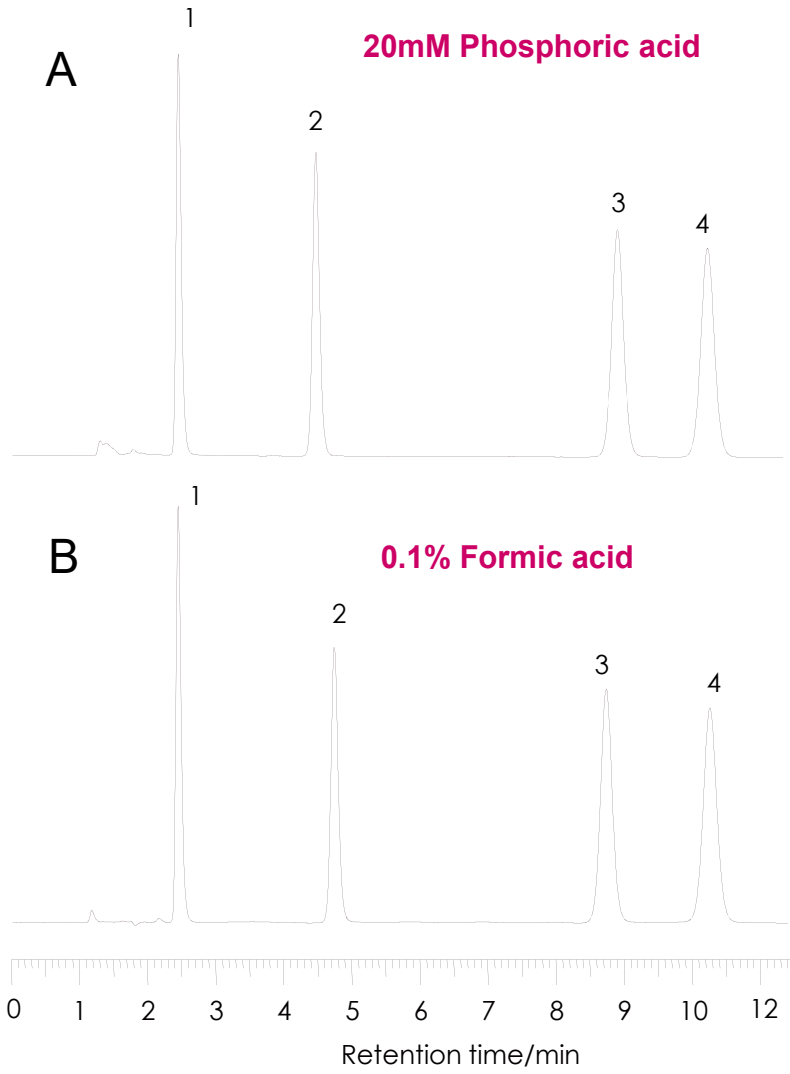
Clemastine

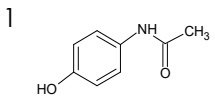
Column: Sunniest C18 5 µm, 150 x 4.6 mm i.d.
Mobile phase:
A) CH_3CN/50mM Phosphate buffer pH6.81 = 50/50
B) CH_3CN/10mM Ammonium acetate pH6.8 = 50/50
Flow rate: 1.0 mL/min
Temperature: 40 °C
Detection: UV@220 nm

解熱鎮痛剤の分離 (1)

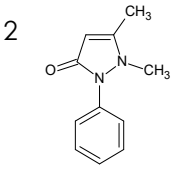
Analgesics (1)

Sunniest C18 5 µm, 150 x 4.6 mm i.d.

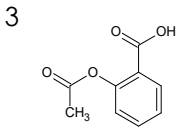




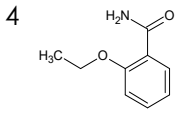
Acetaminophen



Antipyrine



Aspirin



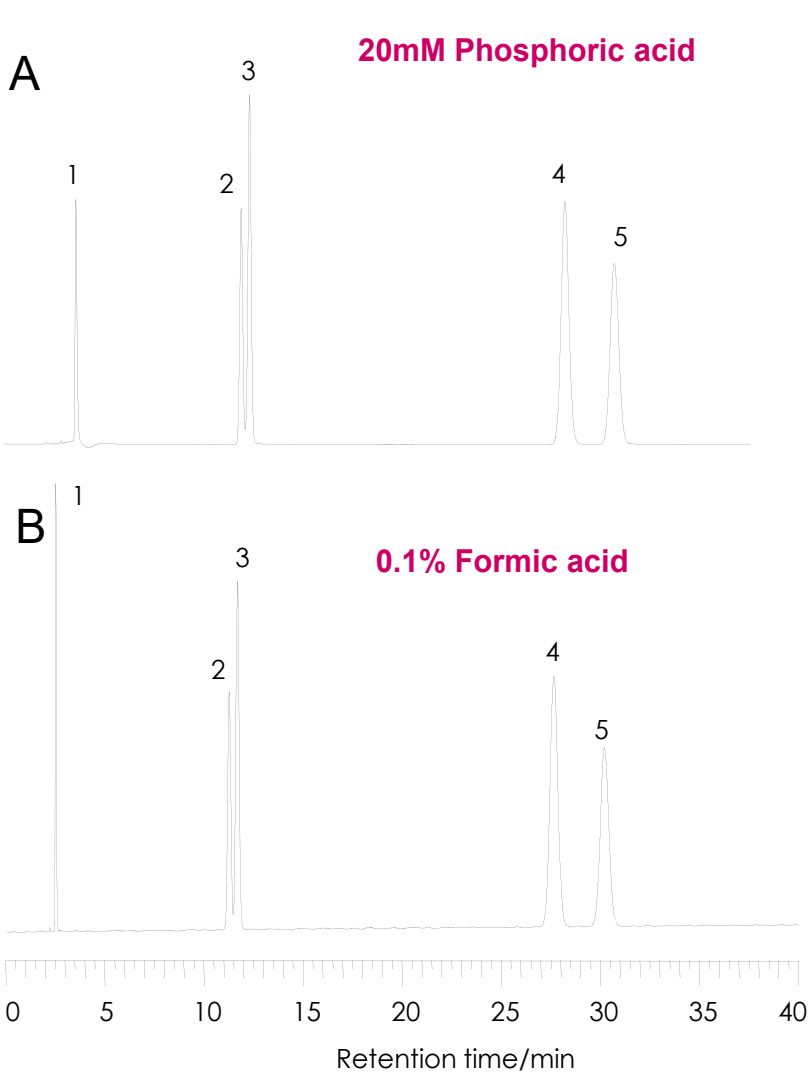
Ethenzamide

Column: Sunniest C18 5 µm, 150 x 4.6 mm i.d.
Mobile phase:
A) CH_3CN/20mM Phosphoric acid = 20/80
B) CH_3CN/0.1% Formic acid = 20/80
Flow rate: 1.0 mL/min
Temperature: 40 °C
Detection: UV@230 nm

解熱鎮痛剤の分離 (2)

Analgesics (2)

Sunniest C18 5 µm, 250 x 4.6 mm i.d.



1 Benzydamine (30 mg/L)

2 Krtoprofen (80 mg/L)

3 Naproxen (10 mg/L)

4 Indomethacin (90 mg/L)

5 Ibuprofen (220 mg/L)

Column: Sunniest C18 5 µm, 250 x 4.6 mm i.d.
Mobile phase:
A) CH_3CN/20mM Phosphoric acid = 45/55
B) CH_3CN/0.1% Formic acid = 45/55
Flow rate: 1.0 mL/min
Temperature: 40 °C
Detection: UV@230 nm
Injection volume: 10 µL in B mobile phase

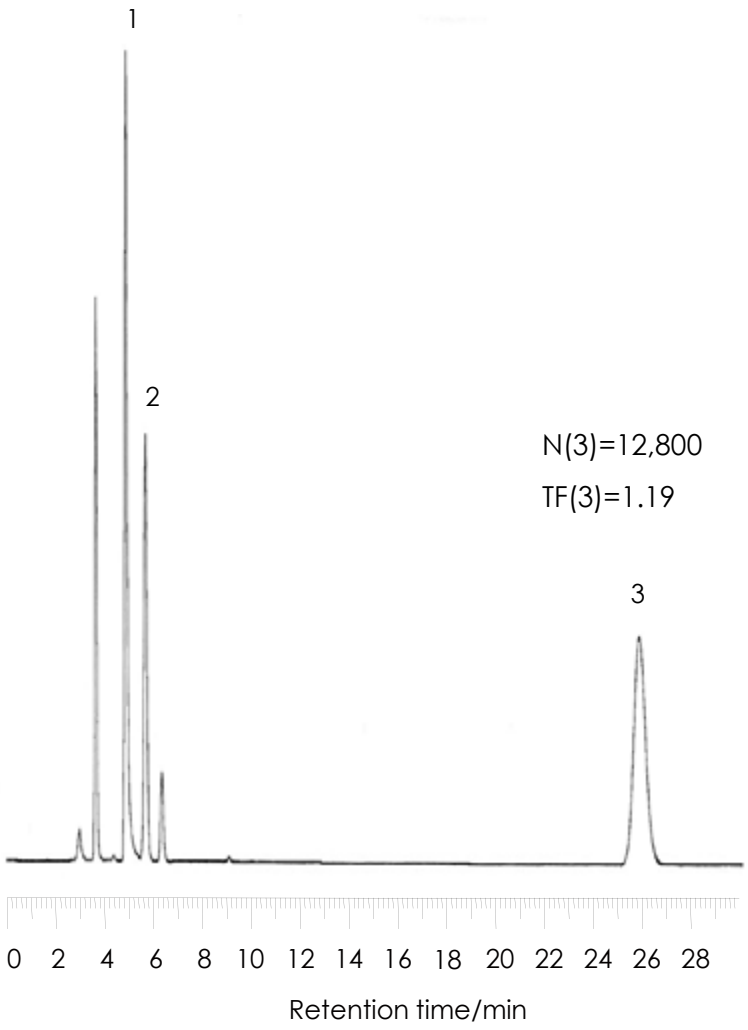
Application Data

No. 1011A

ChromaNik Technologies Inc.

ルマジンと関連物質の分離

Separation of Lumazine and Related Substances

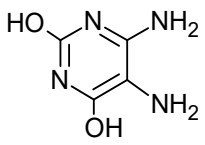


Sunniest RP-AQUA 5 µm, 250 x 4.6 mm i.d.

N(3)=12,800

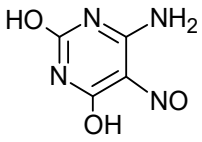
TF(3)=1.19

1



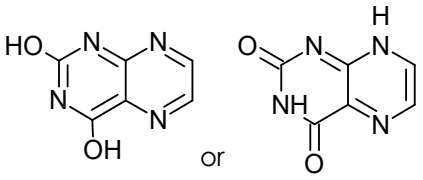
5.6 diamino-2,4-pyrimidinediol

2



6-amino-5-nitroso-2,4-pyrimidinediol

3



Lumazine

N: Plate number

TF: USP Tailing factor

Column: Sunniest RP-AQUA 5 µm, 250 x 4.6 mm
Mobile phase: 20mM Phosphate buffer pH6.0
Flow rate: 1.0 mL/min
Temperature: 40 °C
Detection: UV@250nm
Sample: 3=Lumazine

Application Data

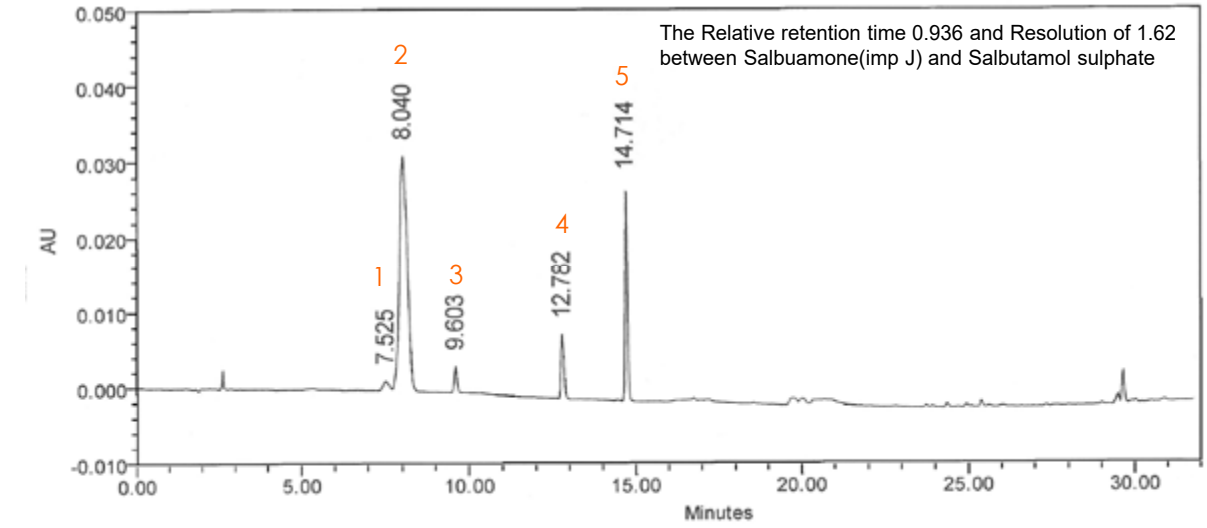
No. 1012A

ChromaNik Technologies Inc.

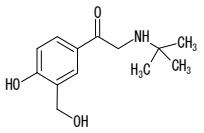
サルブタモール硫酸塩と関連物質の分離

Separation of Salbutamol Sulphate and Related Substances

Sunniest C8 3 µm, 150 x 4.6 mm i.d.

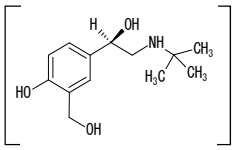


1



2-[(1,1-dimethylethyl)amino]-1-[4-hydroxy-3-(hydroxymethyl)phenyl]ethanone (salbutamone)

2

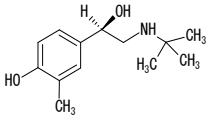


H_2SO_4

2 Salbutamol Sulphate

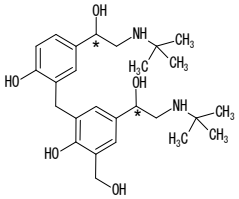
3 unknown

4



(1RS)-2-[(1,1-dimethylethyl)amino]-1-[4-hydroxy-3-methylphenyl) ethanol

5



2-[(1,1-dimethylethyl)amino]-1-[3-[[5-[2-[(1,1-dimethyethyl)amino]-1-hydroxyethyl]-2-hydroxyphenyl]methyl]-4-hydroxy-5-(hydroxymethyl)phenyletanol

∗ The Relative retention time 0.936 and Resolution of 1.62 between Salbuamone(imp J) and Salbutamol sulphate

Column: Sunniest C8 3 µm, 150 x 4.6 mm

Mobile phase: A) dissolve 3.45 g of sodium dihydrogen phosphate monohydrate R in 900 mL of a 0.05 % V/V solution of triethylamine R, adjust to pH 3.0 with dilute phosphoric acid R and dilute to 1000 mL with a 0.05% V/V solution of triethylamine R;

B) methanol R, acetonitrile R (35:65 V/V)

Gradient: time 0 – 5 min %B 5%

time 5 – 30 min %B 5 – 90%

Flow rate: 1.0 mL/min

Temperature: 30 °C

Detection: UV@273nm

Application Data

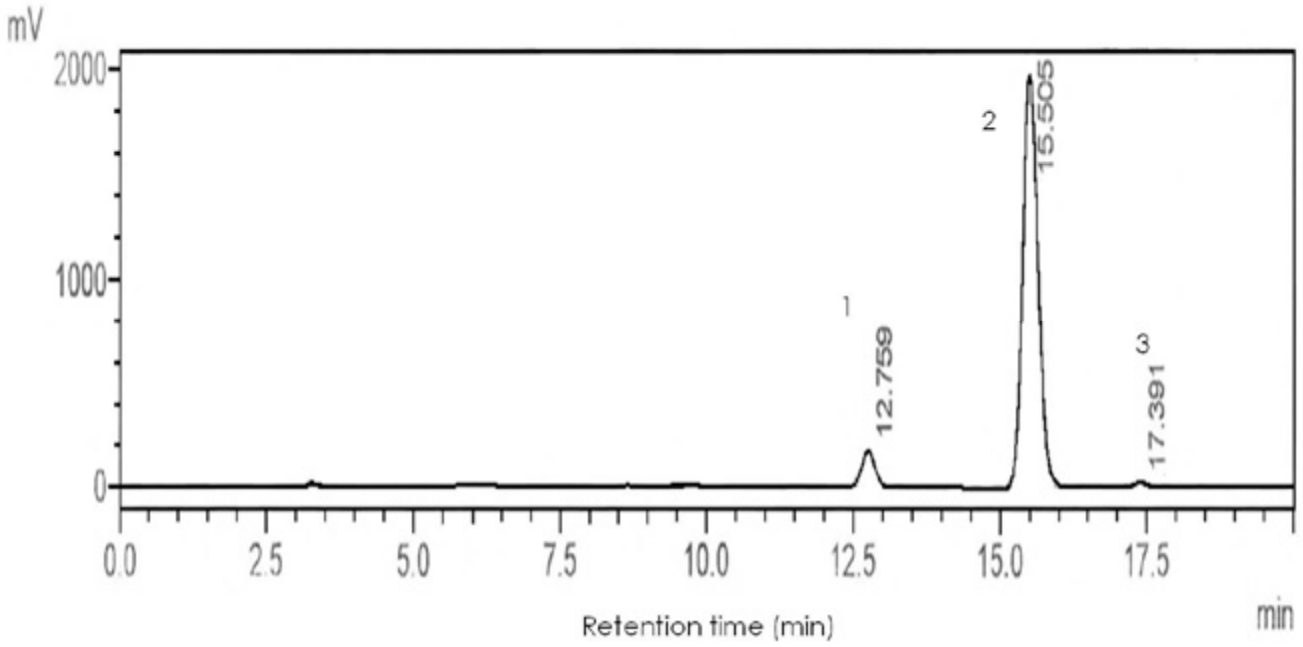
No. 1013A

ChromaNik Technologies Inc.

バルサルタンと関連物質の分離

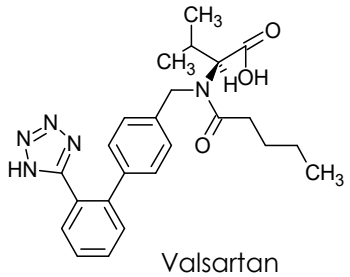
Separation of Valsartan and Related Substances

Sunniest C18 3 µm, 150 x 4.6 mm i.d.



1 Unknown

2



Valsartan

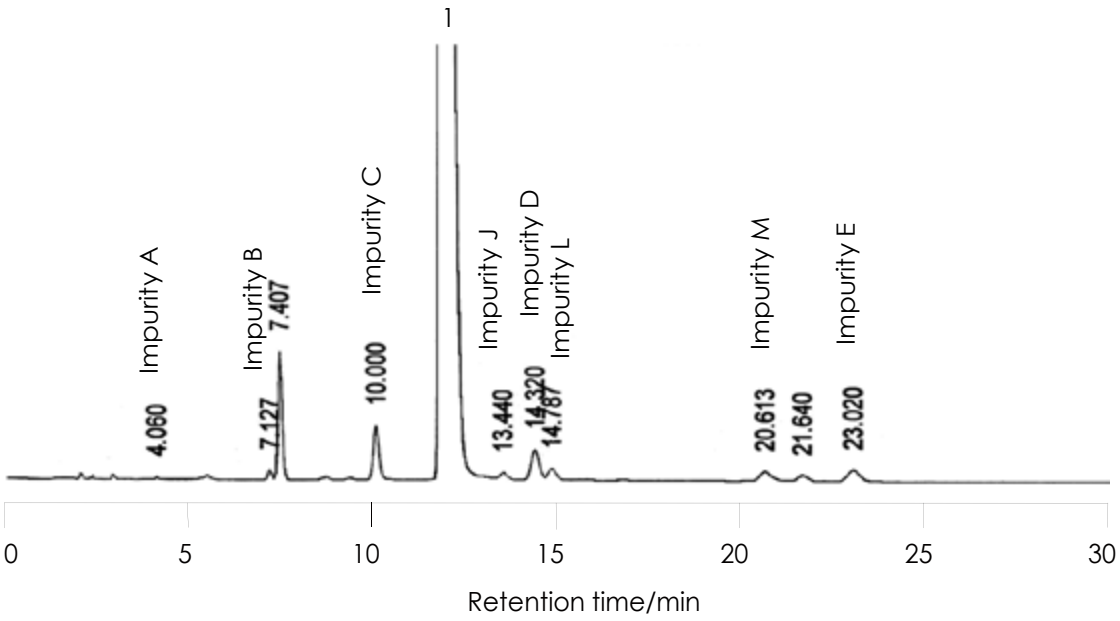
3 Unknown

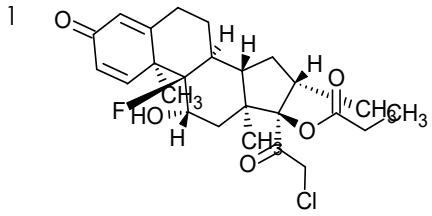
Column: Sunniest C18 3 µm, 150 x 4.6 mm
Mobile phase: Acetonitrile/Water/Glacial Acetic Acid = 500/500/1
Flow rate: 0.4 mL/min
Temperature: 30 °C
Detection: UV@225nm
Test probe : Valsartan 0.5mg/mL in mobile phase
Injection volume: 10 µL

プロピオン酸クロベタゾールと関連物質の分離

Separation of Clobetasol Propionate and Related Substances

Sunniest C18 5 µm, 150 x 4.6 mm i.d.





Clobetasol Propionate

Column: Sunniest C18 5 µm, 150 x 4.6 mm

Mobile phase:

Solution A, 3.33 g NaH2PO4 dissolve in 425 ml Water, Adjust pH 5.5 with 10 % NaOH

Solvent B, Acetonitrile

Solvent C, Methanol

425ml Solution A + 475 ml Solvent B+ 100 ml Solvent C

Flow rate: 1.0 mL/min

Temperature: 30 °C

Test probe : 20 mg Sample in 20 ml Mobile phase

Injection volume: 10 µ L

Application Data

No. 1015A

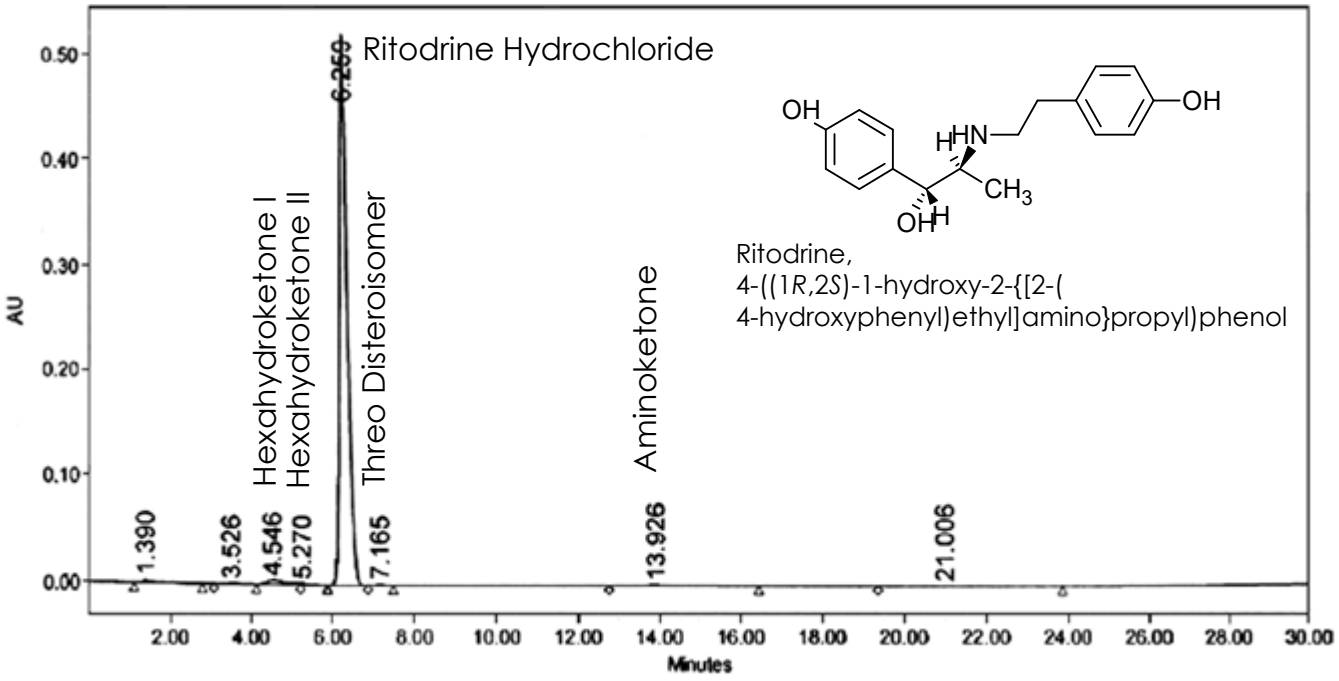
ChromaNik Technologies Inc.

塩酸リトドリン

British Pharmacopea 2009 Related substances Test

Ritodrine Hydrochloride

Sunniest C8 5 µm, 250 x 4.6 mm i.d.



Ritodrine,
4-((1*R*,2*S*)-1-hydroxy-2-{[2-(
4-hydroxyphenyl)ethyl]amino}propyl)phenol

Column: Sunniest C8 5 µm, 250 x 4.6 mm

Mobile phase:

Solution A,: 6,6 g Diammonium Hydrogen Orthophosphate + 1.1 g.Sodium Heptane sulphonate dissolved in 700 mL water and adjust the pH to 3.0 with 85% orthophosphoric acid

Solvent B, Methanol 300mL

Mix Mobile phase solution A and B

Flow rate: 2.0 mL/min

Temperature: ambient room temperature

Detection: UV 214 nm

Test probe : 0.10 % w/v Ritodrine Hydrochloride in Mobile phase

Injection volume: 20 µL

System suitability requirements

Relative retention with respect to Ritodrine

Impurity Tyramine RRT 0.3

Impurity Hexahydroketone II RRT 0.65

Impurity Hexahydroketone I RRT 0.85

Impurity Threo Disteroisomer RRT 1.15

Impurity Aminoketone RRT 2.3

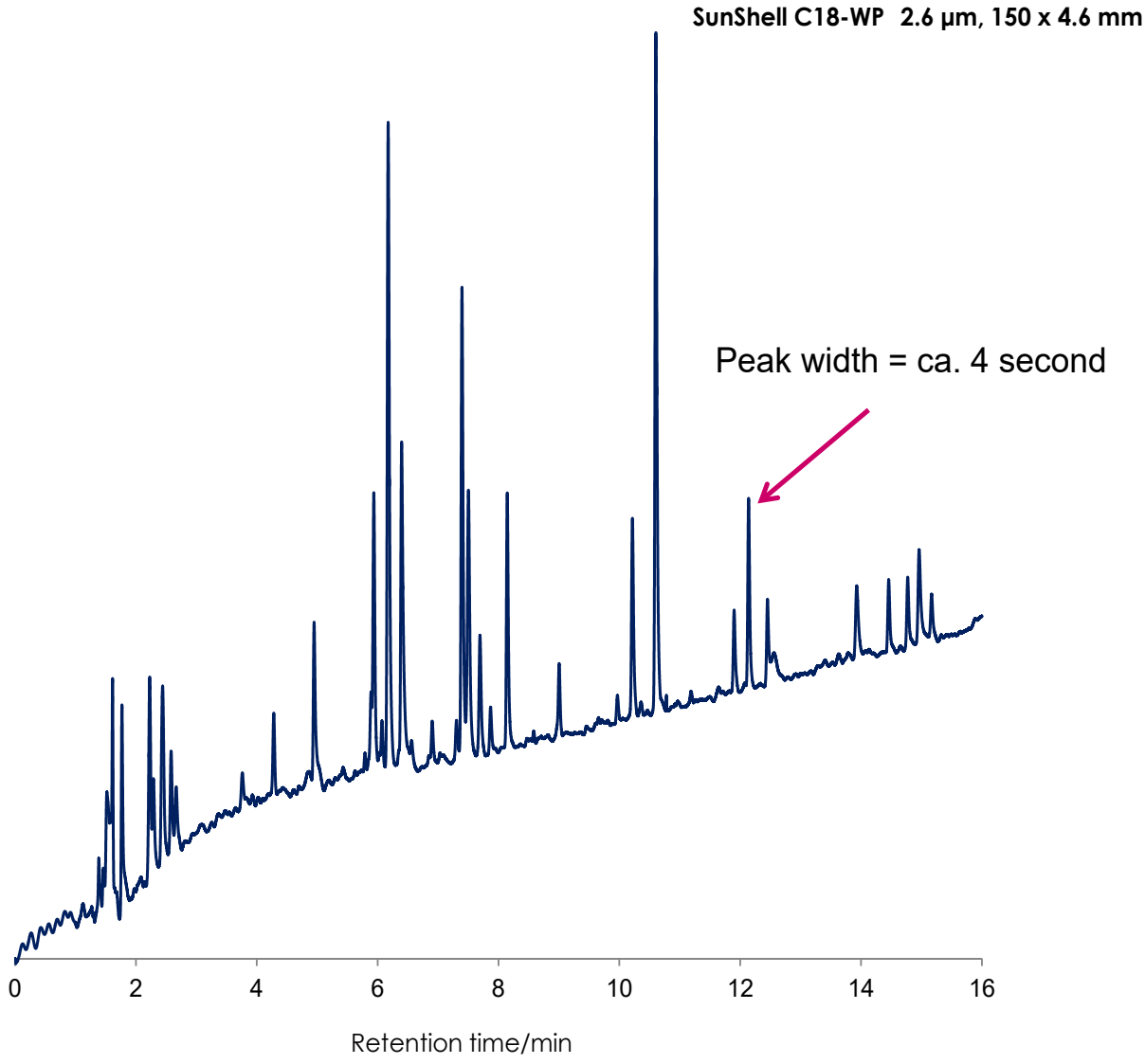
Resolution between Threo Disteroisomer and Ritodrine Hydrochloride not less than 1.5

Observations

- Sunniest C8 column offers resolution of 2.8 between Threo Disteroisomer and Rotodrine.
- Sunniest C 8 column offers RRT and resolution within the prescribed Pharmacopeal requirements.

ミオグロビンのトリプシン消化物の分離

Tryptic digest of myoglobin



Column: SunShell C18-WP 2.6 µm (16 nm), 150 x 4.6 mm,

Mobile phase: A) 0.1% TFA in acetonitrile/water(10:90)

B) 0.1 % TFA in cetonitrile

Gradient program: %B 0% – 100% in 35 min

Flow rate: 1.0 mL/min

Temperature: 25 °C

Detection: UV@210 nm

Sample: Tryptic digest of myoglobin

UHPLC: X-LC (Jasco)

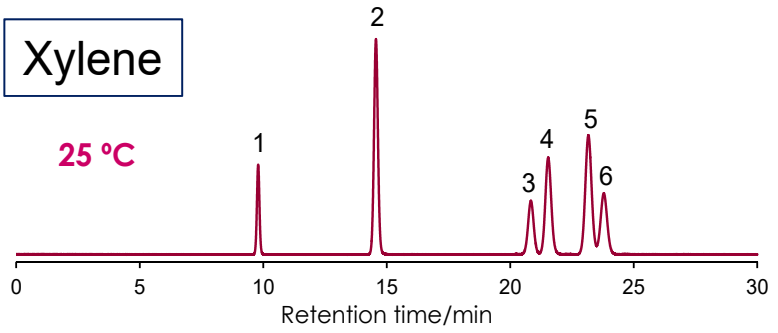
異性体の分離（キシレン、クレゾール）

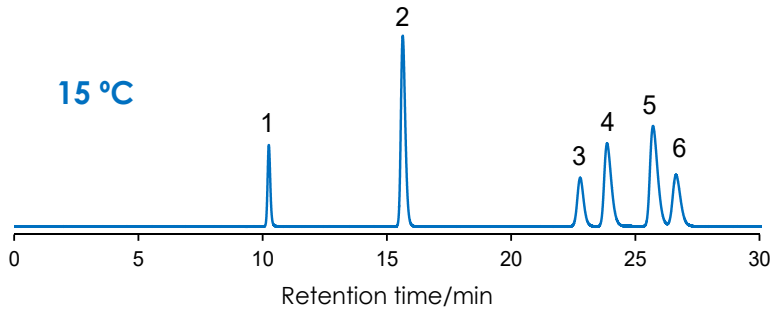
Isomers (ortho, meta and para) of xylene and cresol

Sunrise C28 3 µm, 250 x 4.6 mm i.d.

SunShell PFP 2.6 µm, 150 x 4.6 mm i.d.

Xylene





Column: Sunrise C28 3 µm, 250 x 4.6 mm

Mobile phase: CH_3OH/H_2O=70:30

Flow rate: 0.7 mL/min

Temperature: 25 °C and 15 °C

Detection: UV@250nm

Sample: BTEX

1 = Benzene

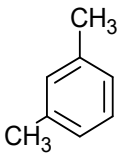
2 = Toluene

3 = Ethylbenzene

4 = o-Xylene

5 = m-Xylene

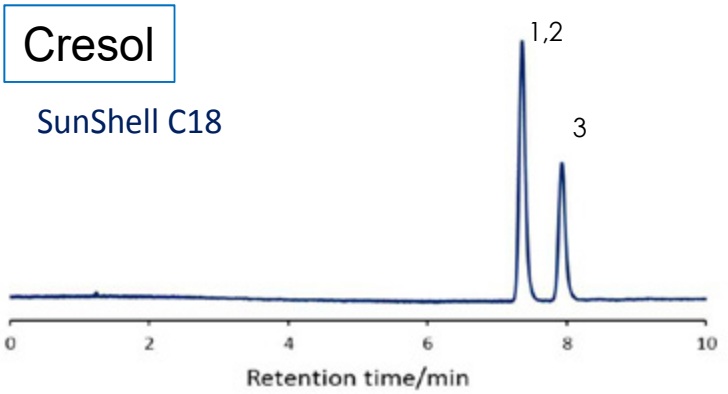
6 = p-Xylene



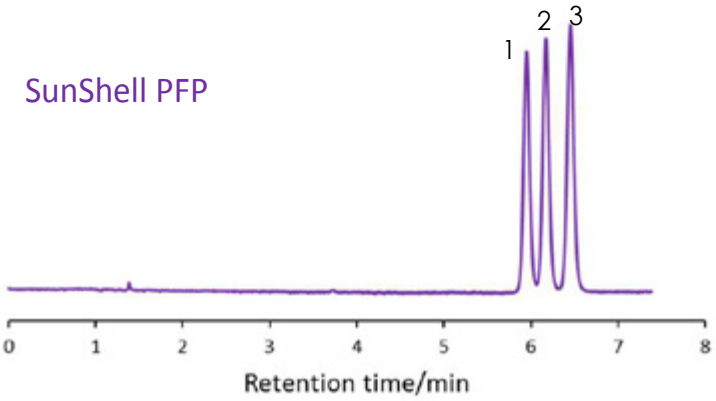
LC instrument: X-LC (Jasco)

Cresol

SunShell C18



SunShell PFP



Column:

SunShell C18 2.6 µm, 150 x 4.6 mm

SunShell PFP 2.6 µm, 150 x 4.6 mm

Mobile phase: CH_3OH/H_2O=40/60

Flow rate: 1.0 mL/min

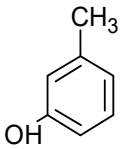
Temperature: 25 °C

Detection: UV@250nm

Sample: 1 = p-Cresol

2 = m-Cresol

3 = o-Cresol



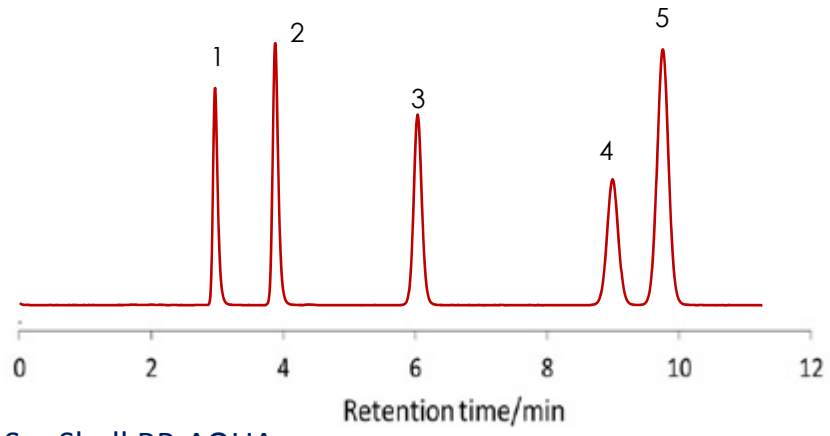
LC instrument: X-LC (Jasco)

核酸塩基の分離

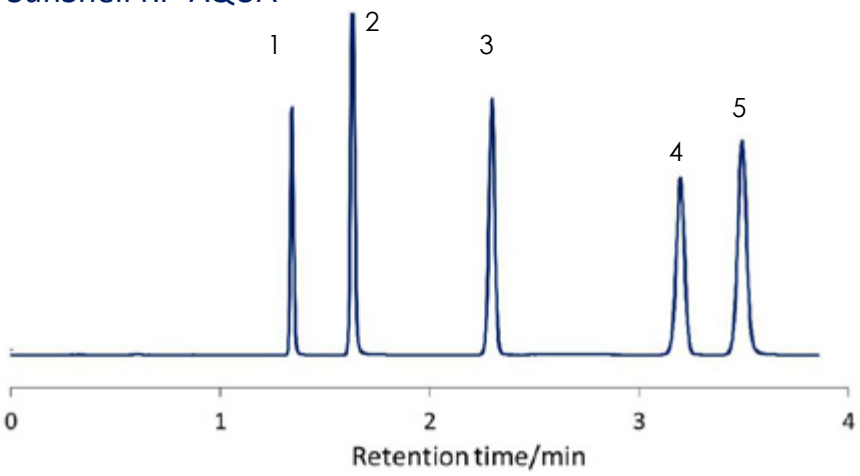
Nucleic acid bases

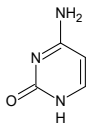
SunShell RP-AQUA 2.6 µm, 150 x 4.6 mm i.d.

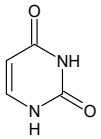
Sunniest RP-AQUA

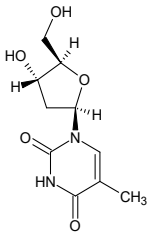


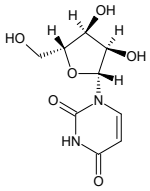
SunShell RP-AQUA

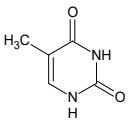


1  Cytosine

2  Uracil

3  Thymidine

4  Uridine

5  Thymine

TF: USP tailing factor

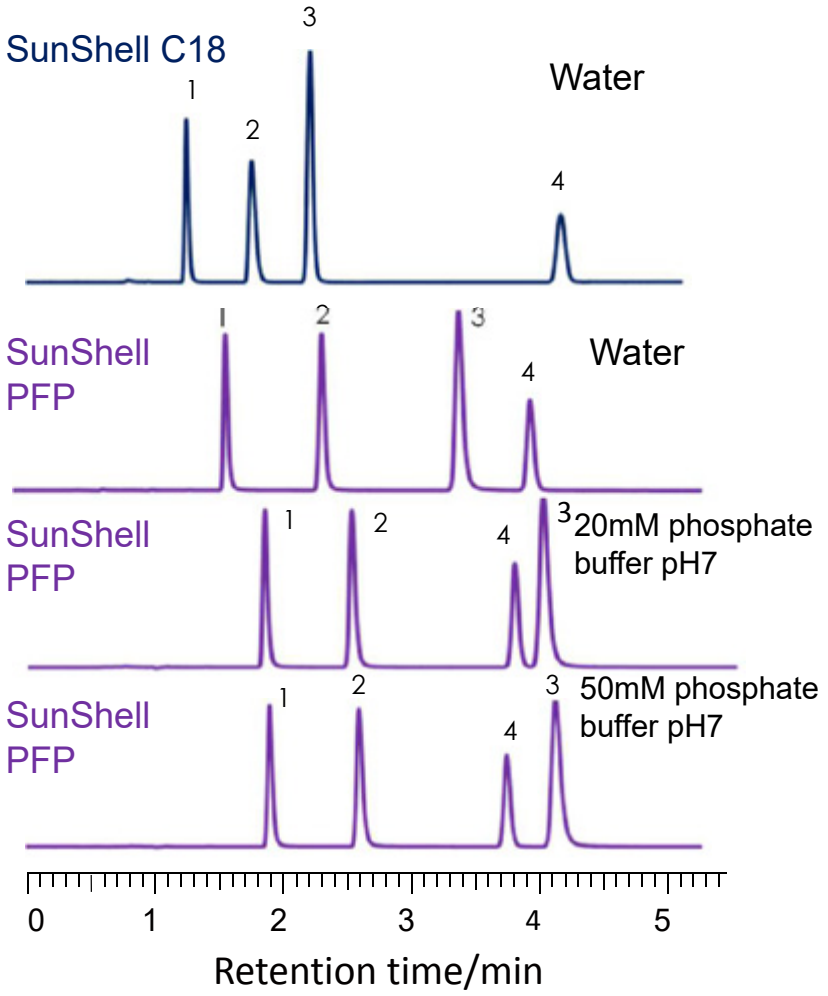
Column: Sunniest RP-AQUA 5 µm, 150 x 4.6 mm
SunShell RP-AQUA 2.6 µm, 150 x 4.6 mm
Mobile phase: 10mM Phosphate buffer pH7.0
Flow rate: 1.0 mL/min for Sunniest,
1.5 ml/min for SunShell
Temperature: 40 °C
Detection: UV@250nm
Sample: 1 = Cytosine, 2 = Uracil, 3 = Thymidine, 4 = Uridine, 5 = Thymine

	Plate(5)	Resolution (4,5)
Sunniest	14,000	1.98
SunShell	30,000	3.79

キサンチン類の分離

Xanthines

SunShell PFP 2.6 µm, 150 x 4.6 mm i.d.



1 Theobromine

2 Theophyline

3 Caffeine

4 Phenol

Column: SunShell C18, PFP 2.6 µm, 150 x 2.1 mm

Mobile phase: CH_3OH/water or buffer=30/70

Flow rate: 0.3 mL/min

Temperature: 25 °C

Detection: UV@250nm

Sample: 1 = Theobromine, 2 = Theophyline

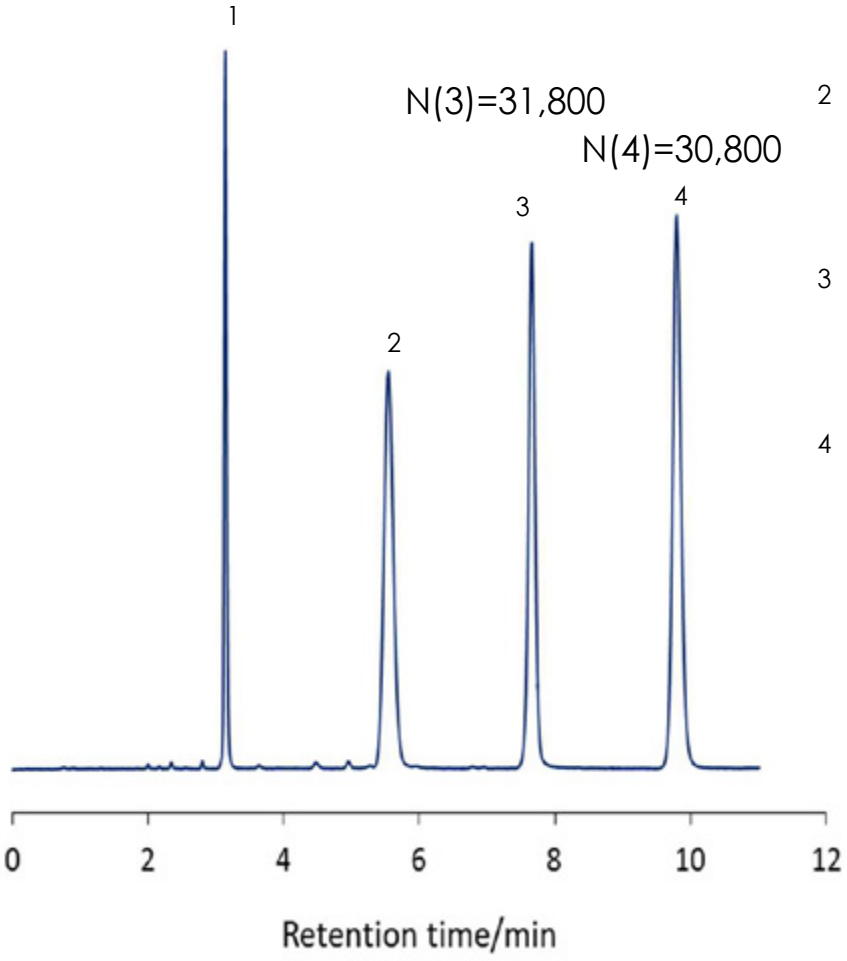
3 = Caffeine, 4 = Phenol

水溶性ビタミン類 (3)

Water-soluble vitamins (3)

SunShell RP-AQUA 2.6 µm, 150 x 4.6 mm i.d.

SunShell RP-AQUA



1 Nicotinic acid

2 Pyridoxal

3 Pyridoxine HCl
Vitamin B_6

4 Nicotinamide

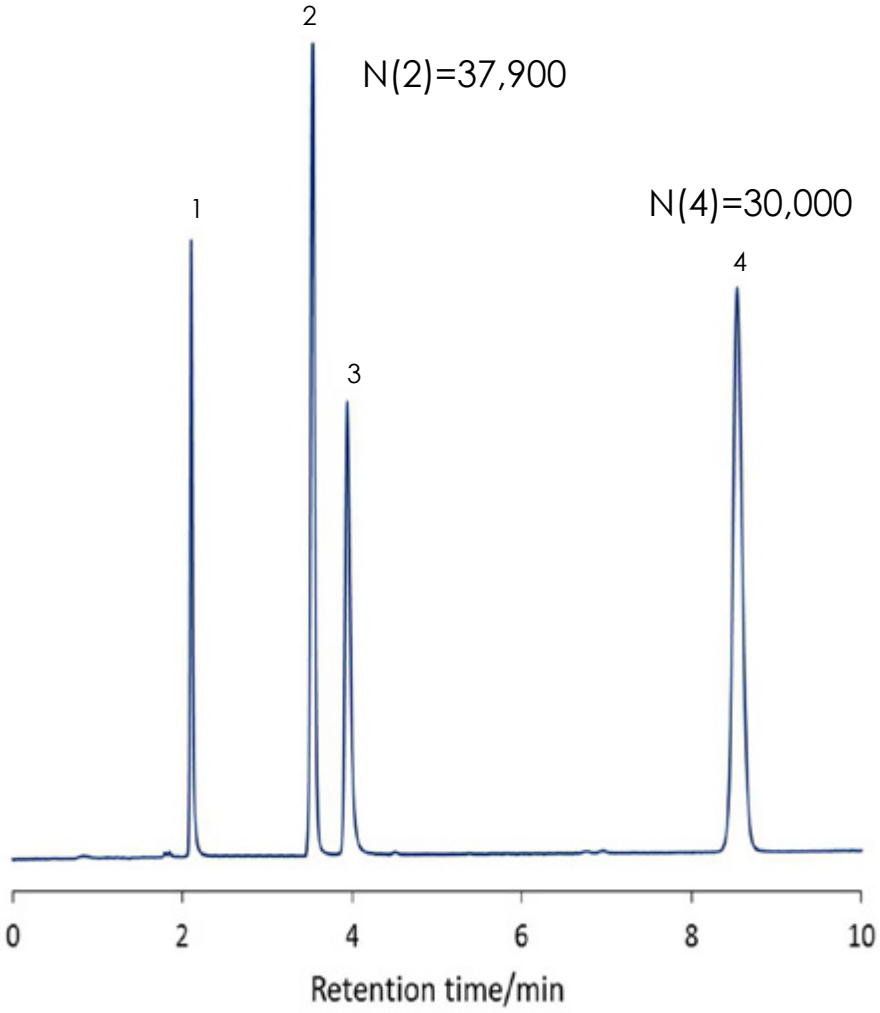
Column: SunShell RP-AQUA 2.6 µm, 150 x 4.6 mm i.d.
Mobile phase: 40mM Phosphate buffer pH6.8
Flow rate: 1.0 mL/min
Temperature: 40 °C
Detection: UV@250 nm
Sample: 1 = Nicotinic acid, 2 = Pyridoxal, 3 = Pyridoxine HCl, 4 = Nicotinamide
UHPLC: X-LC (Jasco)

ヌクレオチドの分離

Nucleotides

SunShell RP-AQUA 2.6 µm, 150 x 4.6 mm i.d.

SunShell RP-AQUA



1 5'-GDP

2 5'-ATP

3 5'-ADP

4 5'-AMP

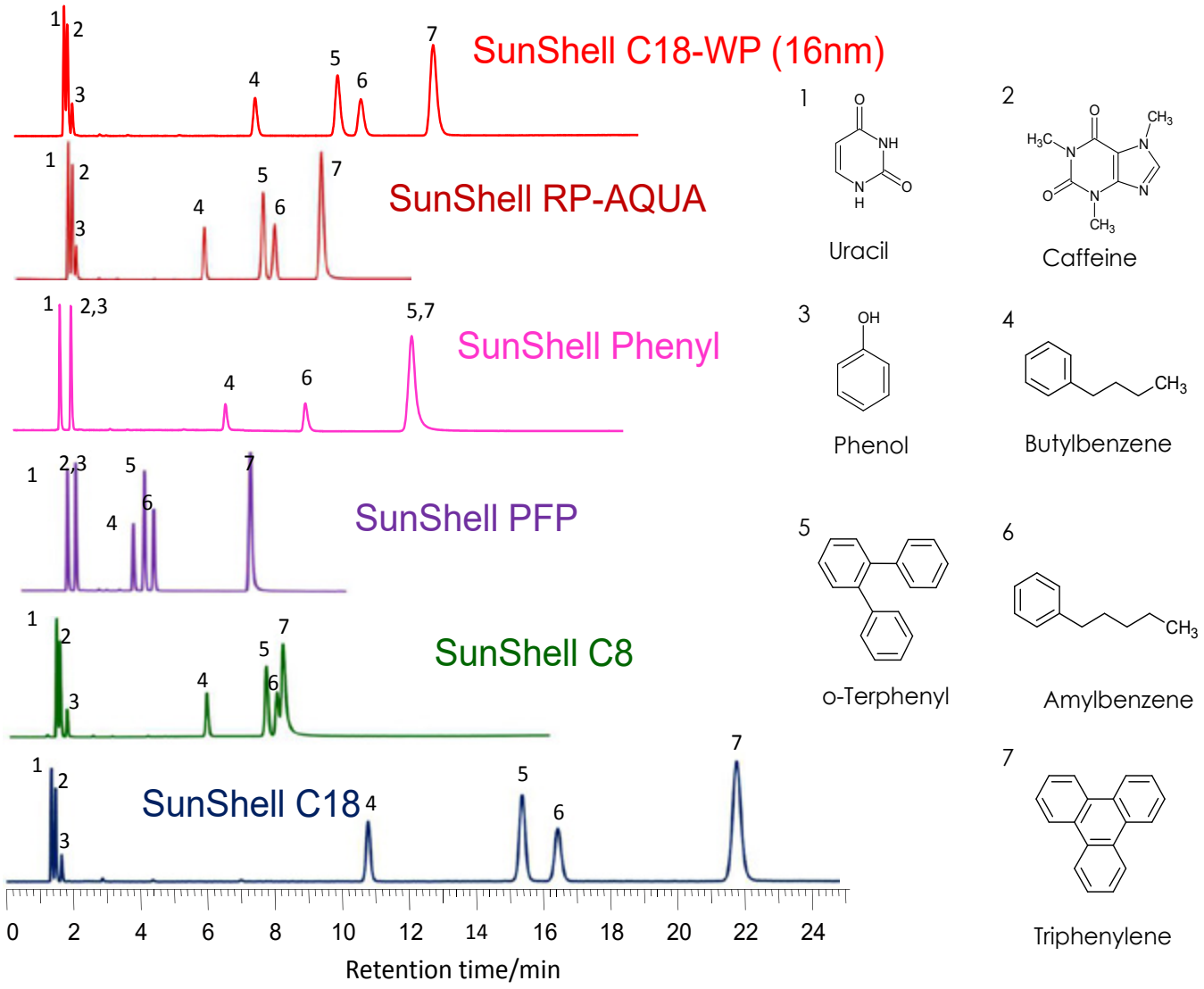
Column: SunShell RP-AQUA 2.6 µm, 150 x 4.6 mm i.d.
Mobile phase: 20mM Phosphate buffer pH6.0
Flow rate: 1.0 mL/min
Temperature: 25 °C
Detection: UV@250nm
Sample: 1 = 5'-GDP, 2 = 5'-ATP, 3 = 5'-ADP, 4 = 5'-AMP
UHPLC: X-LC (Jasco)

ChromaNik Technologies Inc.

SunShellカラムの標準試料の分離比較

Comparison of SunShell phases

SunShell 2.6 µm, 150 x 4.6 mm i.d.



Column dimension: 150 x 4.6 mm

Mobile phase: CH_3OH/H_2O=75/25

Flow rate: 1.0 mL/min

Temperature: 40 °C

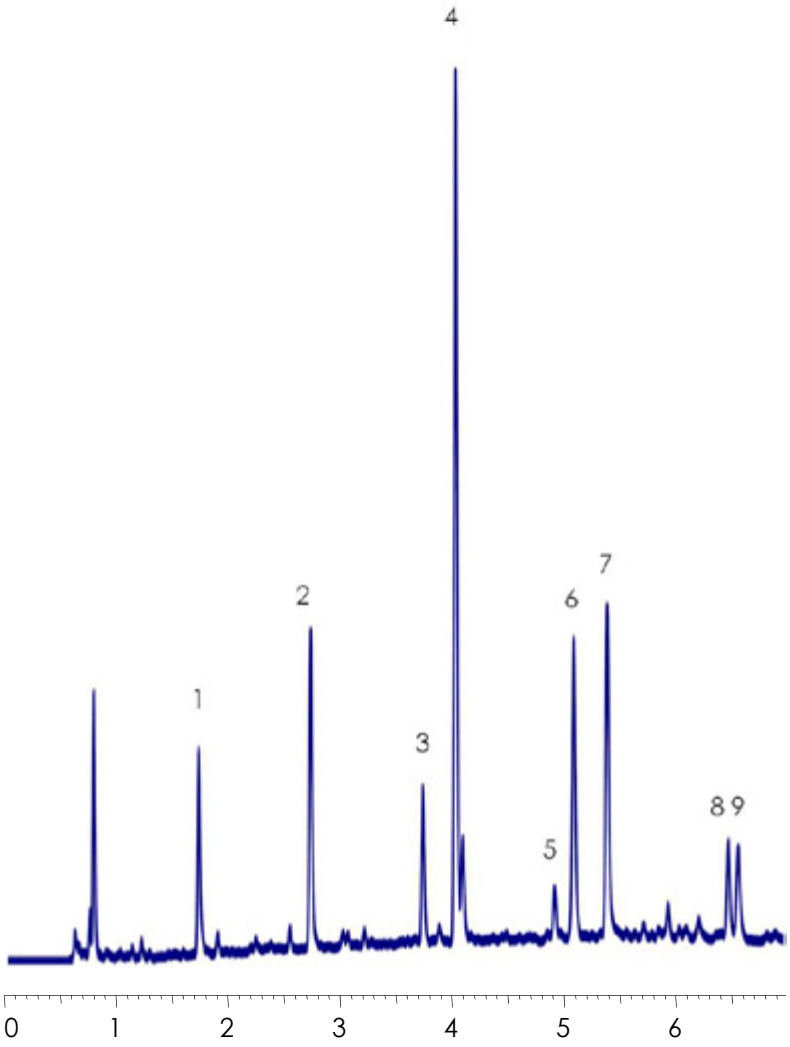
Sample: 1 = Uracil, 2 = Caffeine,
3 = Phenol, 4 = Butylbenzene,
5 = o-Terphenyl, 6 = Amylbenzene,
7 = Triphenylene.

	Hydrogen bonding (Caffeine/ Phenol)	Hydrophobicity (Amylbenzene/ Butylbenzene)	Steric selectivity (Triphenylene/ o-Terphenyl)
C18-WP	0.40	1.55	1.35
RP-AQUA	0.52	1.52	1.30
Phenyl	1.00	1.48	1.00
PFP	1.00	1.31	2.38
C8	0.32	1.46	1.08
C18	0.39	1.60	1.46

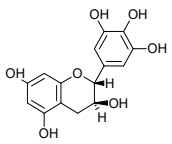
ウーロン茶の分離

Oolong tea

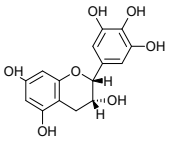
SunShell C18 2.6 µm, 75 x 4.6 mm i.d.



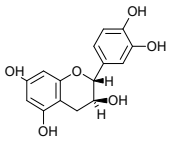
1 Gallocatechin



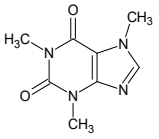
2 Epigallocatechin



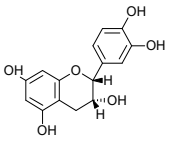
3 Catechin



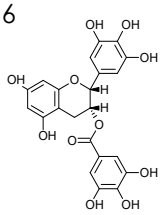
4 Caffeine



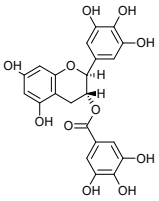
5 Epicatechin



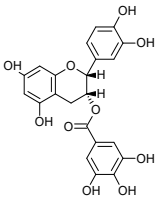
6 Epigallocatechin gallate I



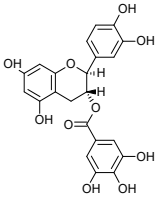
7 Gallocatechin gallate



8 Epicatechin gallate



9 Catechin gallate



Column: SunShell C18 2. 6 µm, 75 x 4.6 mm
Mobile phase:
A) 0.1% Phosphoric acid
B) CH_3CN
Gradient program

Time	0 min	7.5 min	10 min
%B	2%	25%	25%

Flow rate: 1.0 mL/min,
Temperature: 25 °C
Detection: UV@250 nm
Sample: Oolong tea

Application Data

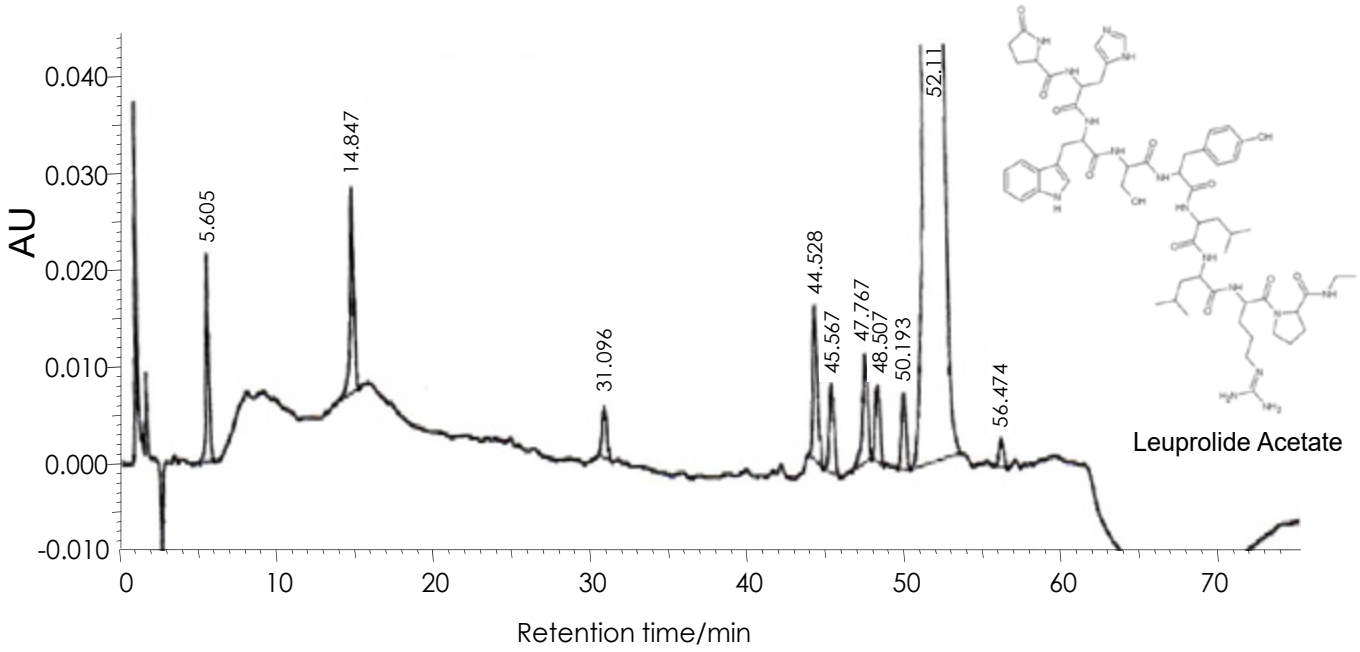
No. 1024A

ChromaNik Technologies Inc.

酢酸ロイプロリド　Chromatographic Purity Test　Source Reference USP 2010

Leuprolide Acetate

SunShell C18 2.6 µm, 100 x 4.6 mm i.d.



Column: SunShell C18 2.6 µm, 100 x 4.6 mm i.d.

Mobile phase: A) Triethyleamine 15.2g/L adjust the pH 3.0 with o-Phosphoric Acid

B) Acetonitrile/ n-Propyl alcohol(3:2)

Gradient Program	Time (min)	0	4	60	68	76
	%A (%)	95	95	80	95	95
	%B (%)	5	5	20	5	5

Diluent Mobile Phase A(17 parts) + Mobile Phase B(3parts)

Flow rate : 1.0. mL/min　　Detection : UV@229 nm

Column Temperature : 50 °C　　Sample Temperature : 4 °C

Sample: Solution 100 mg Leuprolide Acetate in 100 mL Diluents

Injection Volume : 20 uL

Degradation solution a) 5 mL Sample /standard solution 1 mg/mL) dilute to 50 mL Water

b) Solution (a) 5 mL +100 mL 1N NaOH.

c) Shale Vigorously and place in Oven at 100 °C for 1 hour

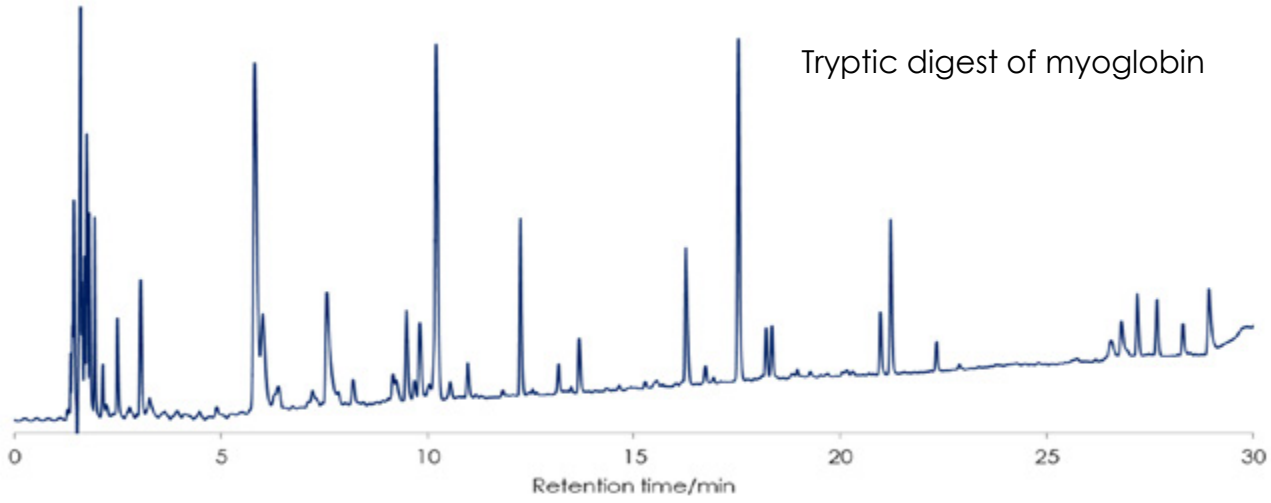
d)Cool and add 50uL 1M Phosphoric Acid

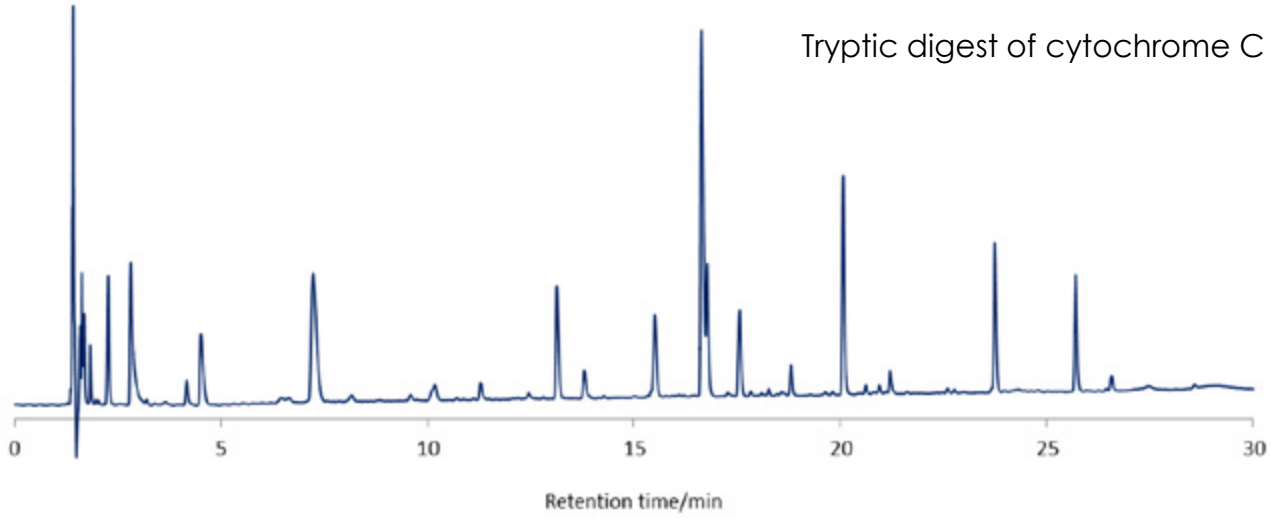
Biotech AB in partnership with ChromaNik Technologies

ペプチドの分離 (1)

Peptides (1)

SunShell C18-WP 2.6 µm, 150 x 4.6 mm i.d.





Column: SunShell C18 –WP 2.6 µm, 150 x 4.6 mm
Mobile phase:
A) 0.1% TFA in H2O/CH_3CN=(90:10)
B) 0.1% TFA in CH_3CN
Gradient program

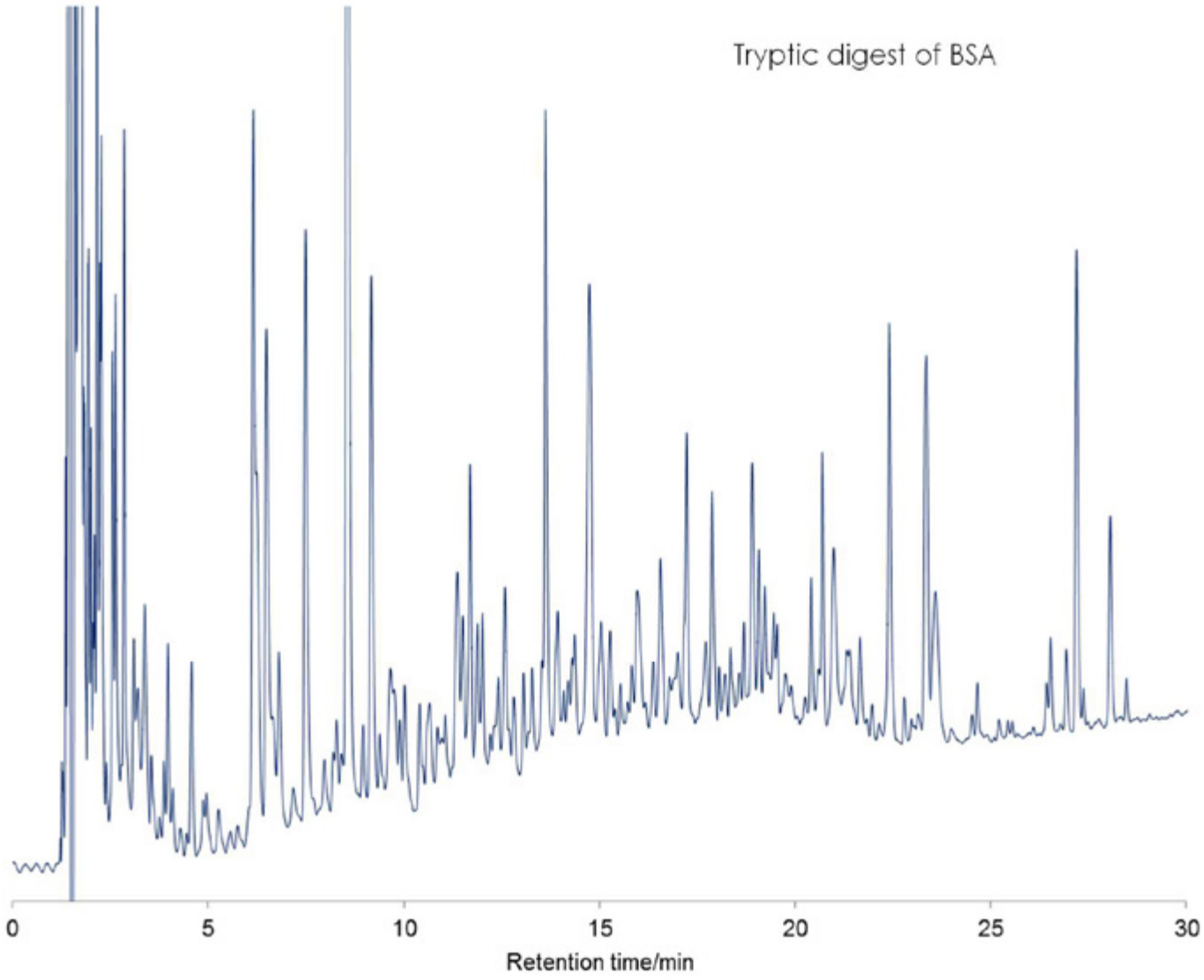
Time	0 min	5 min	40 min
%B	5%	5%	50%

Flow rate: 1.0 mL/min,
Temperature: 25 °C
Detection: UV@215 nm
Sample: Tryptic digest of myoglobin and tryptic digest of cytochrome C

ペプチド(BSA)の分離

Peptides (BSA)

SunShell C18-WP 2.6 µm, 150 x 4.6 mm i.d.



Column: SunShell C18 –WP 2.6 µm, 150 x 4.6 mm
Mobile phase:
A) 0.1% TFA in H_2O/CH_3CN=(90:10)
B) 0.1% TFA in CH_3CN
Gradient program

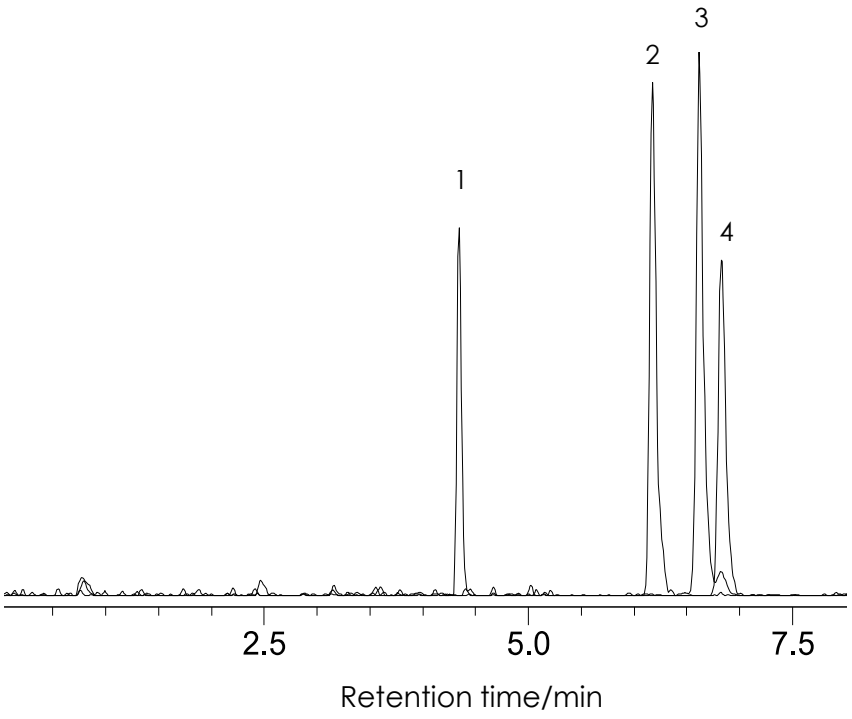
Time	0 min	5 min	50 min
%B	5%	5%	50%

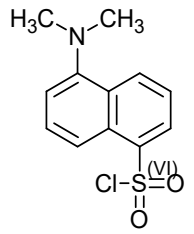
Flow rate: 1.0 mL/min,
Temperature: 25 °C
Detection: UV@215 nm
Sample: Tryptic digest of BSA

ダンシル化エストロゲン（女性ホルモン）の分離

Dansylated estrogen hormones

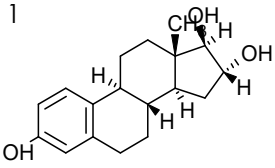
SunShell C18 2.6 µm, 100 x 2.1 mm i.d.





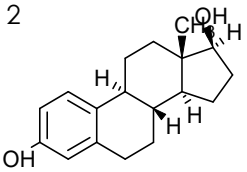
Dansyl chloride

1



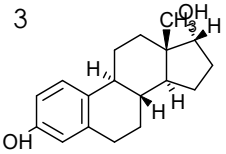
Estriol,

2



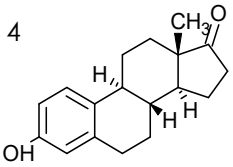
17Beta-estradiol,

3



17Alpha-estradiol

4



Estrone

Column: SunShell C18 2.6 µm, 100 x 2.1 mm
Mobile phase:
A) H2O with 0.1% formic acid.
B) CH3CN with 0.1% formic acid.
Gradient program:
0 - 0.5 min: 10% B
0.51 – 3.0 min: 10 - 72% B
3.01 - 6.0 min: 72% B
6.01 - 7.0 min: 72 - 100% B
7.01 - 10.0 min: 100% B

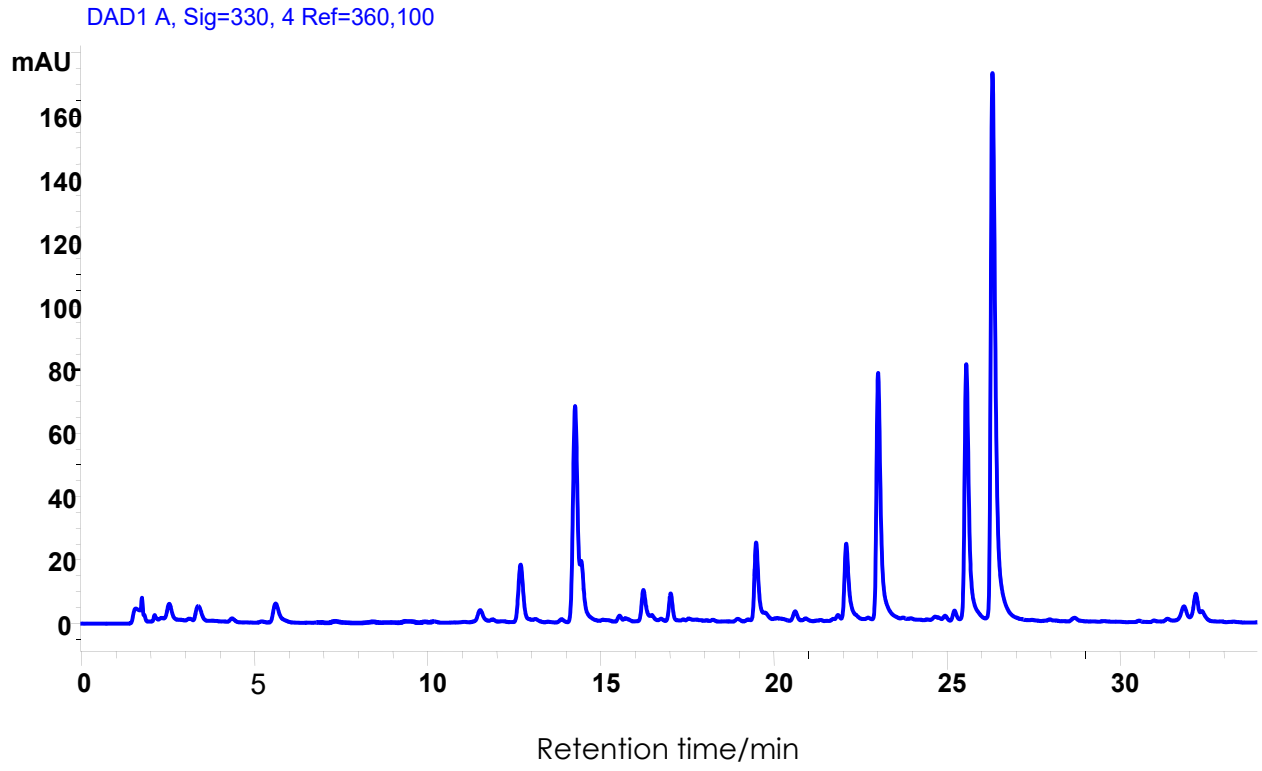
Flow rate: 0.45 mL/min.
Temperature: 40 °C
Detection: MS(sim), m/z, 522.20, 506.20, 504.20
Samples: 1. Dansylated estriol, 2. Dansylated 17beta-estradiol,
3. Dansylated 17alpha-estradiol , 4. Dansylated estrone

Courtesy of Department of Chemistry & Biochemistry, The University of Texas at Arlington

ブラックコホシュ（サプリメント）の分離

Black Cohosh

SunShell C18 2.6 µm, 150 x 2.1 mm i.d.



Column: SunShell C18 2.6 µm, 150 x 2.1 mm
Mobile phase:
A) H_2O with 0.1% formic acid.
B) CH_3CN with 0.1% formic acid.
Gradient program:

Time	0 min.	30 min.	32 min.
% B	10%	30%	100%

Flow rate: 0.2 mL/min.
Temperature: 40 °C
Detection: UV@330 nm
Samples: Black Cohosh (Natural products)

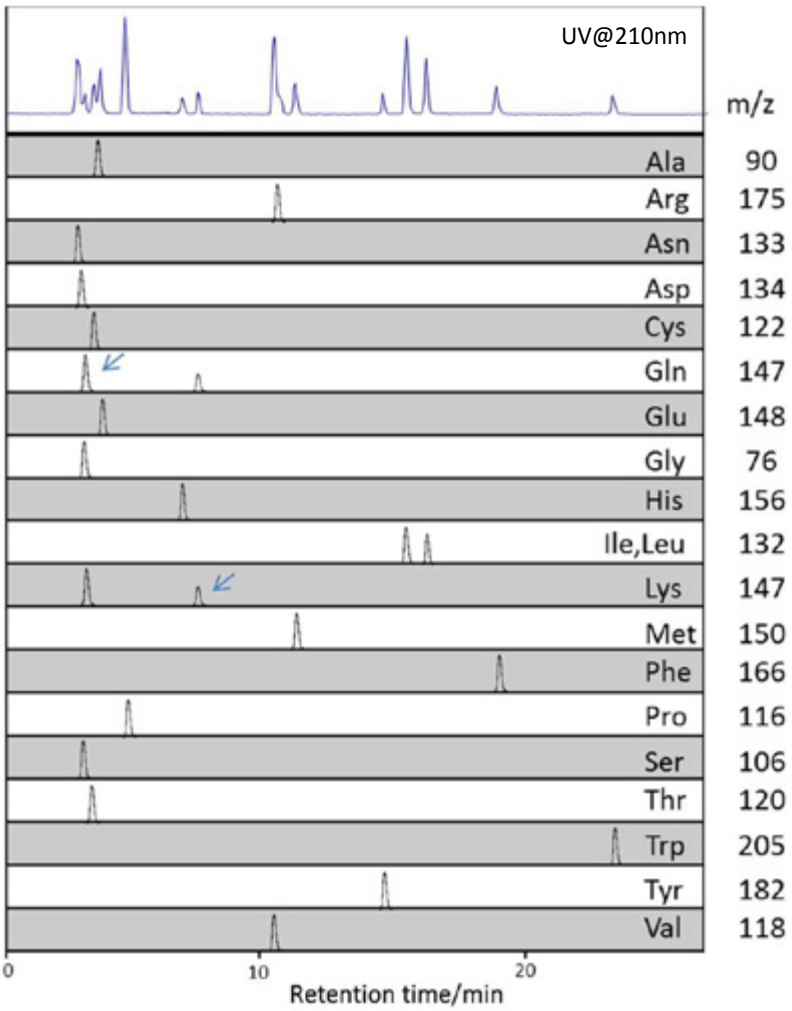
Courtesy of Dr. Pei Chen
United State Department of Agriculture

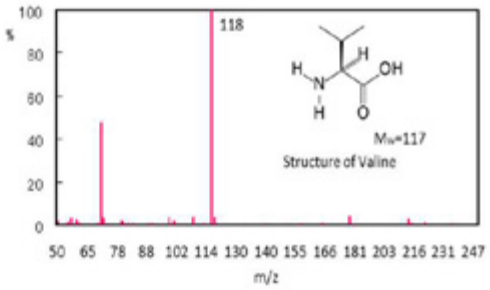
ChromaNik Technologies Inc.

アミノ酸の分離 (LC/MS)

Amino acids (LC/MS)

Sunniest RP-AQUA 5 µm, 150 x 2.1 mm i.d.



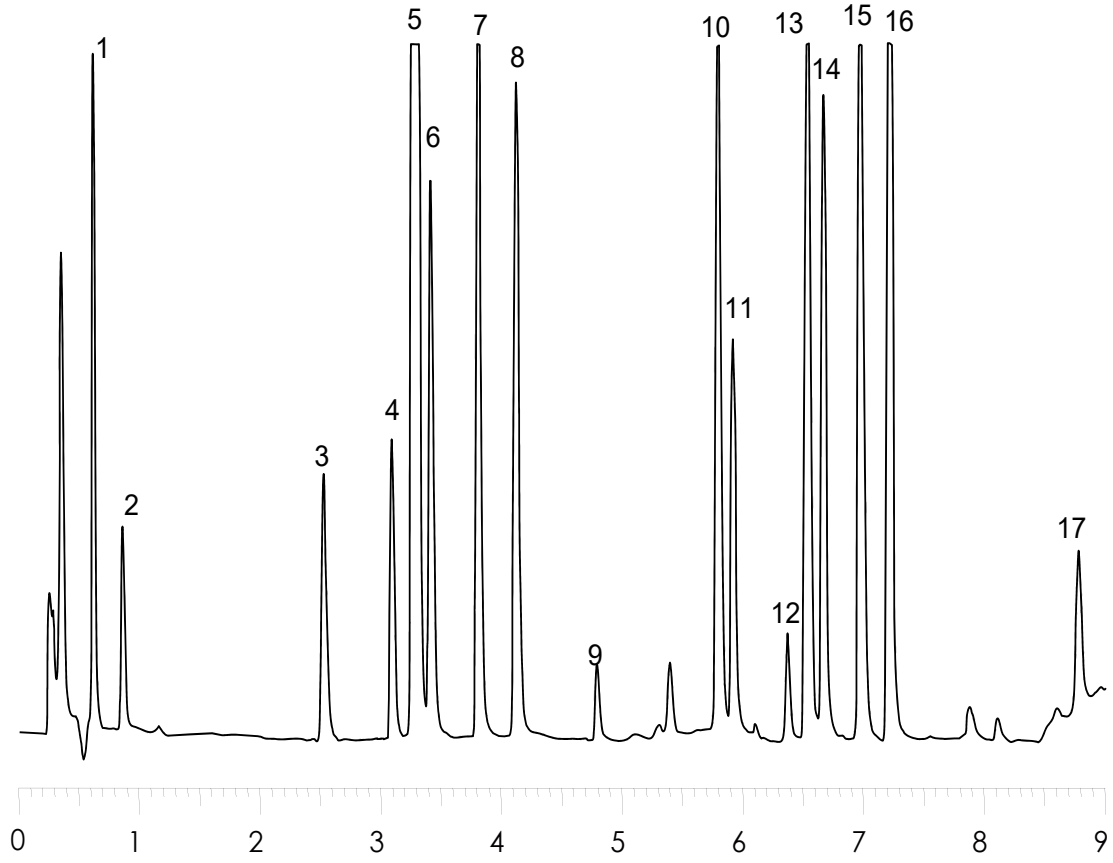


Mass spectrum of Valine

Column: Sunniest RP-AQUA 5 µm, 150 x 2.0 mm
Mobile phase:
A) 5mM HFBA (Heptafluorobutyric acid)
B) 5mM HFBA in Acetonitorile/water(9/1)
%B 0% to 20% in 20 min
Flow rate: 0.2mL/min
Temperature: 40 °C
Detection: Quattro Micro API (ESI positive) SIM and UV@210nm

OPAとFMOC誘導体化アミノ酸の分離(1) Sunniest C18-HT 2 µm, 100 x 2.1 mm i.d.

Amino Acids derivatized with OPA and FMOC (1)



Column: Sunniest C18-HT 2 µm, 100 x 2.1 mm

Mobile phase: A) 10mM Na_2PO_4 + 10mM $Na_2B_4O_7$ + 0.5mM NaN_3 (pH7.8)

B) Acetonitrile/Methanol/Water (45/45/10 %V)

Time(min)	0	0.2	7.2	7.8
%B	5	5	50	100

Flow rate: 0.72 mL/min

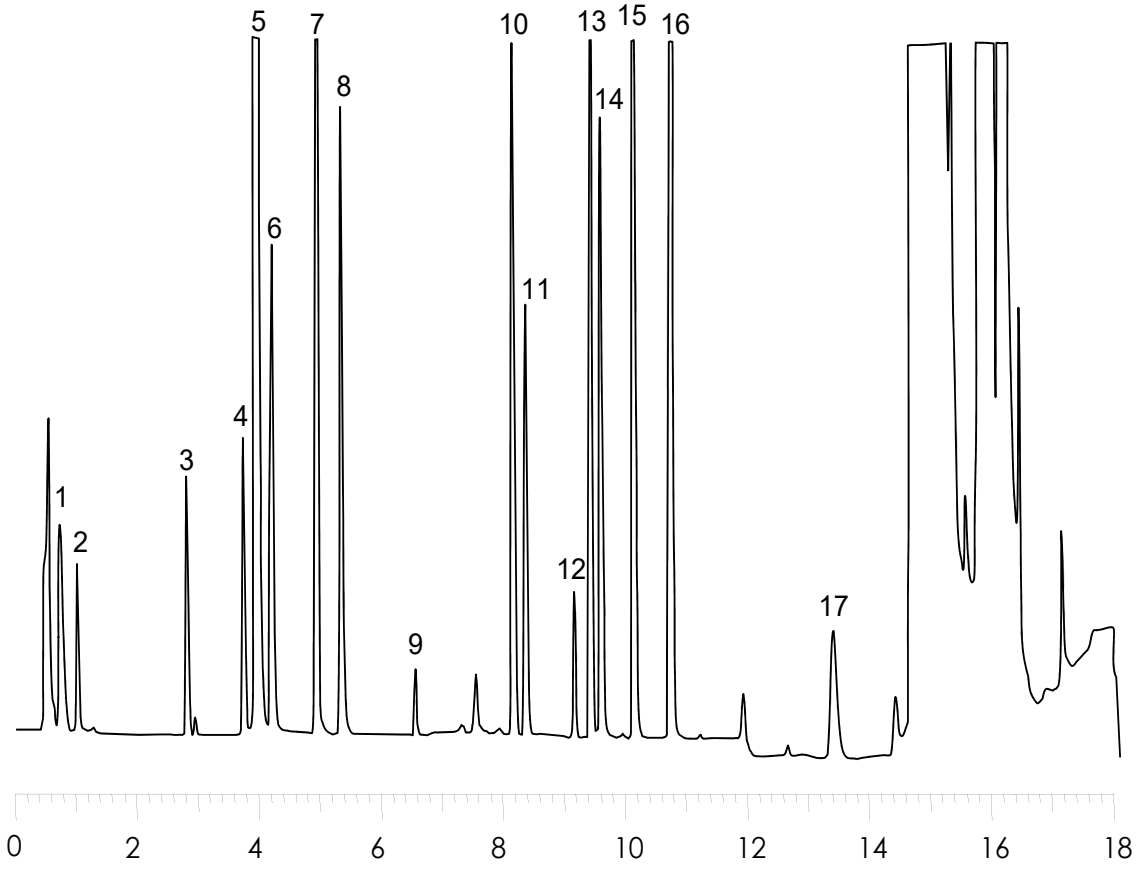
Temperature: 40 °C

Detection: UV@338 nm

Sample: 1=Aspartic acid, 2=Glutaminc acid, 3=Serine, 4=Histidine, 5=Glycine, 6=Threonine, 7=Arginine, 8=Alanine, 9=Tyrosine, 10=Valine, 11=Methionine, 12=Tryptophan, 13=Pnehylalanine, 14=Isoleucine, 15=Leucine, 16=Lysine, 17=Proline

OPAとFMOC誘導体化アミノ酸の分離(2) SunShell C18 2.6 µm, 150 x 2.1 mm i.d.

Amino Acids derivatized with OPA and FMOC (2)



Column: SunShell C18 2.6 µm, 150 x 2.1 mm
Mobile phase: A) 10mM Na_2PO_4 + 10mM $Na_2B_4O_7$ + 0.5mM NaN_3 (pH7.8)
B) Acetonitrile/Methanol/Water (45/45/10 %V)

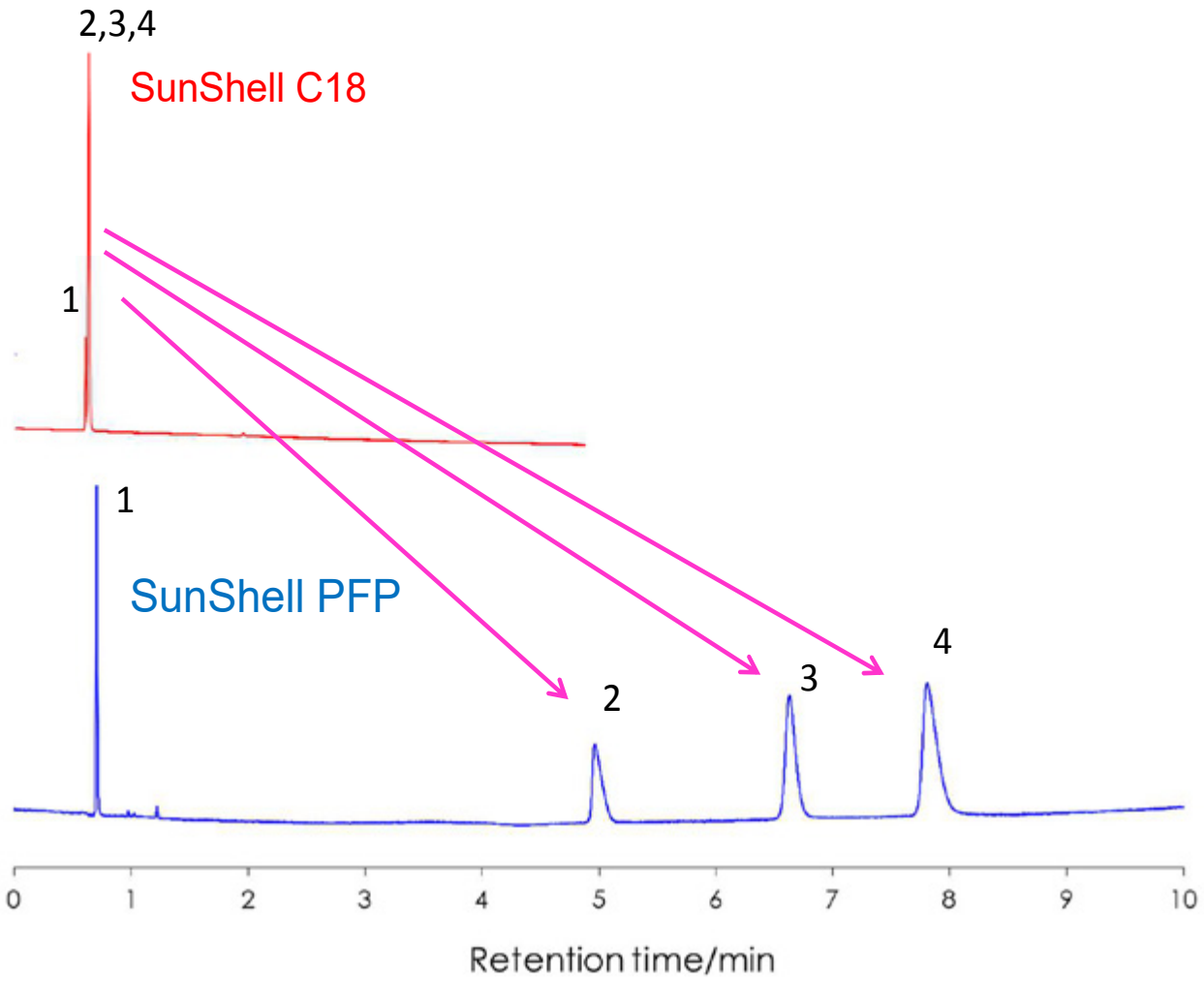
Time(min)	0	0.4	12.8	13.8
%B	5	5	50	100

Flow rate: 0.61 mL/min
Temperature: 40 °C
Detection: UV@338 nm
Sample: 1=Aspartic acid, 2=Glutaminc acid, 3=Serine, 4=Histidine, 5=Glycine, 6=Threonine, 7=Arginine, 8=Alanine, 9=Tyrosine, 10=Valine, 11=Methionine, 12=Tryptophan, 13=Pnehylalanine, 14=Isoleucine, 15=Leucine, 16=Lysine, 17=Proline

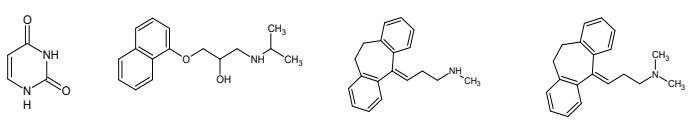
PFPによる塩基性化合物の分離

Basic compounds (PFP phase)

SunShell PFP and C18 2.6 µm, 150 x 2.1 mm i.d.



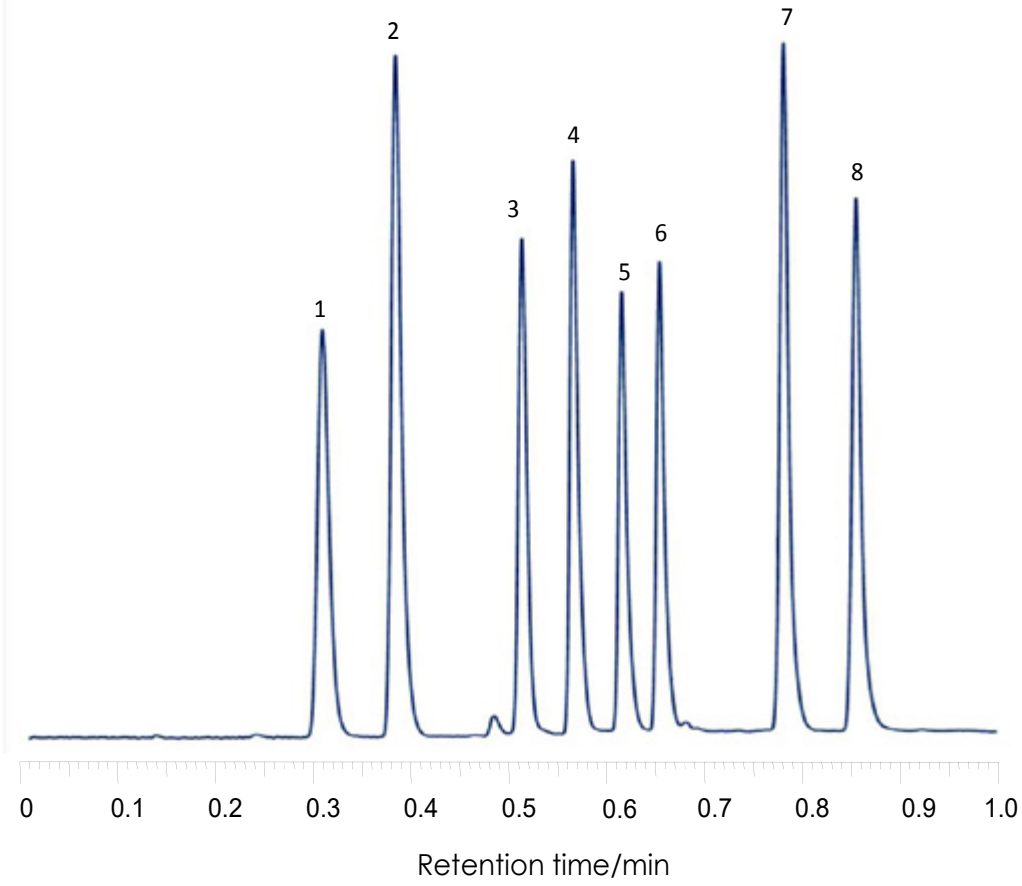
Column: SunShell C18, PFP, 2.6 µm, 150 x 4.6 mm
Mobile phase: CH3CN/10mM Phosphate buffer pH7.0 = 80/20
Flow rate: 1.8 mL/min
Temperature: 25 °C
Sample: 1 = Uracil, 2 = Propranolol, 3 = Nortriptyline, 4 =Amitriptyline



SunShellカラムの高速分離

High through-put separation

SunShell C18 2.6 µm, 30 x 3.0 mm i.d.



Column: SunShell C18 2.6 µm, 30 x 3.0 mm.
Mobile phase: A) Water, B) Acetonitrile; Gradient (Acetonitrile %), 0.00 min - 35%, 0.40 min - 100%, 0.80 min - 100%, 0.85 min - 35%, 1cycle; 1.8min, (High-pressure gradient).
Flow rate: 1.0 mL/min.
Temperature: 40 °C.
Injection Volume: 1 µL.
Wavelength: 200 - 500nm, CH-9, 215 - 500nm (Max Abs.).
Sample: Mixture of ultraviolet absorbers,
1 = 2,2',4,4'-Tetrahydroxybenzophenone,
2 = Ethyl p-aminobenzoate,
3 = 2, 4-Dihydroxybenzophenone,
4 = 2,2'-Dihydroxy-4-methoxybenzophenone,
5 = 2,2'-Dihydroxy-4,4'-dimethoxybenzophenone,
6 = 2-Hydroxy-4-methoxybenzophenone,
7 = 2-(2'-Hydroxy-5'-metylphenyl) benzotriazole,
8 = 4-tert-Butylphenyl salicylate.

Courtesy of Jasco.

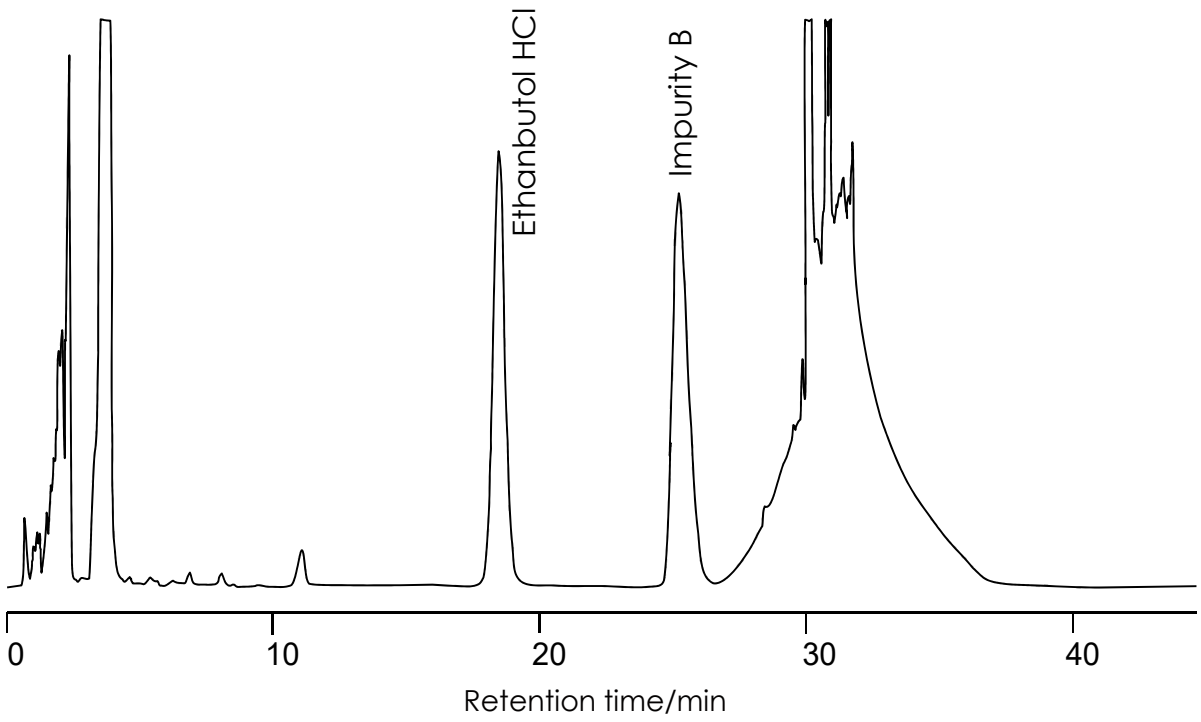
Application Data

ChromaNik Technologies Inc.

エタンブトール

Ethambutol Hydrochloride

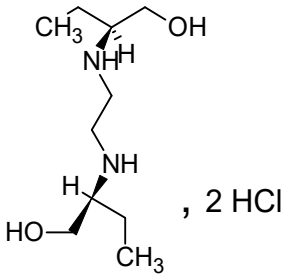
SunShell C18 2.6 µm, 100 x 4.6 mm i.d.



Column: SunShell C18 2.6 µm, 100 x 4.6 mm
Mobile phase: A) methanol/water (50/50 V/V)
B) methanol

Time(min)	0	30	35	37	38
%B	29	29	100	100	29

Flow rate: 1.0 mL/min
Temperature: 40°C
Detection: UV 215 nm
Injection volume: 10 µL



Ethambutol Hydrochloride

System suitability

— resolution: minimum 4.0 between the peaks due to ethambutol and impurity B.

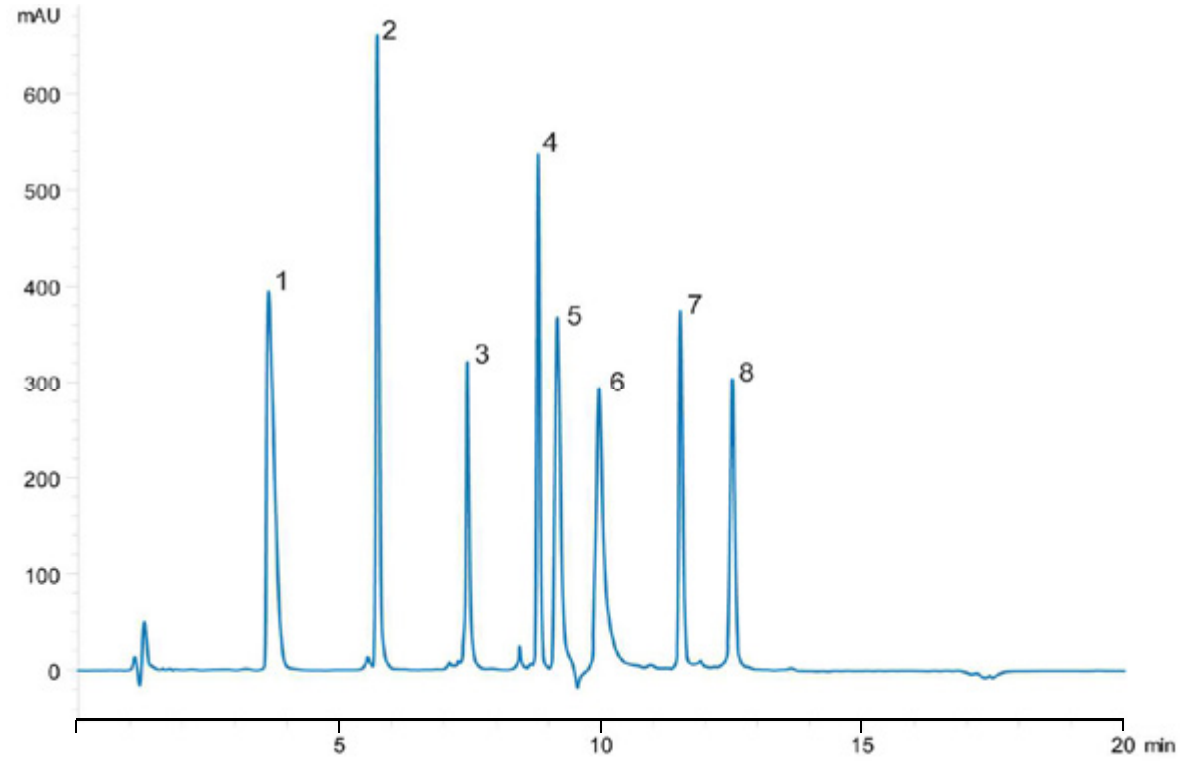
Limits:

— impurity B: not more than twice the area of the principal peak in the chromatogram obtained with reference solution (a)

タンパク質の分離(1)

SunShell C8-30 2.6 µm, 150 x 2.1 mm i.d.

Protein Mix using SunShell C8-30



Retention time/min

Column: SunShell C8-30 2.6 µm (30 nm), 150 x 2.1 mm
Mobile phase: A) 0.1% TFA in water
B) 0.1% TFA in acetonitrile

Gradient program:

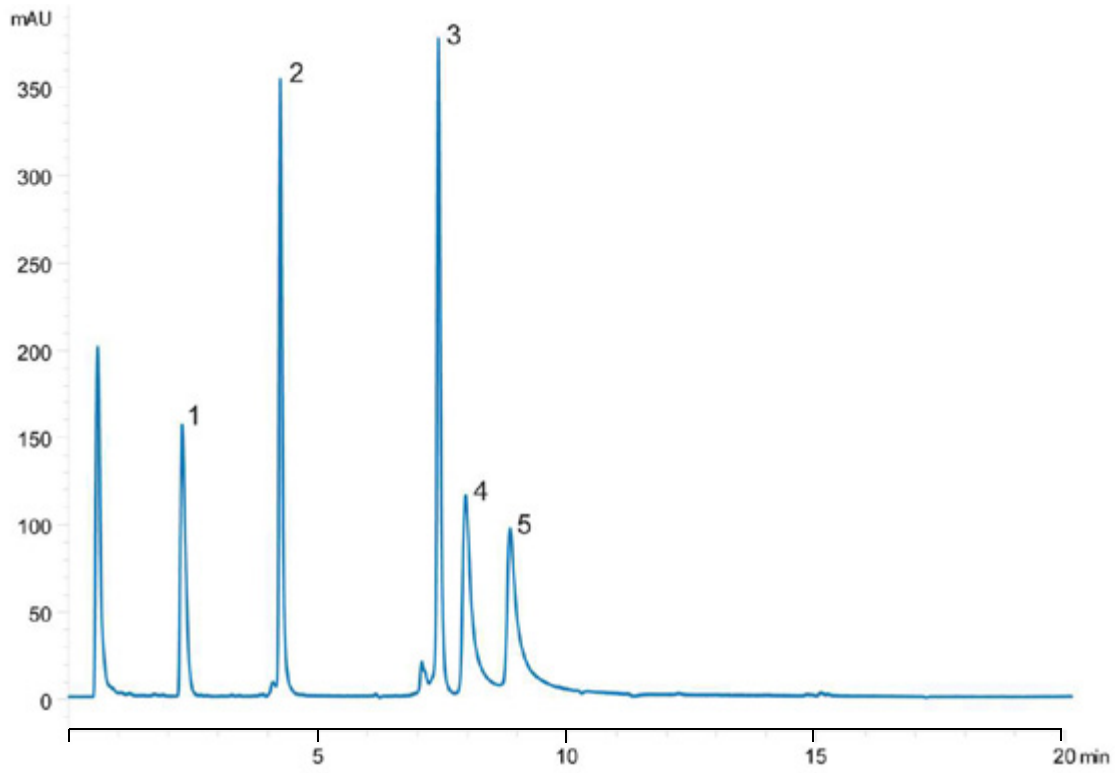
Time(min)	0	20
%B	22	70.5

Flow rate: 0.35 mL/min
Temperature: 40 °C
Detection: UV@214 nm
Injection volume: 10 µL
Concentration: 0.01 µg/µL each protein
Sample:
1. Angiotensin I
2. Ribonuclease A
3. Cytochrome C
4. Lysozyme
5. Transferrin
6. Bovine Serum Albumin
7. Myoglobin
8. Carbonic Anhydrase

タンパク質の分離(2)

SunSehll C4-30 2.6 µm, 100 x 2.1 mm i.d.

Protein Mix using SunShell C4-30



Column: SunShell C4-30 2.6 µm (30 nm), 100 x 2.1 mm
Mobile phase: A) 0.1% TFA in water
B) 0.1% TFA in acetonitrile

Gradient program:

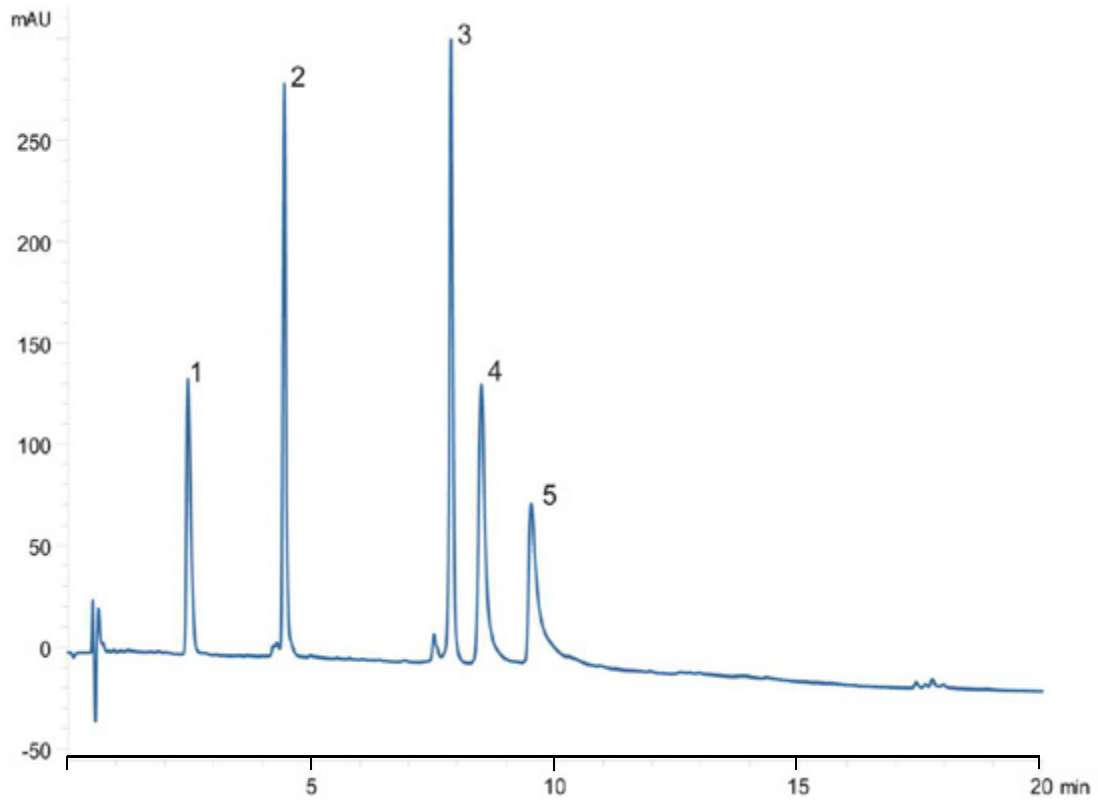
Time(min)	0	20
%B	22	70.5

Flow rate: 0.50 mL/min
Temperature: 40 °C
Detection: UV@214 nm
Injection volume: 10 µL
Concentration: 0.01 µg/µL each protein
Sample:
1. Angiotensin I
2. Ribonuclease A
3. Lysozyme
4. Transferrin
5. Bovine Serum Albumin

タンパク質の分離(3)

SunShell C18-30 2.6 µm, 100 x 2.1 mm i.d.

Protein Mix using SunShell C18-30



Retention time/min

Column: SunShell C18-30 2.6 µm (30 nm), 100 x 2.1 mm
Mobile phase: A) 0.1% TFA in water
B) 0.1% TFA in acetonitrile

Gradient program:

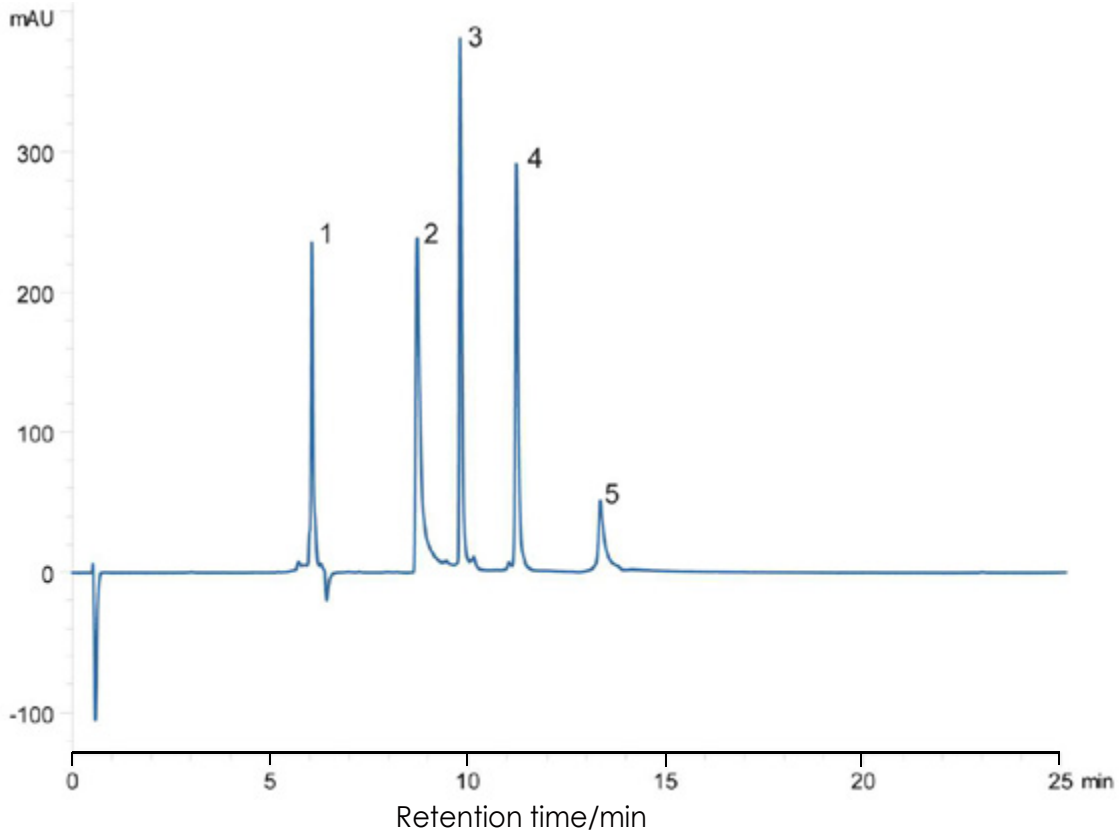
Time(min)	0	20
%B	22	70.5

Flow rate: 0.50 mL/min
Temperature: 40 °C
Detection: UV@214 nm
Injection volume: 10 µL,
Concentration: 0.01 µg/µL each protein
Sample:
1. Angiotensin I
2. Ribonuclease A
3. Lysozyme
4. Transferrin
5. Bovine Serum Albumin

タンパク質の分離(4)

SunShell C4-30 2.6 µm, 100 x 2.1 mm i.d.

Protein Mix using SunShell C4-30



Column: SunShell C4-30 2.6 µm (30 nm), 100 x 2.1 mm
Mobile phase: A) 0.1% TFA in water
B) 0.1% TFA in acetonitrile

Gradient program:

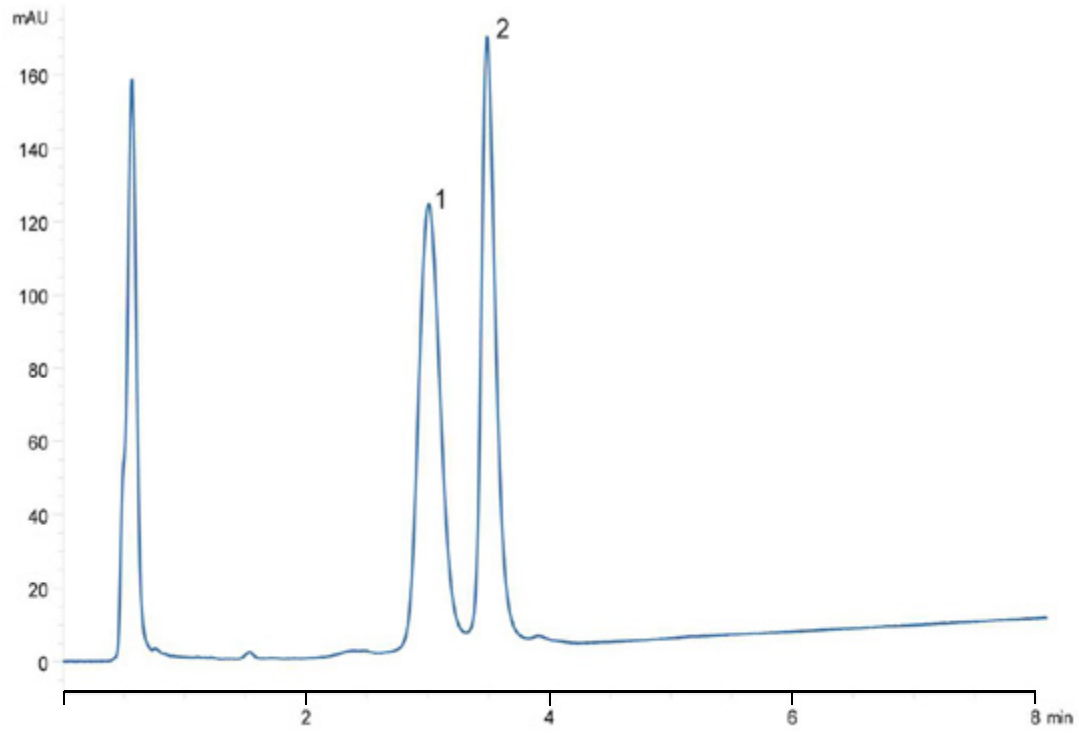
Time(min)	0	20
%B	22	70.5

Flow rate: 0.50 mL/min
Temperature: 40 °C
Detection: UV@214 nm
Injection volume: 10 µL
Concentration: 0.01 µg/µL each protein
Sample:
1. Cytochrome C
2. Bovine Serum Albumin
3. Myoglobin
4. Carbonic Anhydrase
5. Phosphorylase B

リボヌクレアーゼA/Bの分離(1)

SunShell C18-16 2.6 µm, 100 x 2.1 mm i.d.

Ribonuclease A/B Mix using SunShell C18-16



Retention time/min

Column: SunShell C18-16 2.6 µm (16 nm), 100 x 2.1 mm
Mobile phase: A) 0.1% TFA in water
B) 0.1% TFA in acetonitrile

Gradient program:

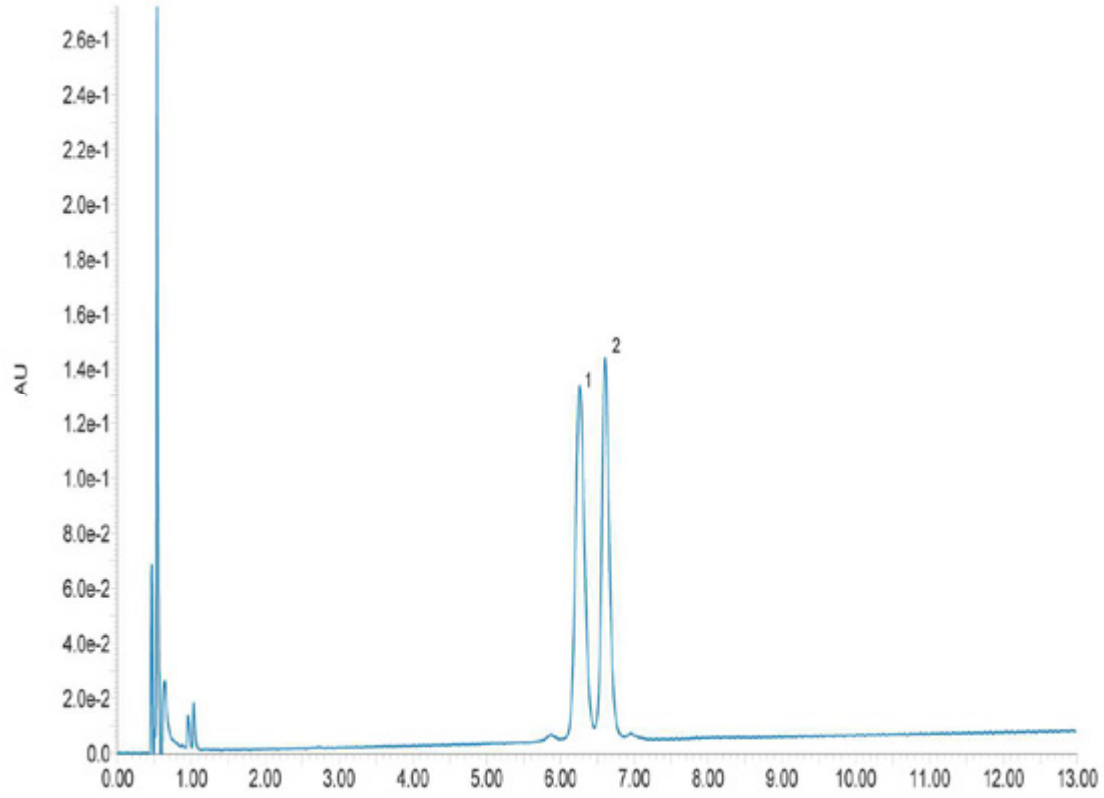
Time(min)	0	7
%B	25	35

Flow rate: 0.50 mL/min
Temperature: 40 °C
Detection: UV@214 nm
Injection volume: 10 µL
Concentration: 0.01 µg/µL each protein
Sample:
1. Ribonuclease B
2. Ribonuclease A

リボヌクレアーゼA/Bの分離(2)

SunShell C18-30 2.6 µm, 100 x 2.1 mm i.d.

Ribonuclease A/B Mix using SunShell C18-30



Column: SunShell C18-30 2.6 µm (30 nm), 100 x 2.1 mm
Mobile phase: A) 0.1% TFA in water
B) 0.1% TFA in acetonitrile
Gradient program:

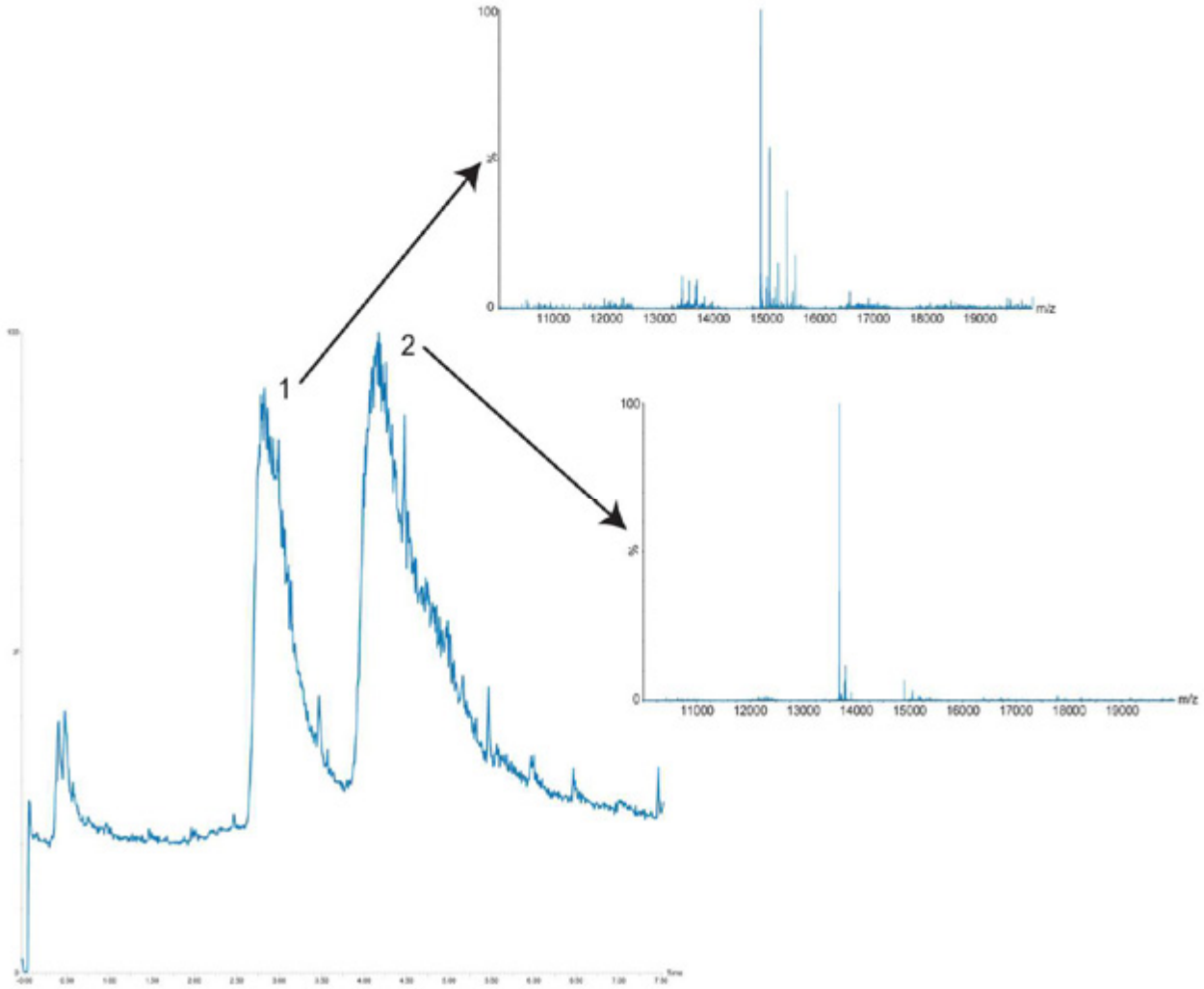
Time(min)	0	20
%B	20	40

Flow rate: 0.50 mL/min
Temperature: 40 °C
Detection: UV@214 nm
Injection volume: 10 µL
Concentration: 0.01 µg/µL each protein
Sample:
1. Ribonuclease B
2. Ribonuclease A

リボヌクレアーゼA/Bの分離(3)

SunShell C8-30 2.6 µm, 100 x 2.1 mm i.d.

Ribonuclease A/B Mix using SunShell C8-30



Retention time/min

Column: SunShell C8-30 2.6 µm (30 nm), 100 x 2.1 mm
Mobile phase: A) 0.1% Formic acid in water
B) 0.1% Formic acid in acetonitrile

Gradient program: Isocratic separation

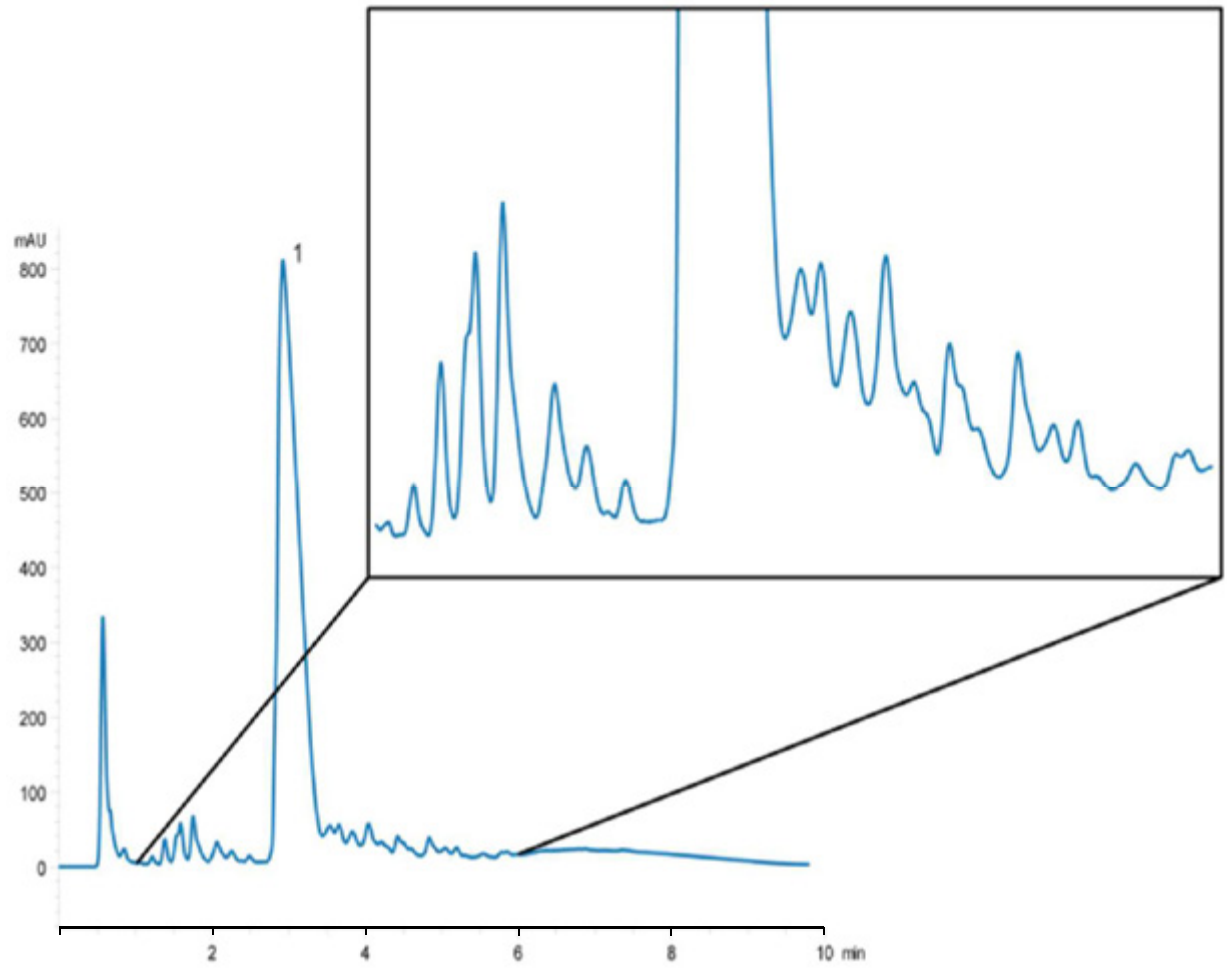
Time(min)	0	10
%B	17.5	17.5

Flow rate: 0.50 mL/min
Temperature: 60 °C
Detection: MS, Waters SYNAPT G2-S
Injection volume: 10 µL
Concentration: 0.01 µg/µL each protein
Sample:
1. Lipase Impurity
2. Lipase

酸化型インスリンの分離

SunShell C18-30 2.6 µm, 100 x 2.1 mm i.d.

Oxidized Insulin using SunShell C18-30



Column: SunShell C18-30 2.6 µm (30 nm), 100 x 2.1 mm
Mobile phase: A) 0.1% TFA in water
B) 0.1% TFA in acetonitrile
Gradient program:

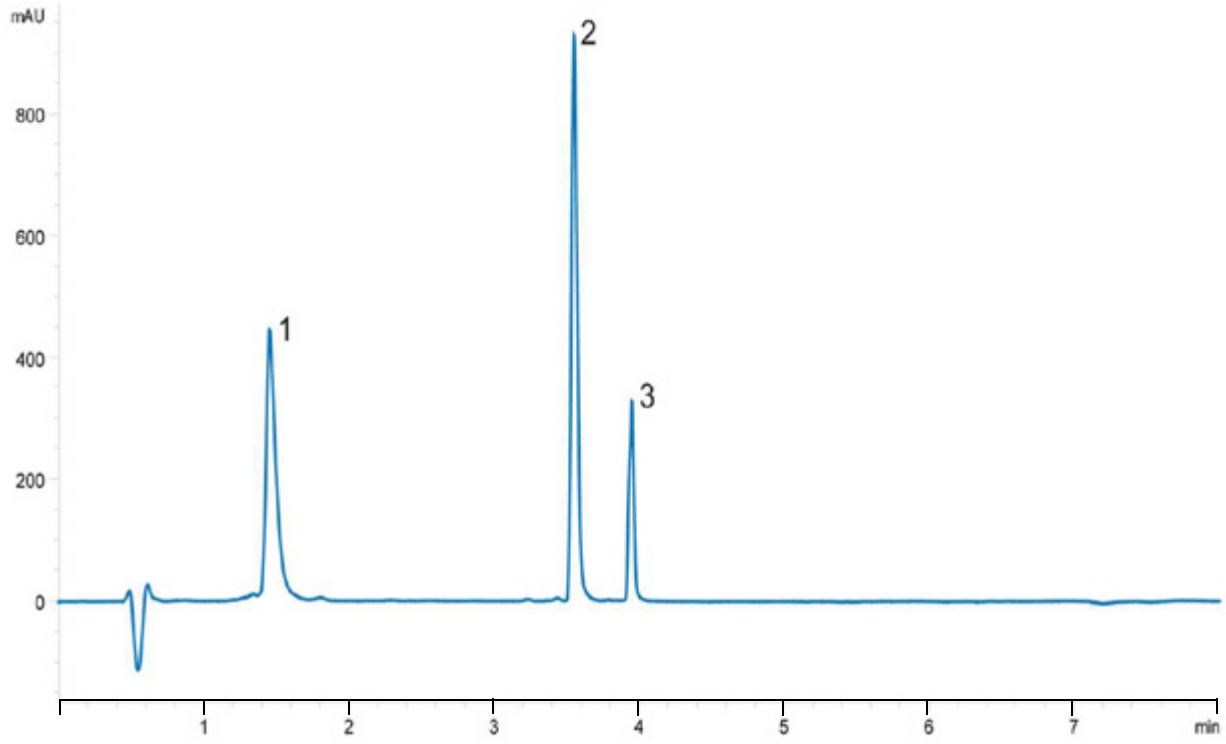
Time(min)	0	10
%B	30	40

Flow rate: 0.50 mL/min
Temperature: 40 °C
Detection: UV@214 nm
Injection volume: 10 µL
Concentration: 0.01 µg/µL each protein
Sample:
1. Oxidized insulin

ペプチドの分離(2)

SunShell C18-16 2.6 µm, 100 x 2.1 mm i.d.

Peptide Mix using SunShell C18-16



Retention time/min

Column: SunShell C18-16 2.6 µm (16 nm), 100 x 2.1 mm
Mobile phase: A) 0.1% TFA in water
B) 0.1% TFA in acetonitrile

Gradient program:

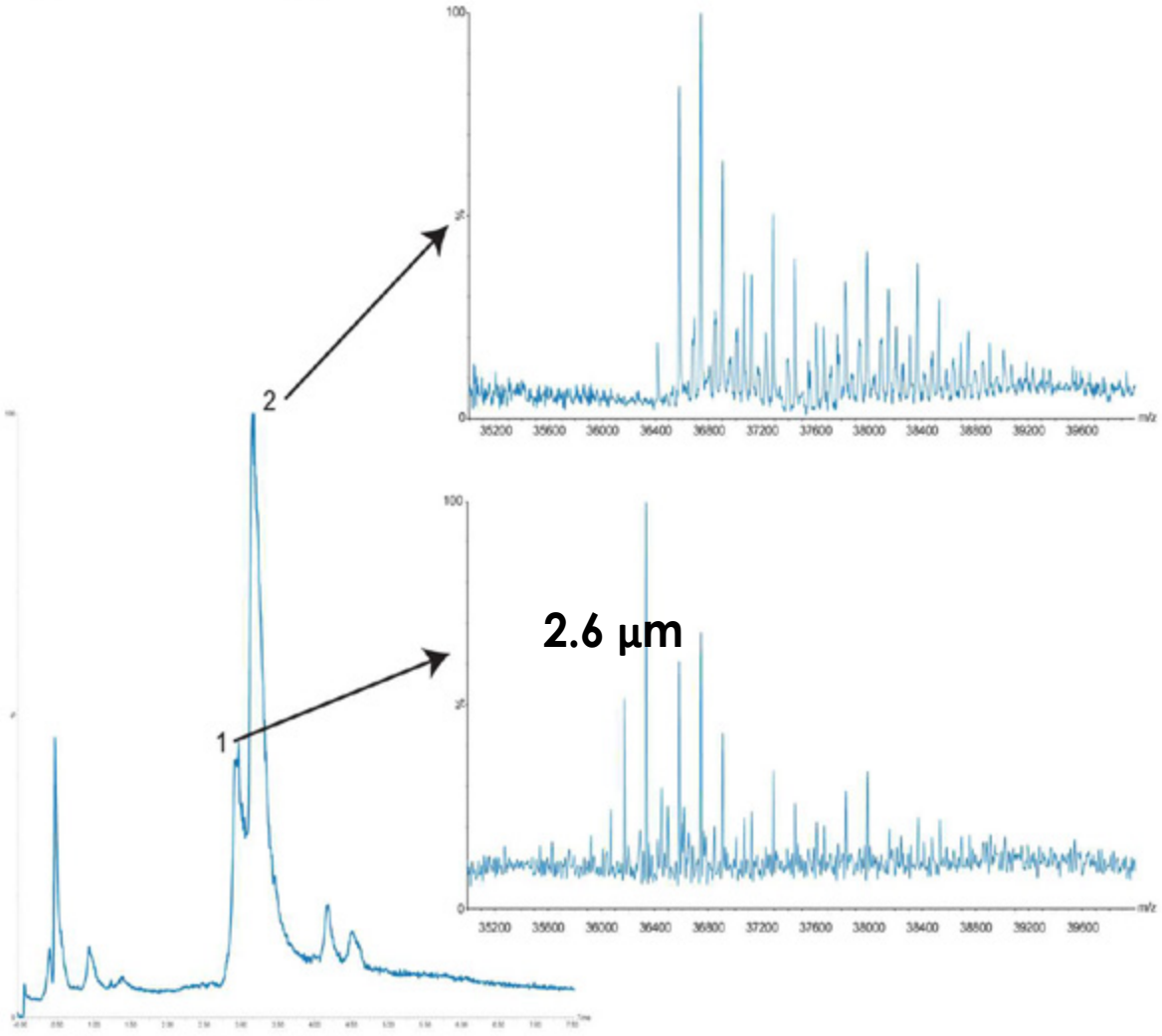
Time(min)	0	1	6
%B	20	20	95

Flow rate: 0.50 mL/min
Temperature: 40 °C
Detection: UV@214 nm
Injection volume: 10 µL
Concentration: 0.10 µg/µL each protein
Sample:
1. Angiotensin I
2. Somatostatin
3. Glu-1-fibrinopeptide

リパーゼの分離

SunShell C8-30 2.6 µm, 100 x 2.1 mm i.d.

Lipase using SunShell C8-30



Column: SunShell C8-30 2.6 µm (30 nm), 100 x 2.1 mm
Mobile phase: A) 0.1% Formic acid in water
B) 0.1% Formic acid in acetonitrile

Gradient program:

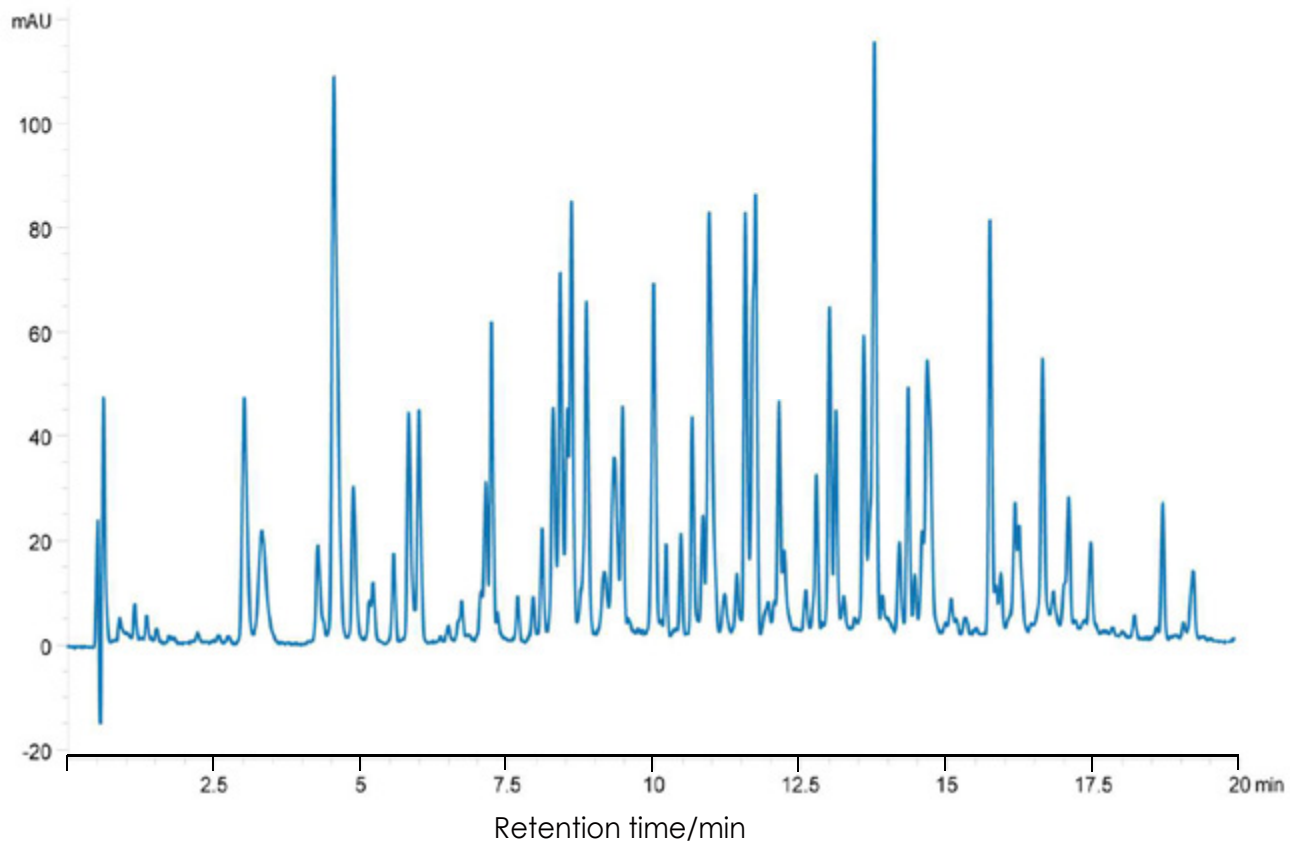
Time(min)	0	10
%B	15	60

Flow rate: 0.50 mL/min
Temperature: 60 °C
Detection: MS, Waters SYNAPT G2-S
Injection volume: 10 µL
Concentration: 0.01 µg/µL each protein
Sample:
1. Lipase Impurity
2. Lipase

BSAの消化物の分離

SunShell C18-16 2.6 µm, 100 x 2.1 mm i.d.

BSA Digest using SunShell C18-16



Column: SunShell C18-16 2.6 µm (16 nm), 100 x 2.1 mm
Mobile phase: A) 0.1% TFA in water
B) 0.1% TFA in acetonitrile
Gradient program:

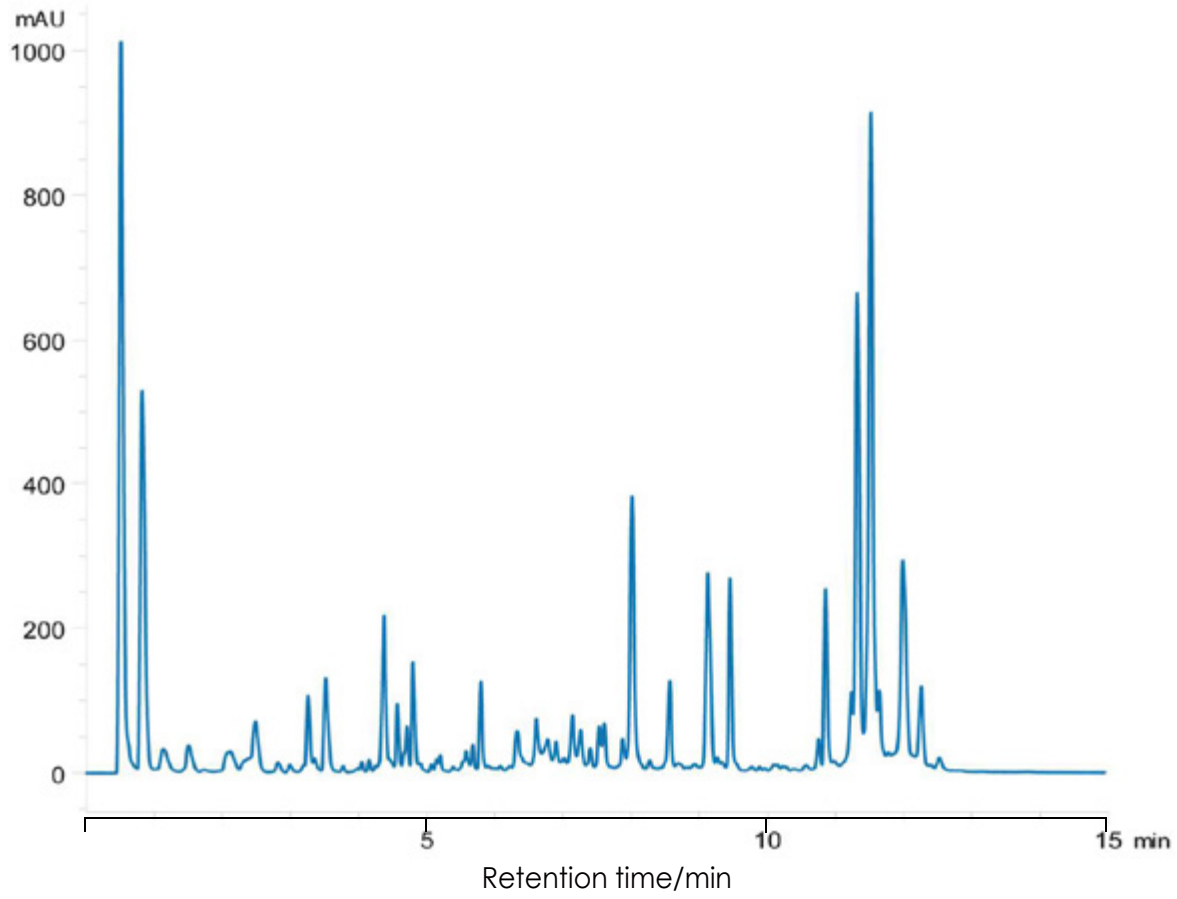
Time(min)	0	1	21
%B	10	10	40

Flow rate: 0.50 mL/min
Temperature: 40 °C
Detection: UV@214 nm
Injection volume: 10 µL
Concentration: 0.01 µg/µL
Sample:
1. Bovine Serum Albumin Digest

アルファカゼイン消化物の分離

SunShell C18-16 2.6 µm, 100 x 2.1 mm i.d.

Alpha Casein Digest using SunShell C18-16



Column: SunShell C18-16 2.6 µm (16 nm), 100 x 2.1 mm
Mobile phase: A) 0.1% TFA in water
B) 0.1% TFA in acetonitrile

Gradient program:

Time(min)	0	10	14
%B	10	36.4	36.4

Flow rate: 0.50 mL/min
Temperature: 40 °C
Detection: UV@214 nm
Injection volume: 10 µL
Sample:
1. Alpha Casein Digest

BIOTECH AB
WWW.BIOTECH-SWEDEN.COM

Application Data

No. 1051A

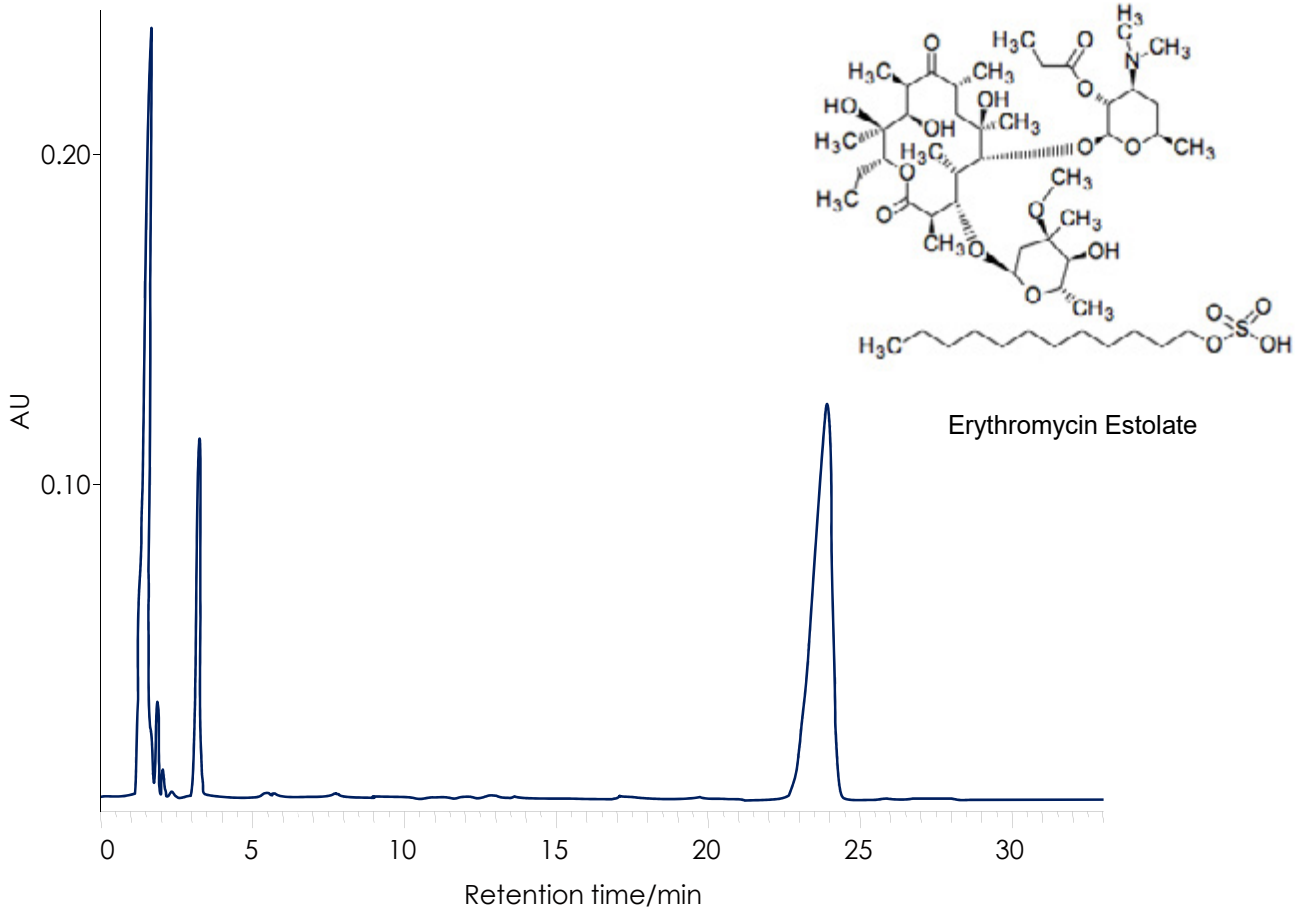
ChromaNik Technologies Inc.

エリストマイシンエストレートの分離

Sunniest C18 5 µm, 250 x 4.6 mm i.d.

Erythromycin Estolate

Chromatographic Purity Test Source Reference USP 30



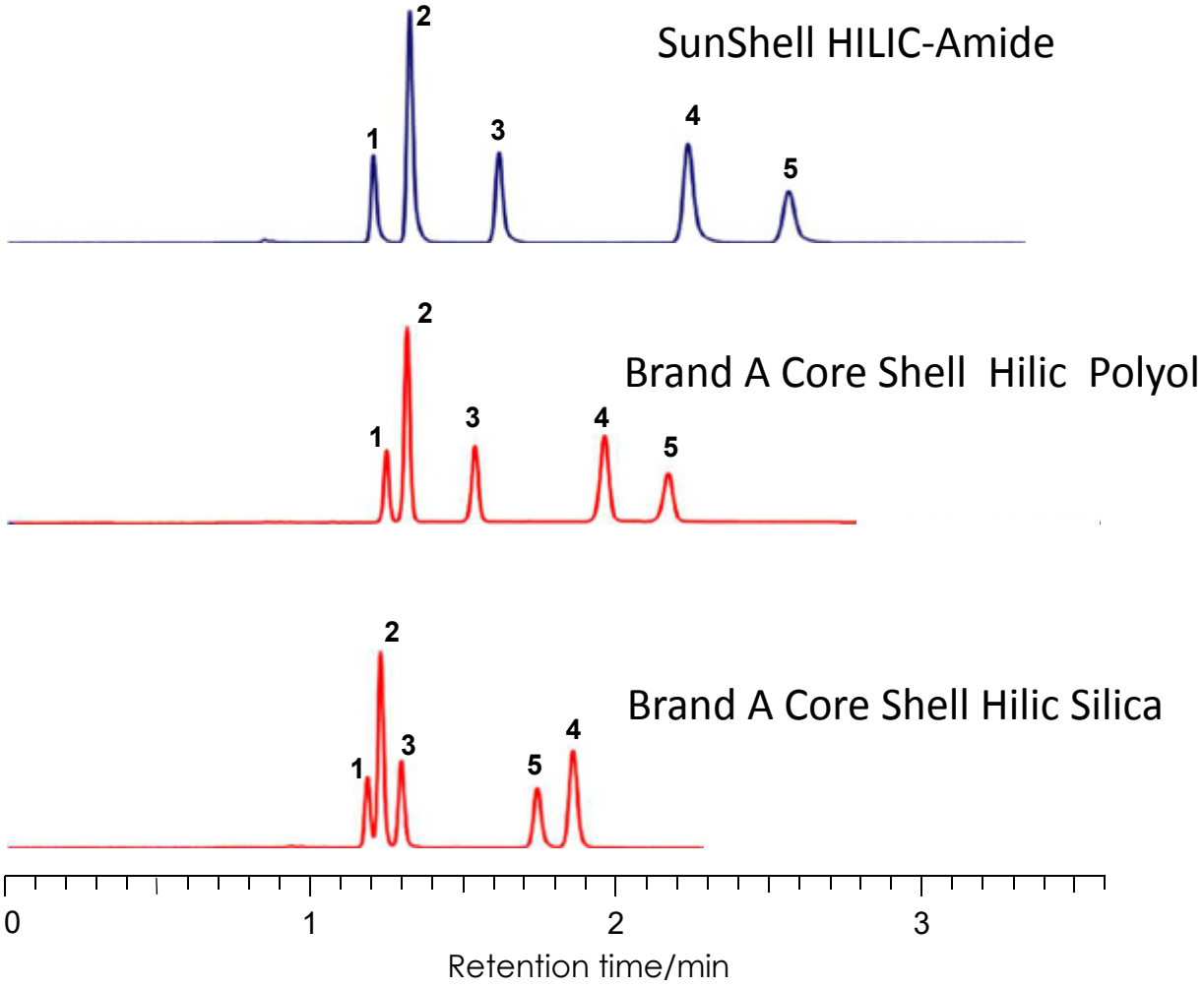
Erythromycin Estolate

Column: Sunniest C18 5 µm, 250 x 4.6 mm i.d.
Mobile phase: 50ml of 35gm/lit dibasic potasium phosphate, pH 8.0 with dilute phosphoric acid, add 400 ml water add 165 ml 2methyl 2propanol add 30ml ACN, adju volume to 1lit with water
Flow rate : 2.0. mL/min
Detection : UV@215 nm
Column Temperature : 65 °C
Sample Temperature : Ambient
Injection Volume : 200 µ L

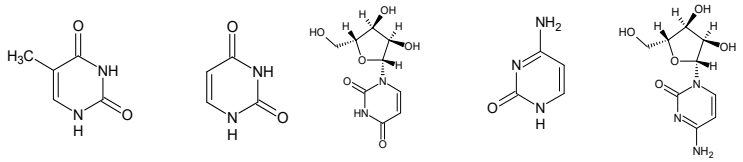
核酸塩基の分離比較

Nucleic acid bases

SunShell HILIC-Amide 2.6 µm, 100 x 4.6 mm i.d.



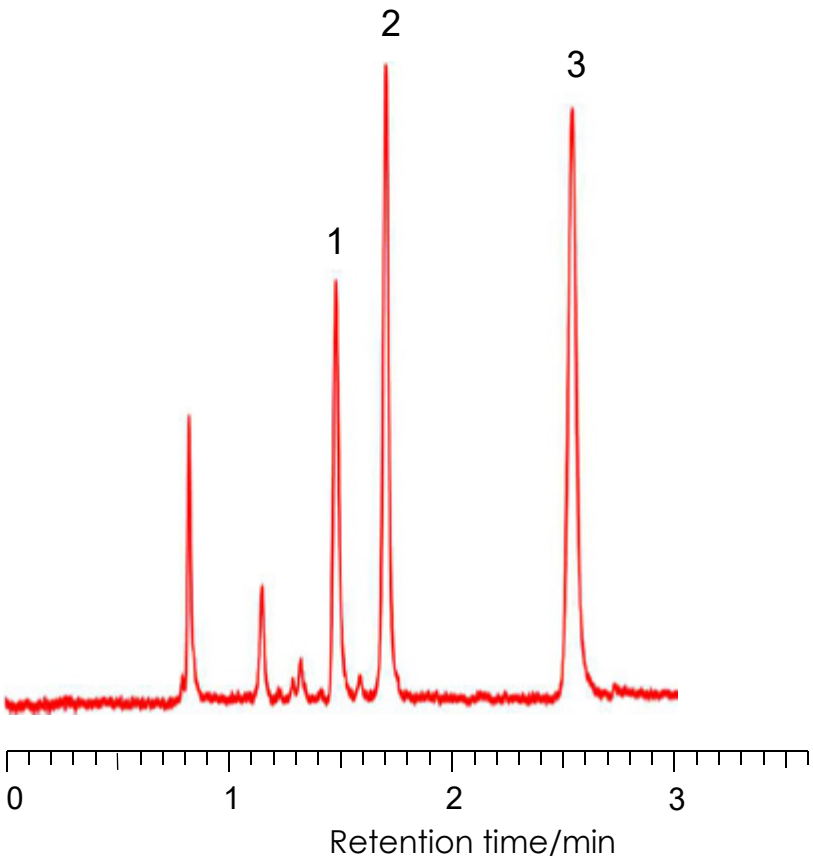
Column:
SunShell HILIC-Amide 2.6 µm, 100 x 4.6 mm
Brand A Core Shell Hilic Polyol 2.7 µm, 100 x 4.6 mm
Brand A Core Shell Hilic Silica 2.7 µm, 100 x 4.6 mm
Mobile phase: acetonitrile: 20 mM ammonium acetate(pH4.7) =8:2
Flow rate: 1.0 mL/min
Temperature: 40 °C
Detection: UV@250 nm
Sample: 1= Thymine, 2 = Uracil, 3 = Uridine, 4 = Cytosine, 5 = Cytidine

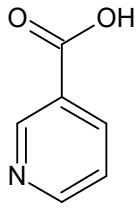


水溶性ビタミンの分離

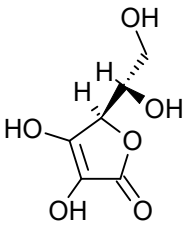
Water- soluble vitamins

SunShell HILIC-Amide 2.6 µm, 100 x 4.6 mm i.d.

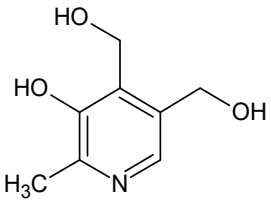




1. Nicotinic acid



2. Ascorbic acid



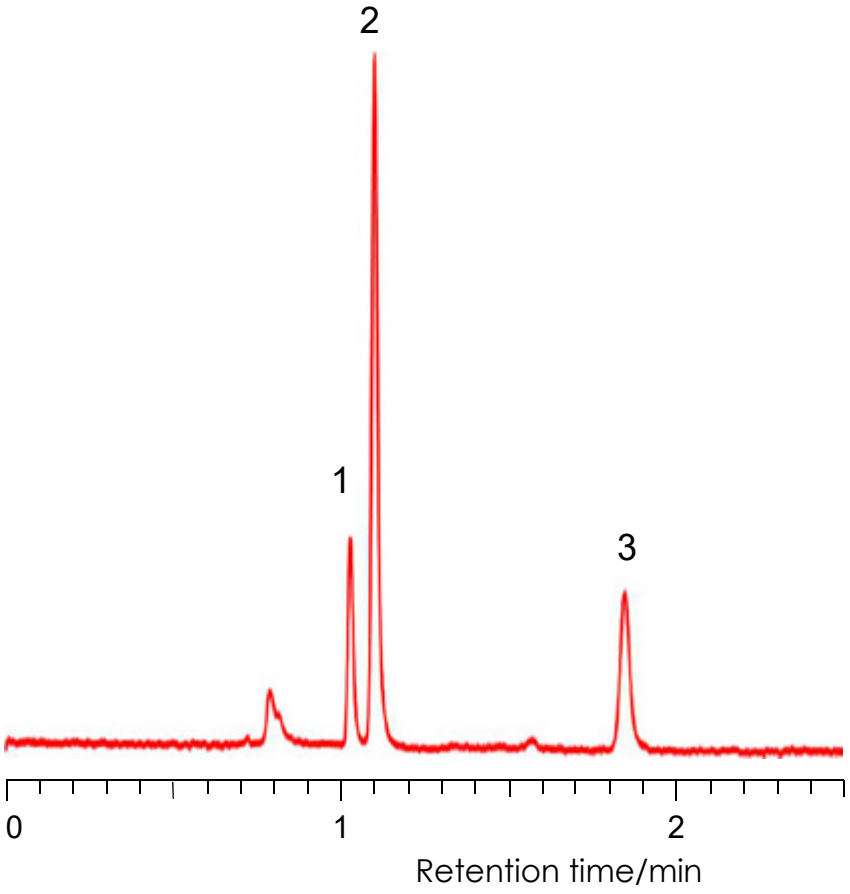
3. Pyridoxine

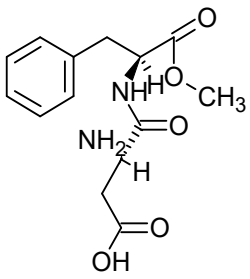
Column:
SunShell HILIC-Amide 2.6 µm, 100 x 4.6 mm,
Mobile phase: acetonitrile: 25 mM phosphate buffer (pH2.5) =8:2
Flow rate: 1.0 mL/min
Temperature: 40 °C
Detection: UV@250 nm
Sample: 1 = Nicotinic acid, 2 = Ascorbic acid, 3 = Pyridoxine

合成甘味料の分離

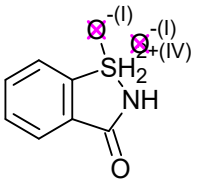
Artificial sweeteners

SunShell HILIC-Amide 2.6 µm, 100 x 4.6 mm i.d.

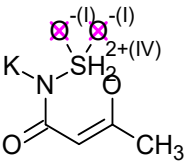




1. Aspartame



2. Saccharin



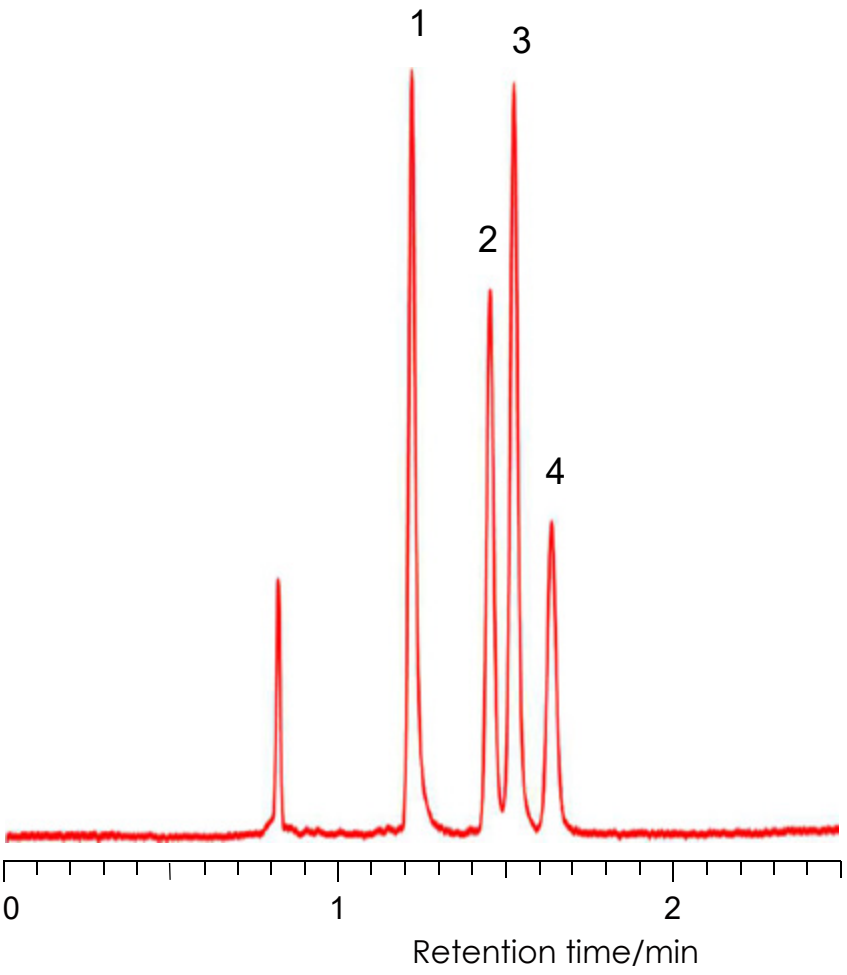
3. Acesulfame K

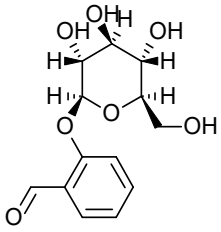
Column:
SunShell HILIC-Amide 2.6 µm, 100 x 4.6 mm,
Mobile phase: acetonitrile: 25 mM phosphate buffer (pH2.5) =8:2
Flow rate: 1.0 mL/min ,
Temperature: Ambient
Detection: UV@215 nm
Sample: 1 = Aspartame, 2 = Saccharin, 3 = Acesulfame K

配糖体の分離

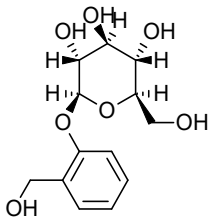
Glycoside

SunShell HILIC-Amide 2.6 µm, 100 x 4.6 mm i.d.

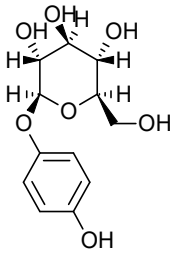




1. Helicin

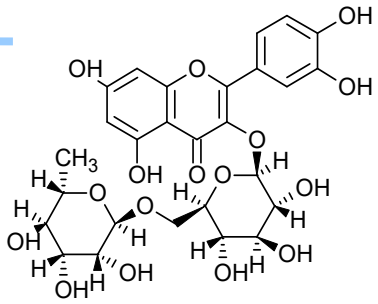


2. Salitin



3. Arbutin

Column: SunShell HILIC-Amide 2.6 µm, 100 x 4.6 mm
Mobile phase:
Acetonitrile:25 mM phosphate Ammonium (pH4.9) =8:2
Flow rate: 1.0 mL/min
Temperature: Ambient
Detection: UV@215 nm
Sample: 1 = Helicin, 2 = Salicin, 3 = Arbutin, 4 = Rutin

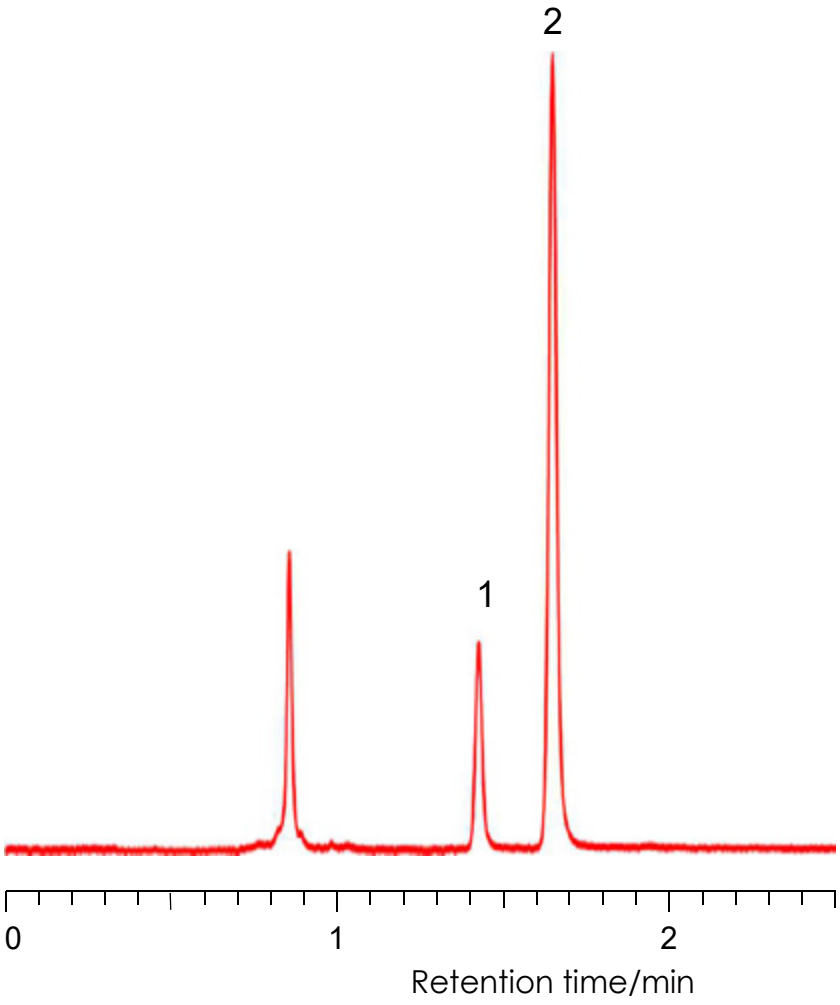


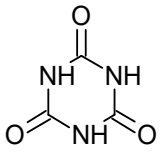
4. Rutin

メラミンとシアヌル酸の分離

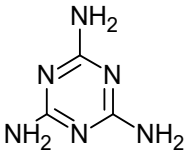
Melamine and cyanuric acid

SunShell HILIC-Amide 2.6 µm, 100 x 4.6 mm i.d.





1. Cyanuric acid



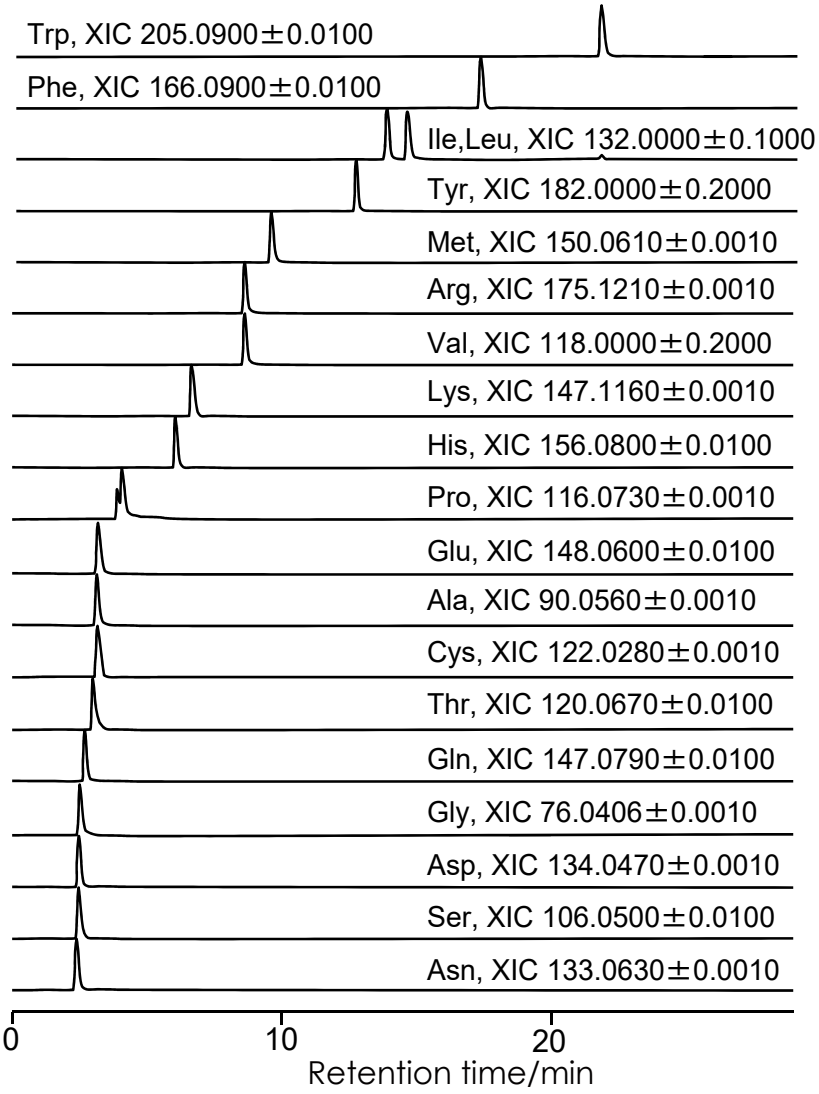
2. Melamine

Column: SunShell HILIC-Amide 2.6 µm, 100 x 4.6 mm
Mobile phase: acetonitrile:5 mM phosphate Buffer (pH6.9) =75:25
Flow rate: 1.0 mL/min
Temperature: 40 °C
Detection: UV@220 nm,
Sample: 1 = Cyanuric acid, 2 = Melamine

アミノ酸の分離（LC/MS) (2)

Amino acids LC/MS (2)

SunShell RP-AQUA 2.6 µm, 150 x 2.1 mm i.d.

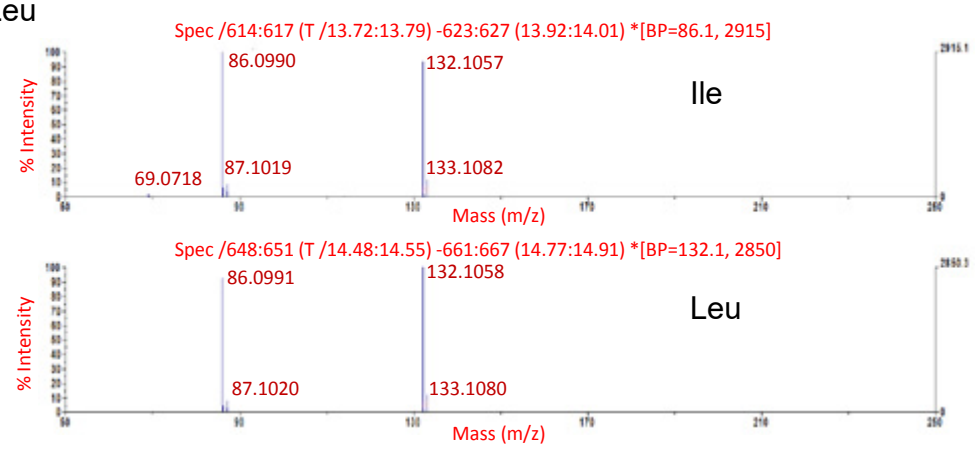


Column:
SunShell RP-AQUA 2.6 µm,
150 x 2.1 mm
Mobile phase:
A) 5 mM HFBA,
B) 5 mM HFBA in CH_3CN / H_2O (9/1)
%B 0% to 20% in 20 min
Flow rate: 0.2 mL / min
Temperature: 40 °C
Detection: MS (NanoFrontier LD)
ESI Positive, Extracted ion chromatogram (EIC)
HPLC: LaChrom Ultra

HFBA: Heptafluorobutyric acid

データ提供：横浜国立大学　金子竹男先生
横浜国立大学機器分析評価センター

Mass spectra of Ile and Leu



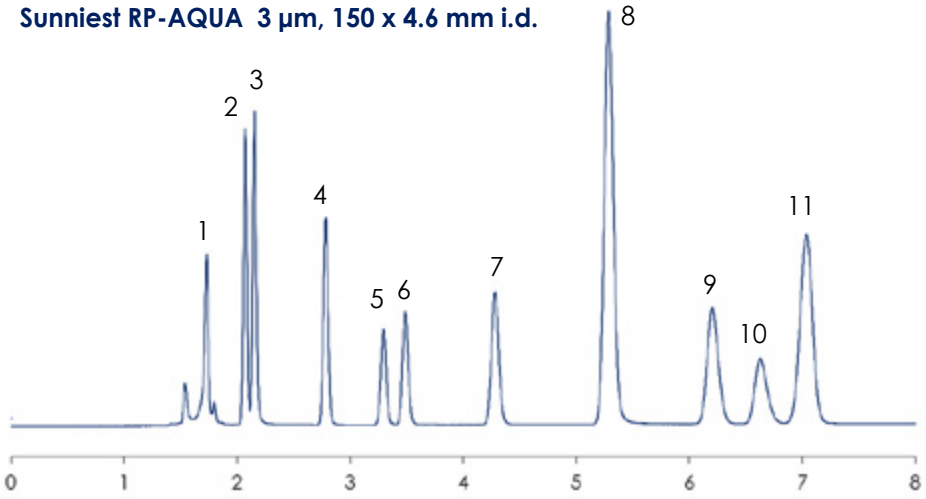
有機酸の分離 (2)

Organic acids (2)

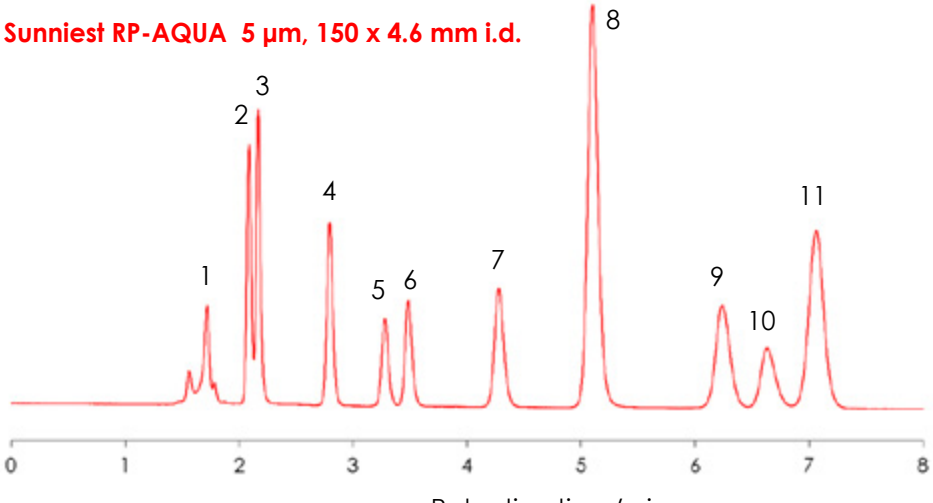
Sunniest RP-AQUA 3 µm, 150 x 4.6 mm i.d.

Sunniest RP-AQUA 5 µm, 150 x 4.6 mm i.d.

Sunniest RP-AQUA 3 µm, 150 x 4.6 mm i.d.



Sunniest RP-AQUA 5 µm, 150 x 4.6 mm i.d.



1 Oxalic acid

2 Tartaric acid

3 Formic acid

4 Malic acid

5 Lactic acid

6 Acetic acid

7 Diglycolic acid

8 Maleic acid

9 Citric acid

10 Succinic acid

11 Fumaric acid

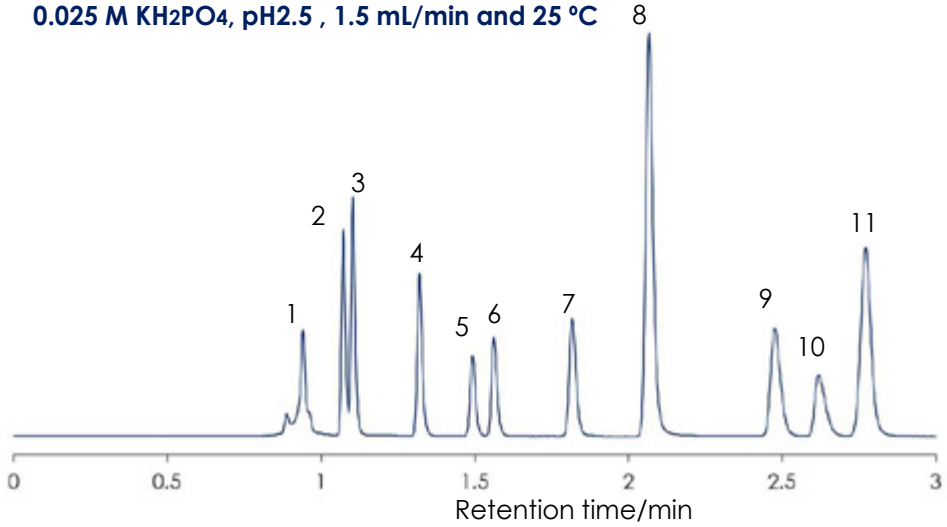
Column: Sunniest RP-AQUA 3 µm and 5 µm, 150 x 4.6 mm
Mobile phase: 0.025 M KH_2PO_4, pH2.5
Flow rate: 1.0 mL/min
Column pressure: 14 MPa for 3 µm and 5 MPa for 5 µm
Temperature: 25 °C
Detection: UV@210nm (Semi-micro flow cell)
Injection volume: 3 µL
Sample: 1 = Oxalic acid (60 ppm), 2 = Tartaric acid (500 ppm), 3 = Formic acid (1000 ppm), 4 = Malic acid (1000 ppm), 5 = Lactic acid (1000 ppm), 6 = Acetic acid (1000 ppm), 7 = Diglycolic acid (1000 ppm), 8 = Maleic acid (100 ppm), 9 = Citric acid (1000 ppm), 10 = Succinic acid (1000 ppm), 11 = Fumaric acid (10 ppm).

有機酸の分離 (3)

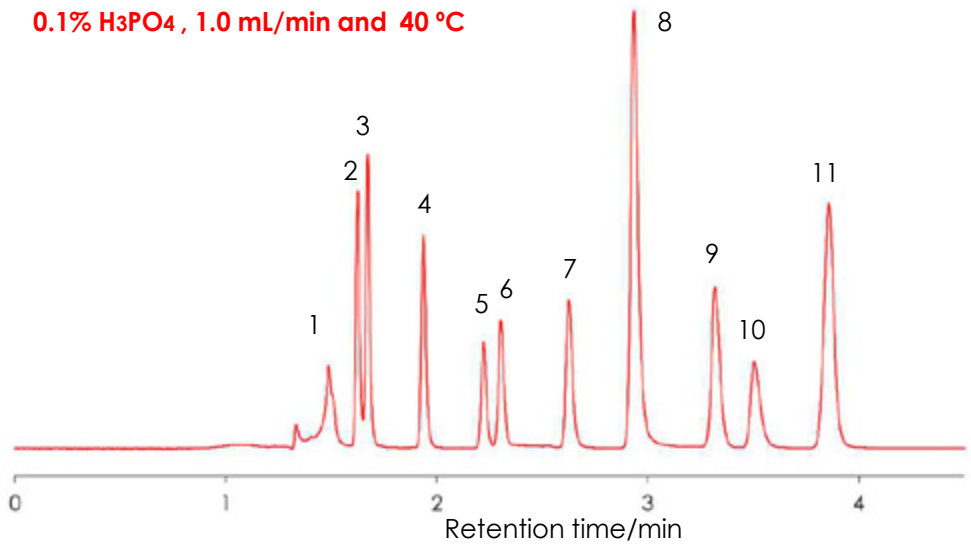
Organic acids (3)

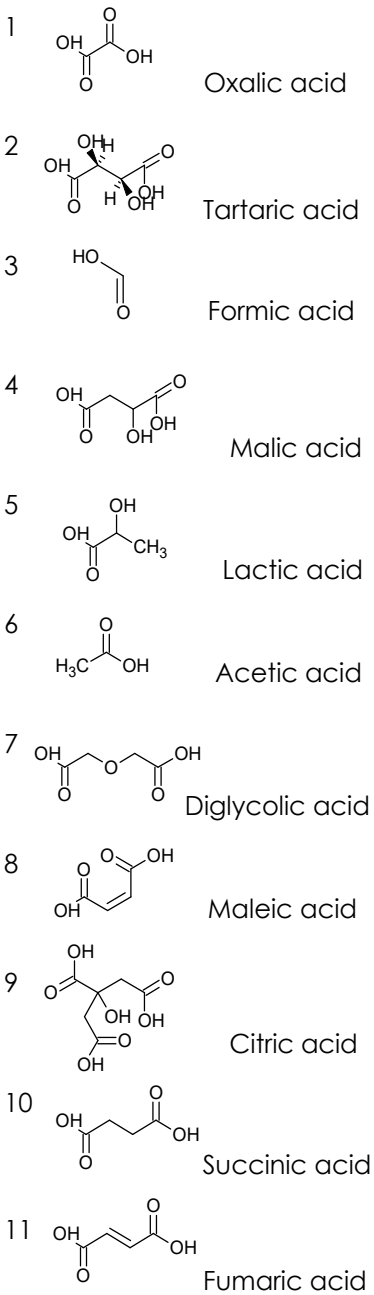
SunShell RP-AQUA 2.6 µm, 150 x 4.6 mm i.d.

0.025 M KH_2PO_4, pH2.5 , 1.5 mL/min and 25 °C



0.1% H_3PO_4 , 1.0 mL/min and 40 °C



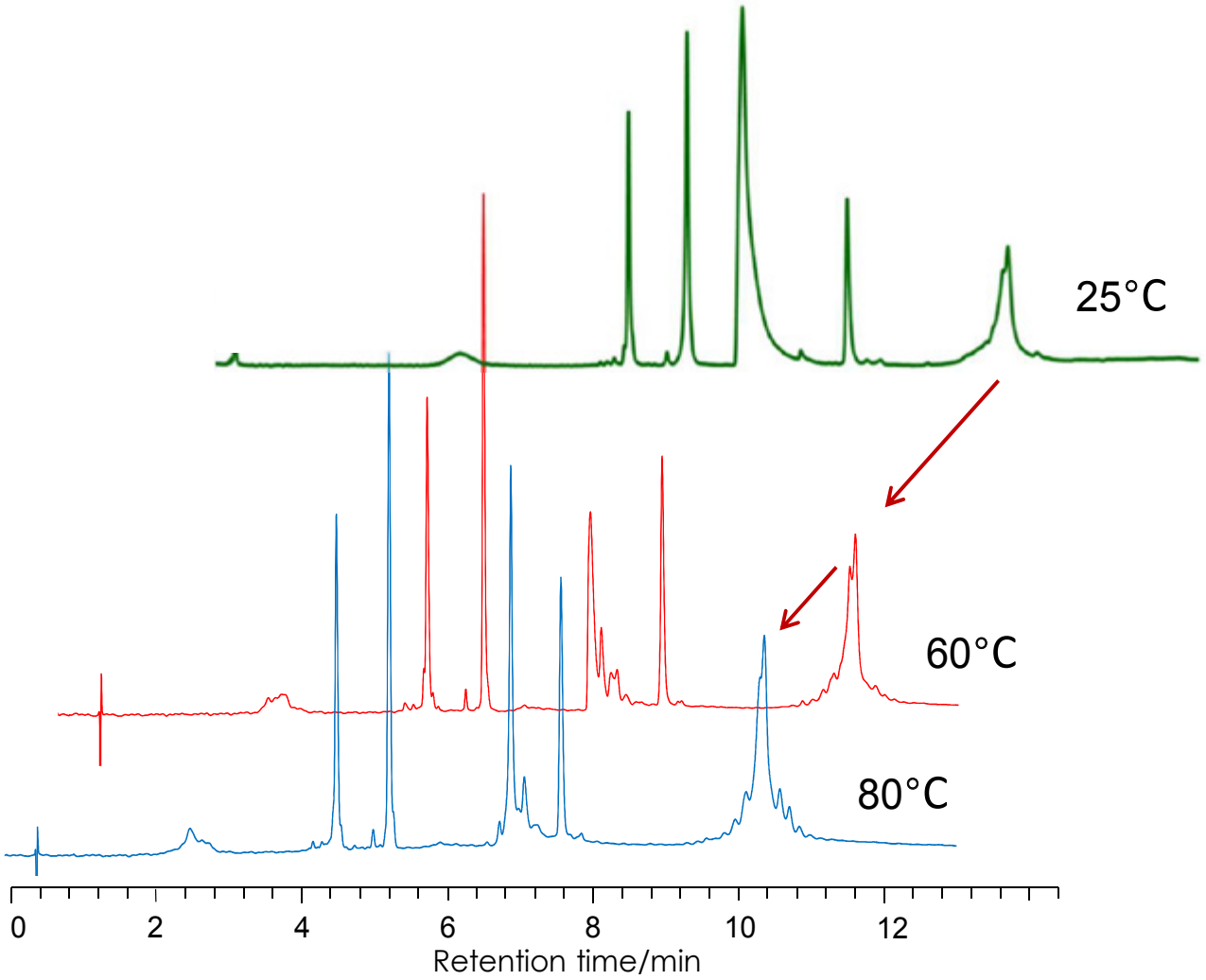


Column: SunShell RP-AQUA 2.6 µm, 150 x 4.6 mm
Mobile phase: 0.025 M KH_2PO_4, pH2.5 and 0.1% H_3PO_4
Flow rate: 1.5 mL/min and 1.0 mL/min
Column pressure: 32 MPa for 1.5mL/min and 18 MPa for 1.0 mL/min
Temperature: 25 °C and 40 °C
Detection: UV@210nm
Injection volume: 2 µL
Sample: 1 = Oxalic acid (60 ppm), 2 = Tartaric acid (500 ppm), 3 = Formic acid (1000 ppm), 4 = Malic acid (1000 ppm), 5 = Lactic acid (1000 ppm), 6 = Acetic acid (1000 ppm), 7 = Diglycolic acid (1000 ppm), 8 = Maleic acid (100 ppm), 9 = Citric acid (1000 ppm), 10 = Succinic acid (1000 ppm), 11 = Fumaric acid (10 ppm).

タンパク質の温度による分離比較

Proteins Effect of temperature

SunShell C8-30 2.6 µm, 100 x 2.1 mm i.d.

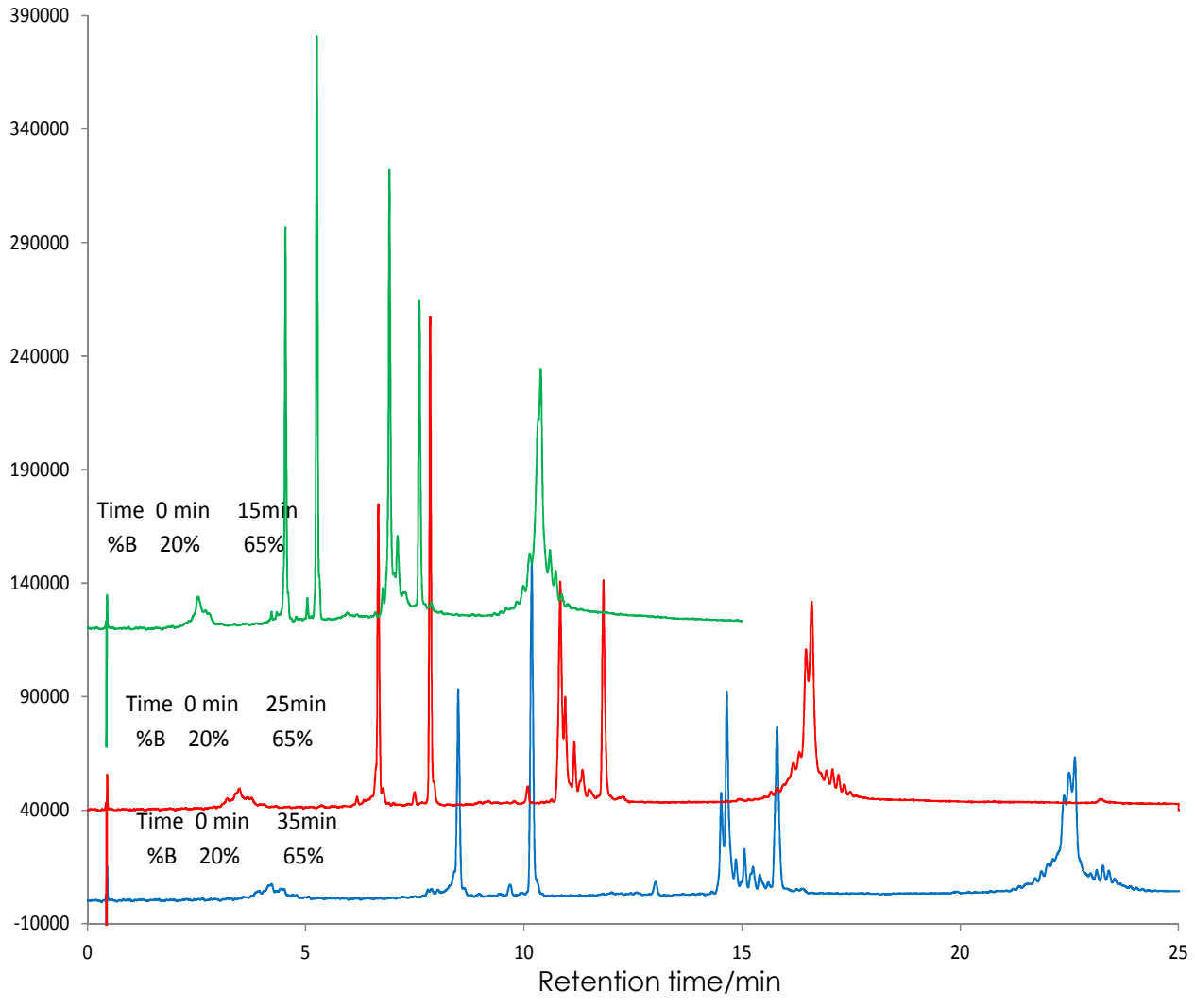


Column:
SunShell C8-30 2.6 µm (30 nm), 100 x 2.1 mm
Mobile phase: A) 0.1% TFA in water
B) 0.08 % TFA in acetonitrile
Gradient program: Time 0 min 15 min
%B 20% 65%
Flow rate: 0.5 mL/min
Temperature: 25 °C, 60 °C or 80 °C
Detection: UV@215 nm
Sample:1 = Cytochrome C, 2 = Lysozyme, 3 = BSA, 4 = Myoglobin, 5 = Ovalbumin

タンパク質のグラジエン時間による分離比較

Proteins Effect of gradient time

SunShell C8-30 2.6 µm, 100 x 2.1 mm i.d.



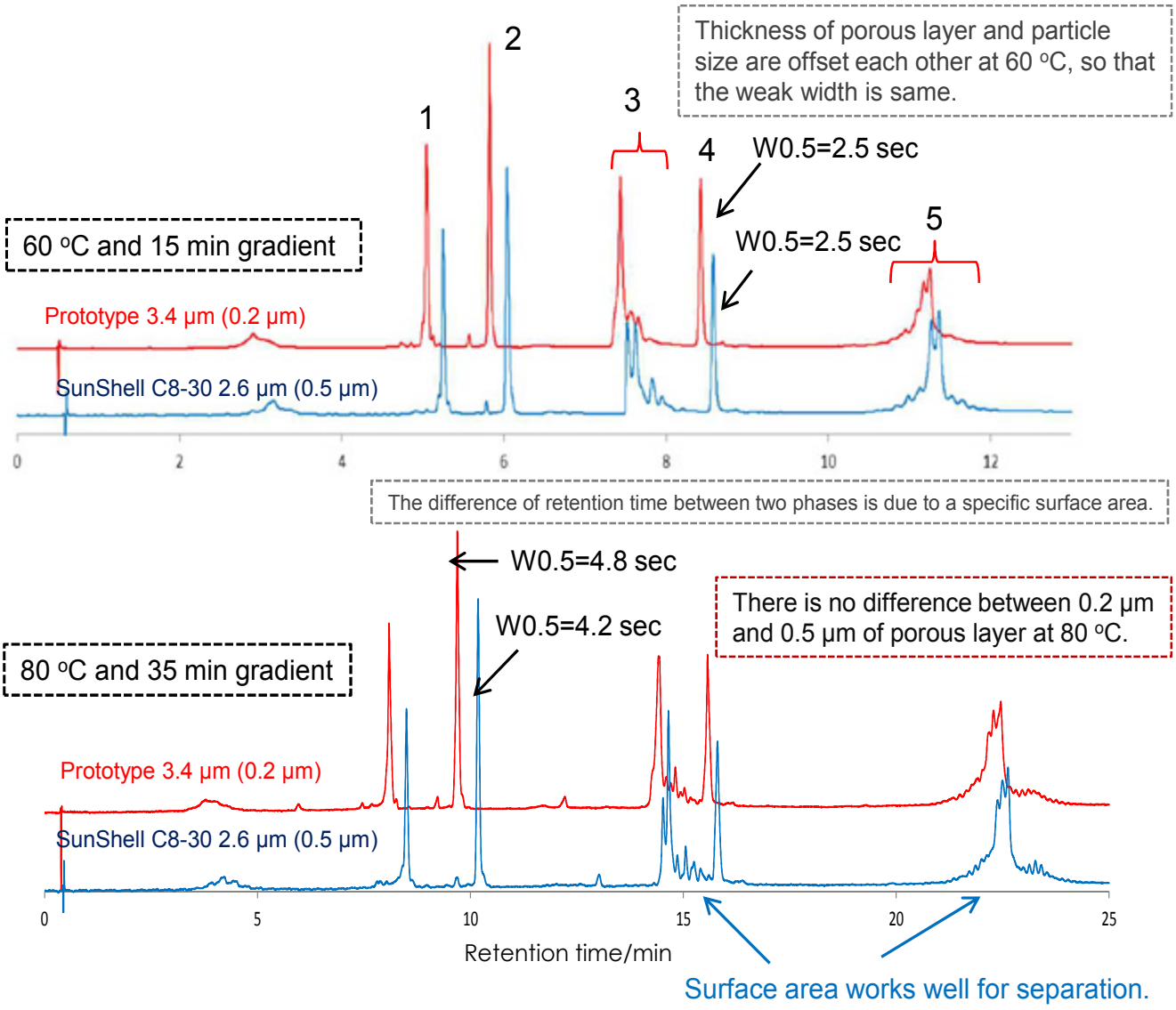
Column:
SunShell C8-30 2.6 µm (30 nm), 100 x 2.1 mm
Mobile phase: A) 0.1% TFA in water
B) 0.08 % TFA in acetonitrile
Gradient program: Time 0 min 15 , 25, 35min
%B 20% 65%
Flow rate: 0.5 mL/min
Temperature: 80 °C
Detection: UV@215 nm
Sample:1 = Cytochrome C, 2 = Lysozyme, 3 = BSA, 4 = Myoglobin, 5 = Ovalbumin

ChromaNik Technologies Inc.

タンパク質の分離（多孔質層の厚さの比較）

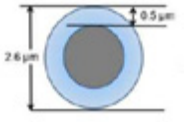
SunShell C8-30 2.6 µm, 100 x 2.1 mm i.d.

Proteins Comparison of thickness of porous layer



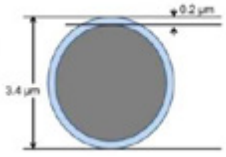
Column:
SunShell C8-30 2.6 µm (30 nm), 100 x 2.1 mm
Prototype C8-30 3.4 µm (30 nm), 100 x 2.1 mm
Mobile phase: A) 0.1% TFA in water
B) 0.08 % TFA in acetonitrile
Gradient program: Time 0 min 15 , 35min
%B 20% 65%
Flow rate: 0.5 mL/min
Temperature: 80 °C
Detection: UV@215 nm
Sample:1 = Cytochrome C, 2 = Lysozyme, 3 = BSA, 4 = Myoglobin, 5 = Ovalbumin

SunShell particle



Particle size: 2.6 µm
Thickness of porous layer: 0.5 µm
Specific surface area: 40 m^2/g

Prototype particle



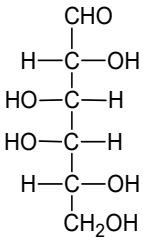
Particle size: 3.4 µm
Thickness of porous layer: 0.2 µm
Specific surface area: 15 m^2/g

トリプトファン誘導体化単糖の分離

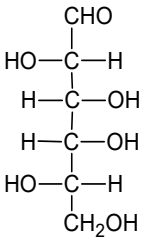
Monosaccharides derivatized with L-Tryptphan

SunShell RP-AQUA 2.6 µm, 100 x 4.6 mm i.d.

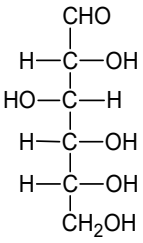
1 D-Galactose



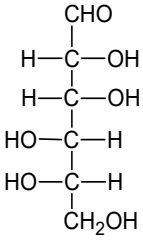
2 L-Galactose



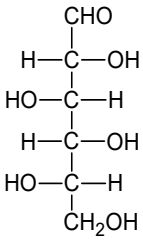
3 D-Glucose



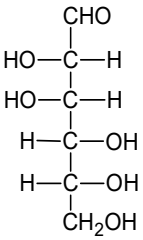
4 L-Mannose

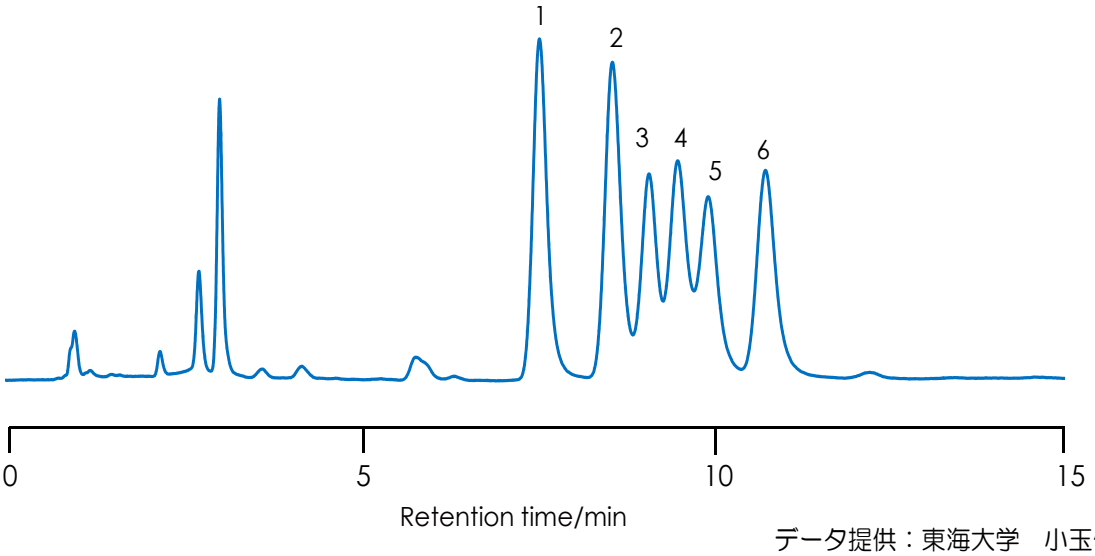


5 L-Glucose



6 D-Mannose





データ提供：東海大学　小玉修嗣先生

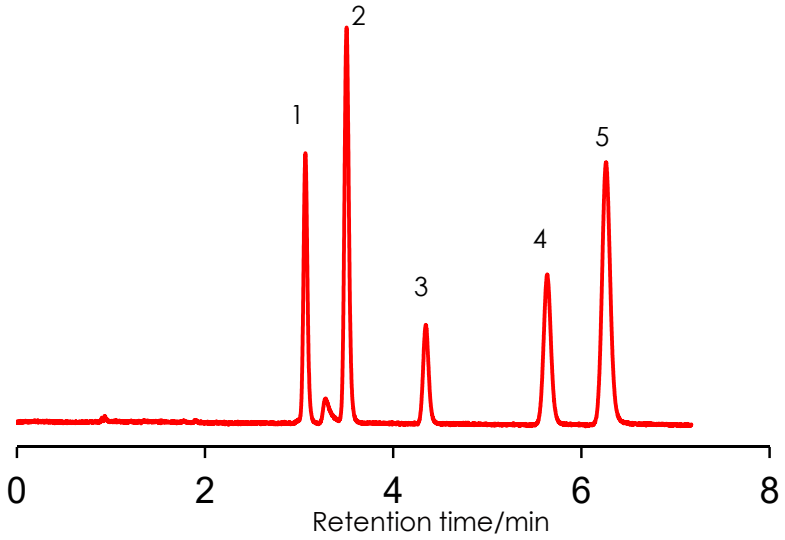
Column: SunShell RP-AQUA 2.6 µm, 100 x 4.6 mm
Mobile phase: 5 mM Phosphate and 25 mM tetraborate (pH 9.6)
Flow rate: 1.0 mL/min
Temperature: 20 °C
Detection: UV@220 nm
Sample: Monosaccharides derivatized with L-Tryptphan

プリン類似物質の分離

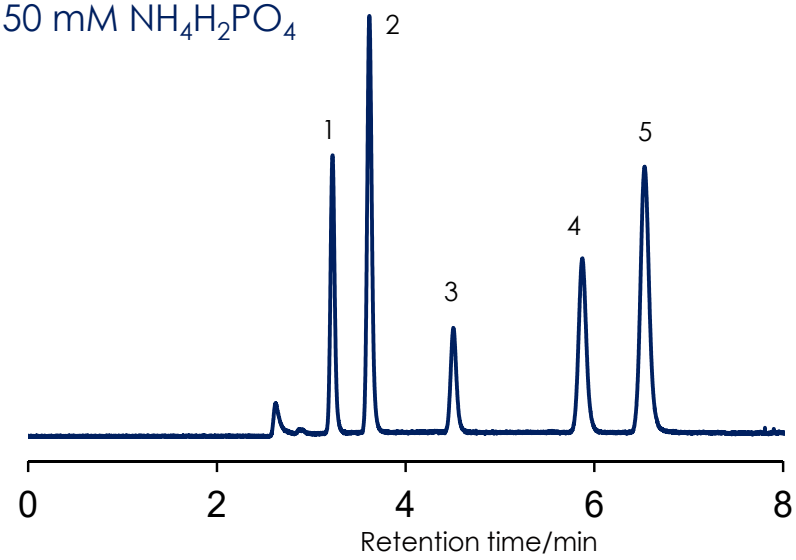
Purine analogue

SunShell RP-AQUA 2.6 µm, 100 x 4.6 mm i.d.

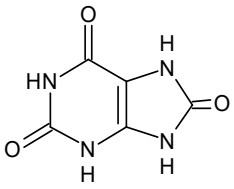
10 mM Ammonium acetate (pH 4.7)



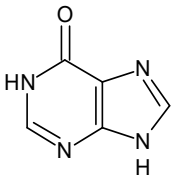
50 mM $NH_4H_2PO_4$



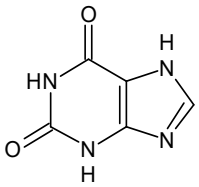
1 Uric acid



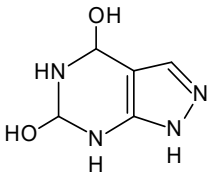
2 Hypoxanthine



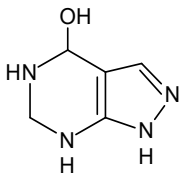
3 Xanthine



4 Oxipurinol



5 Allopurinol



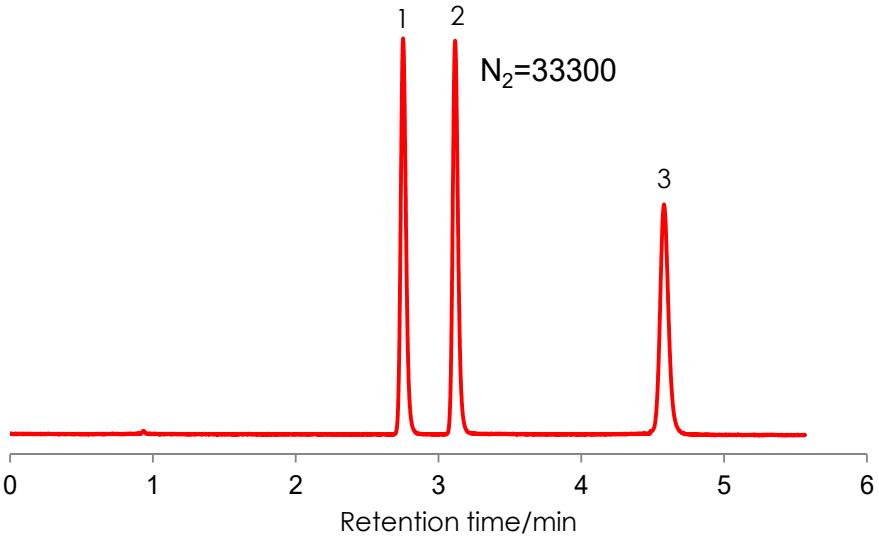
Column: SunShell RP-AQUA 2.6 µm, 100 x 4.6 mm
Mobile phase: 50 mM $NH_4H_2PO_4$ or 10 mM ammonium acetate (pH 4.7)
Flow rate: 1.0 mL/min
Temperature: Ambient
Detection: UV@250 nm
Sample: 1 = Uric acid, 2 = Hypoxanthine, 3 = Xanthine, 4 = Oxipurinol, 5 = Allopurinol

アルブチンとその関連物質の分離

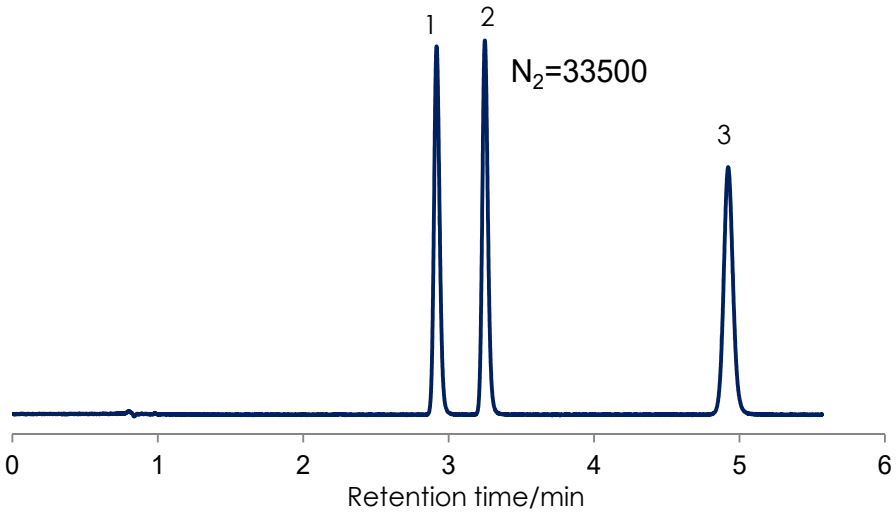
Arbutin and related substances

SunShell RP-AQUA 2.6 µm, 150 x 4.6 mm i.d.

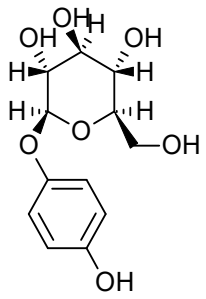
10 mM formic acid/ methanol = 97/3



10 mM phosphoric acid/methanol = 97/3

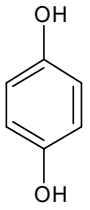


1



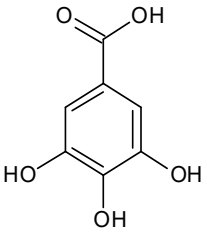
Arbutin

2



Hydroquinone

3

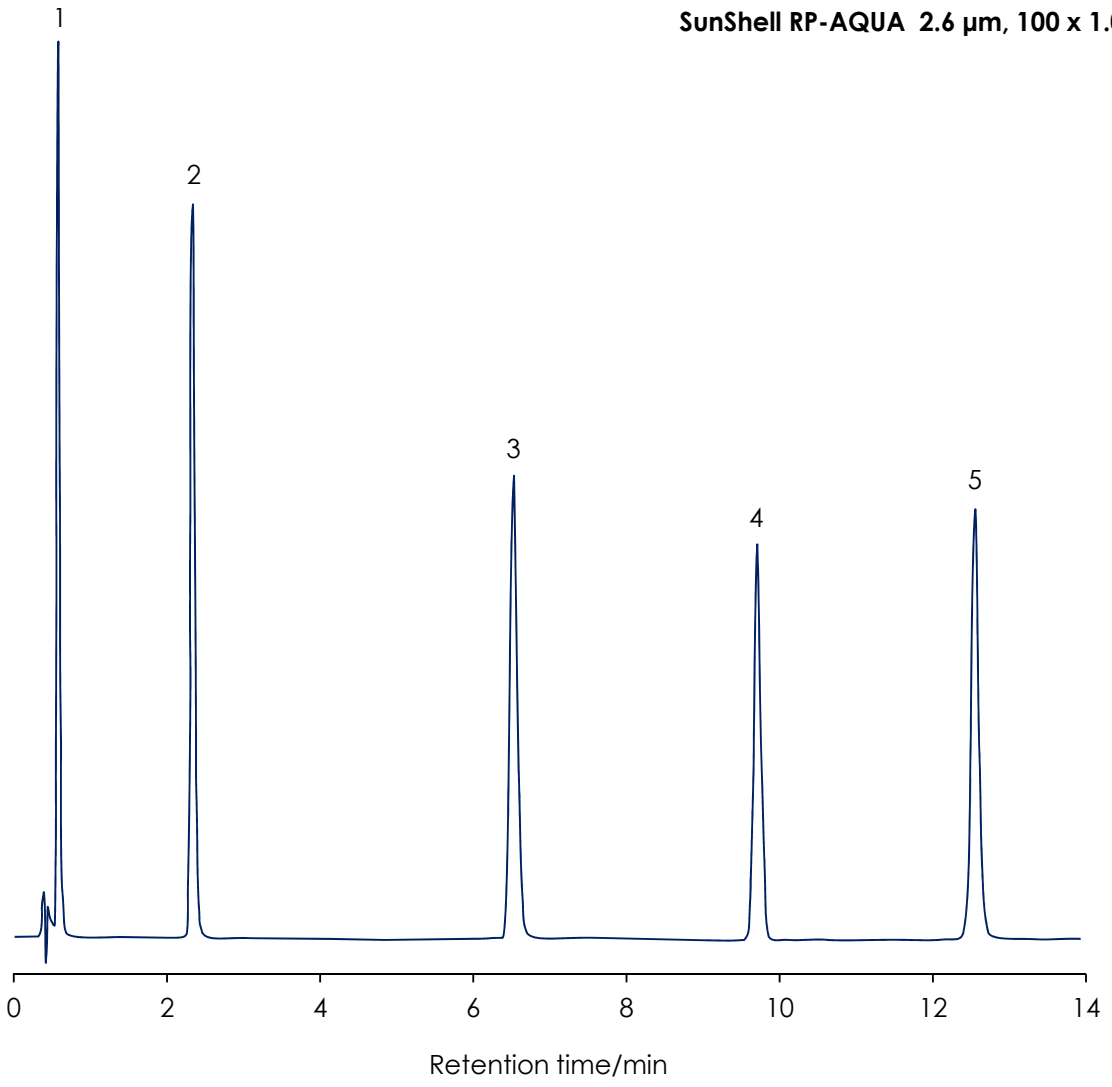


Gallic acid

Column: SunShell RP-AQUA 2.6 µm, 150 x 4.6 mm
Mobile phase: 10 mM formic acid/ methanol = 97/3 or
10 mM phosphoric acid/methanol = 97/3
Flow rate: 1.5 mL/min
Temperature: Ambient
Detection: UV@280 nm
Sample: 1 = Arbutin, 2 = Hydroquinone, 3 = Gallic acid

1.0 mm i.d. カラムによる標準ペプチドの分離

Standard peptides using 1.0 mm i.d. column



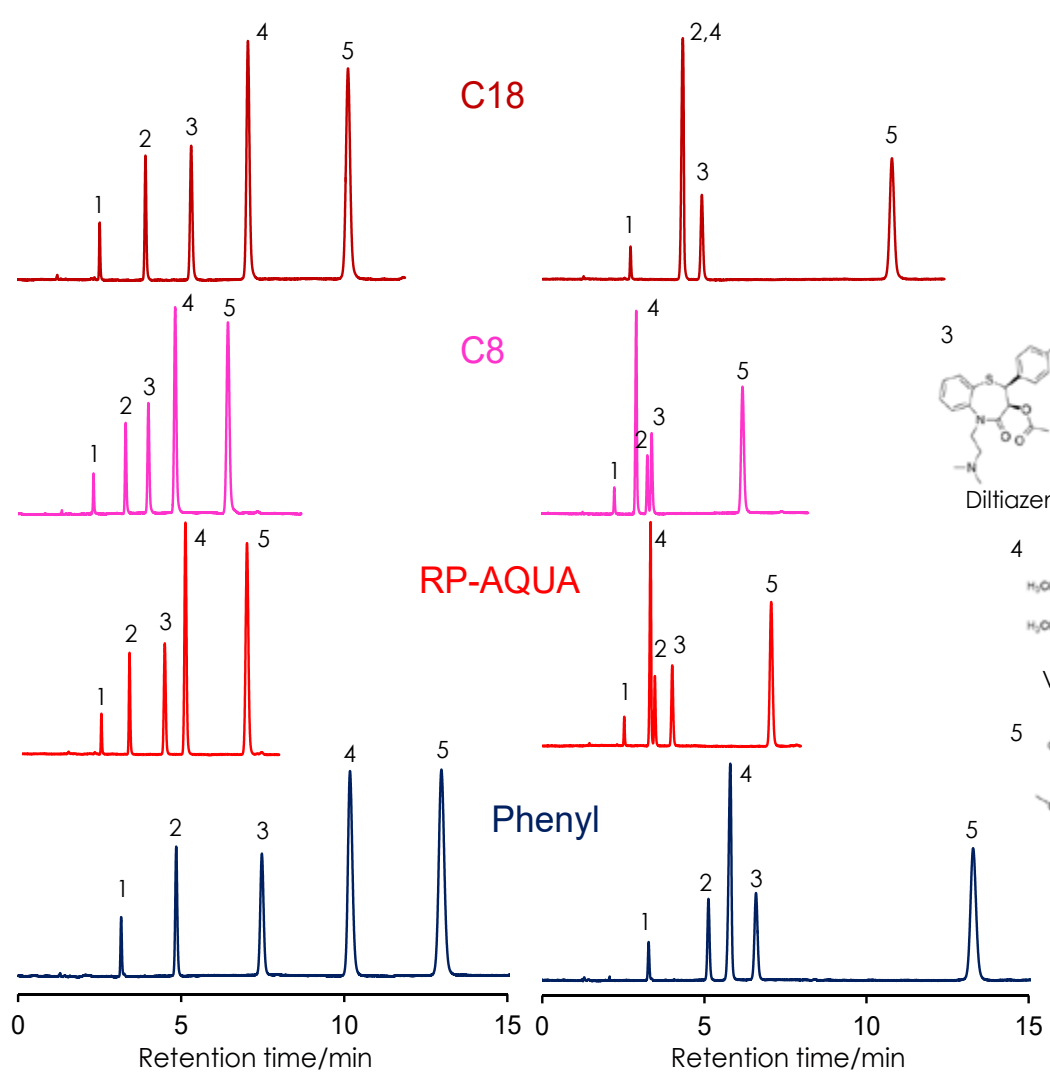
Column: SunShell RP-AQUA 2.6 µm, 100 x 1.0 mm
Mobile phase: A) 0.1 % trifluoroacetic acid (TFA) in water
B) 0.08 % trifluoroacetic acid (TFA) in acetonitrile
%B 10% to 30% in 25 min
Flow rate: 0.15 mL / min
Temperature: 60 °C
Detection: UV@214 nm
Sample: 1 = Gly-Tyr, 2 = Val-Tyr-Val, 3 = Met enkephalin, 4 = Leu enkephalin, 5 = Angiotensin II
(HPLC peptide standard mixture by Sigma-Aldrich)

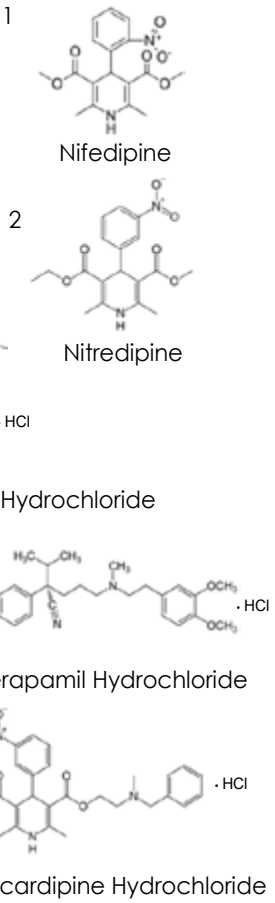
Ca拮抗剤の分離

Calcium antagonisits

SunShell C18, C8, RP-AQUA and Phenyl 2.6 µm, 150 x 4.6 mm i.d.

Methanol:25 mM phosphate buffer pH7=70:30 Methanol:10 mM ammonium acetate pH6.8=70:30





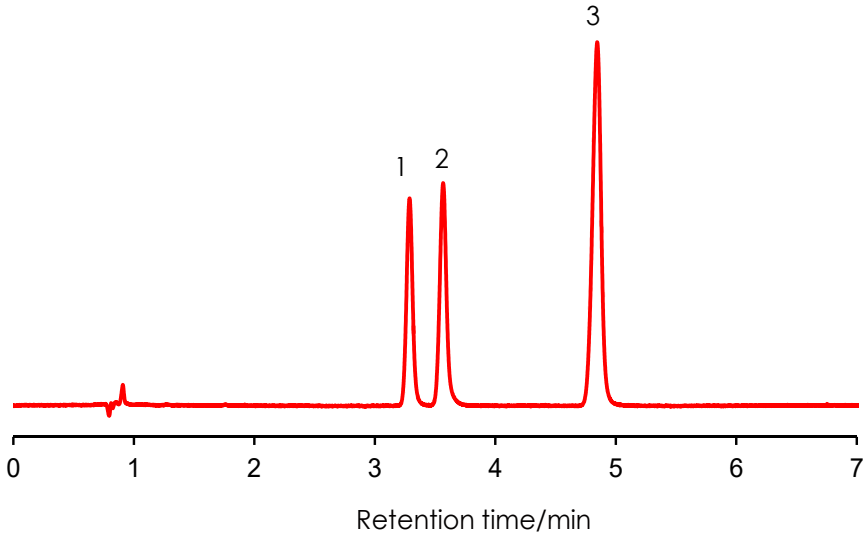
Column: SunShell C18, C8, RP-AQUA and Phenyl 2.6 µm, 150 x 4.6 mm
Mobile phase: Methanol:25 mM phosphate buffer pH7=70:30 or
Methanol:10 mM ammonium acetate pH6.8=70:30
Flow rate: 1.0 mL / min
Temperature: 40 °C
Detection: UV@230 nm
Sample: 1 = Nifedipine, 2 = Nitredipine, 3 = Diltiazem Hydrochloride, 4 = Verapamil Hydrochloride, 5 = Nicardipine Hydrochloride

抗潰瘍(H2ブロッカー)の分離

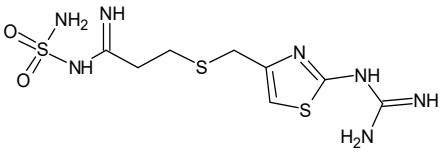
H2 blockers

SunShell C18 2.6 µm, 100 x 4.6 mm i.d.

Acetonitrile:10 mM ammonium acetate pH6.8=10:90

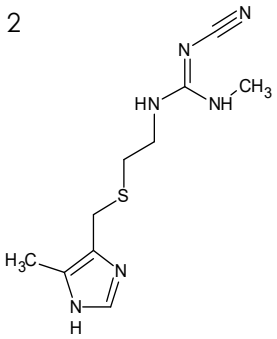


1



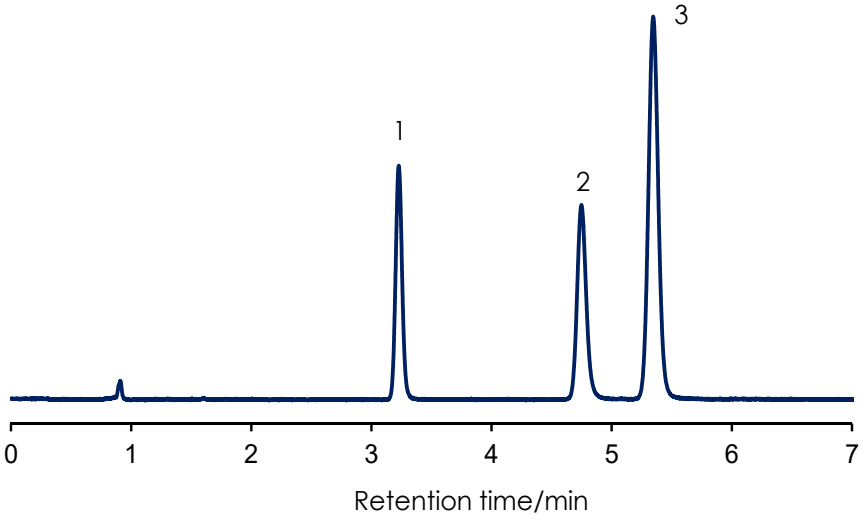
Famotidine

2



Cimetidine

Acetonitrile:25 mM phosphate buffer pH7=10:90



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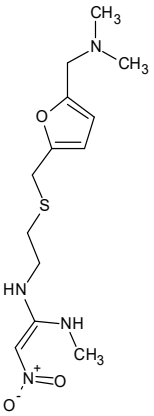


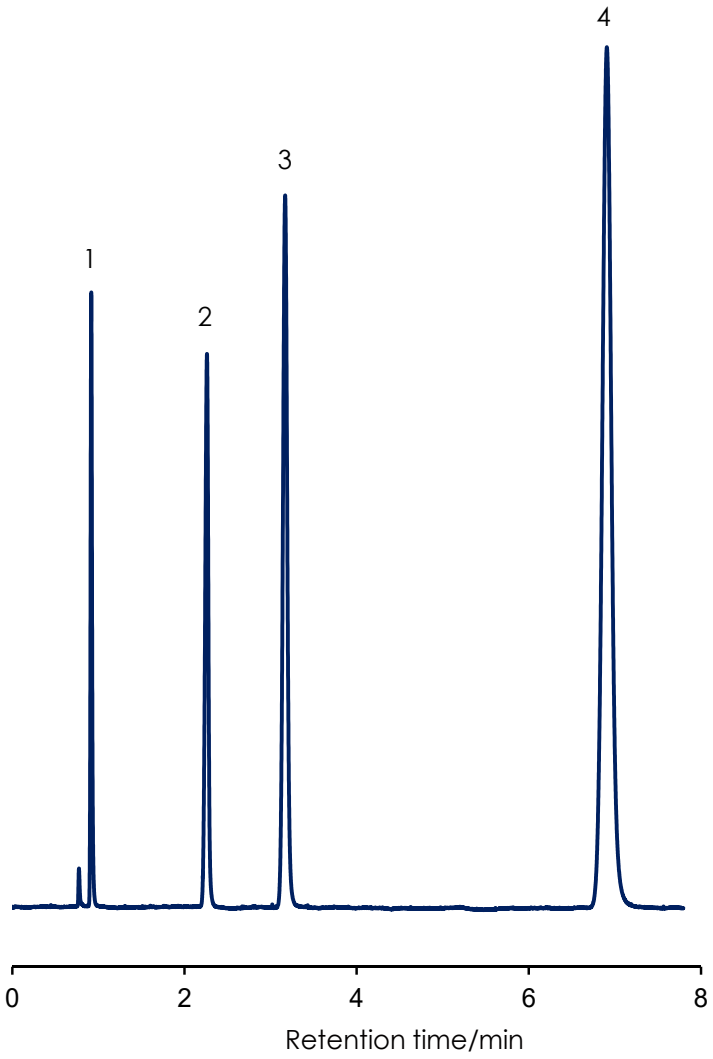
Ranitidine

Column: SunShell C18 2.6 µm, 100 x 4.6 mm
Mobile phase: Acetonitrile:10 mM ammonium acetate pH6.8=10:90 or
Acetonitrile:25 mM phosphate buffer pH7=10:90
Flow rate: 1.0 mL/min
Temperature: Ambient
Detection: UV@230 nm
Sample: 1 = Famotidine, 2 = Cimetidine, 3 = Ranitidine

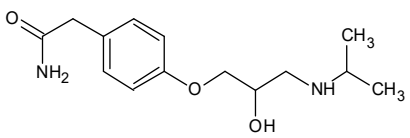
β遮断薬の分離

β blocker

SunShell C18 2.6 µm, 100 x 4.6 mm i.d.

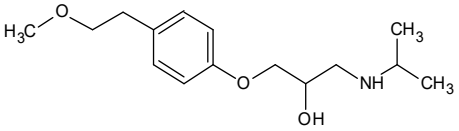


1



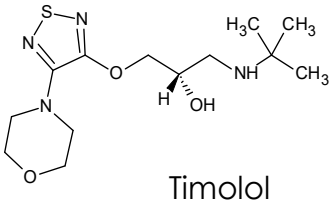
Atenolol

2



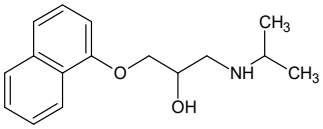
Metoprolol

3



Timolol

4



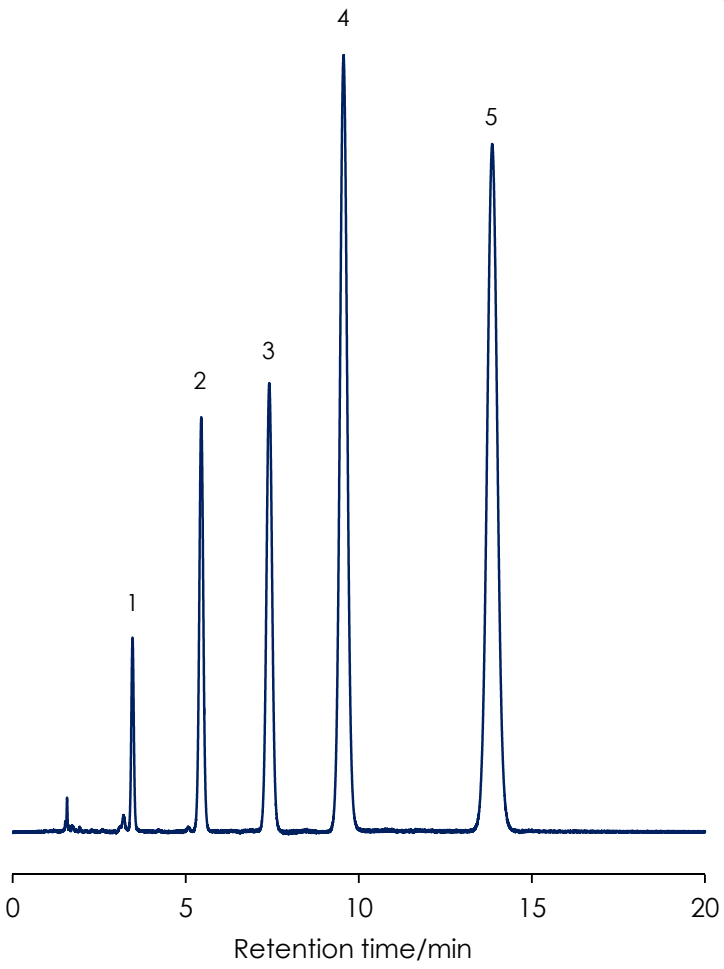
Propranolol

Column: SunShell C18 2.6 µm, 100 x 4.6 mm
Mobile phase: Metyanol:25 mM phosphate buffer pH7 = 50:50
Flow rate: 1.0 mL / min
Temperature: 40 °C
Detection: UV@280 nm
Sample: 1 = Atenolol, 2 = Metoprolol, 3 = Timolol, 4 = Propranolol

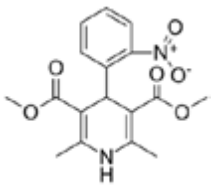
Ca拮抗剤の分離 (Sunniest C18)

Calcium antagonisits

Sunniest C18 5 µm, 150 x 4.6 mm i.d.

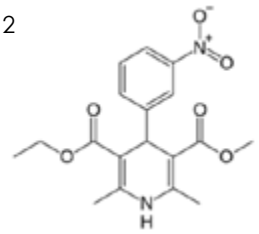


1



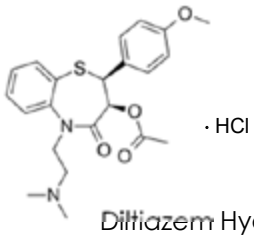
Nifedipine

2



Nitredipine

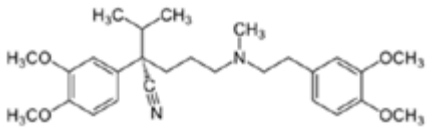
3



· HCl

Diltiazem Hydrochloride

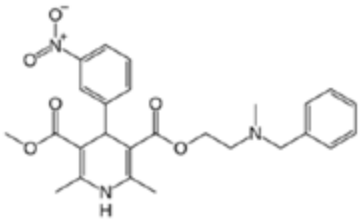
4



· HCl

Verapamil Hydrochloride

5



· HCl

Nicardipine Hydrochloride

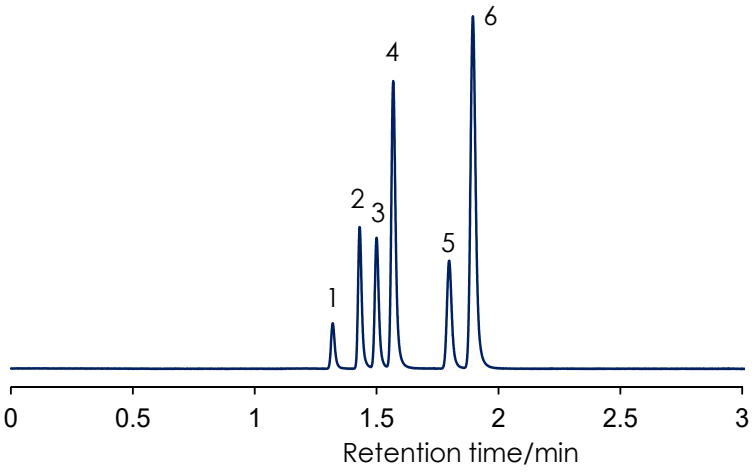
Column: Sunniest C18 5 µm, 150 x 4.6 mm
Mobile phase: Methanol:25 mM phosphate buffer pH7=70:30
Flow rate: 1.0 mL / min
Temperature: 40 °C
Detection: UV@230 nm
Sample: 1 = Nifedipine, 2 = Nitredipine, 3 = Diltiazem Hydrochloride, 4 = Verapamil Hydrochloride, 5 = Nicardipine Hydrochloride

核酸の分離

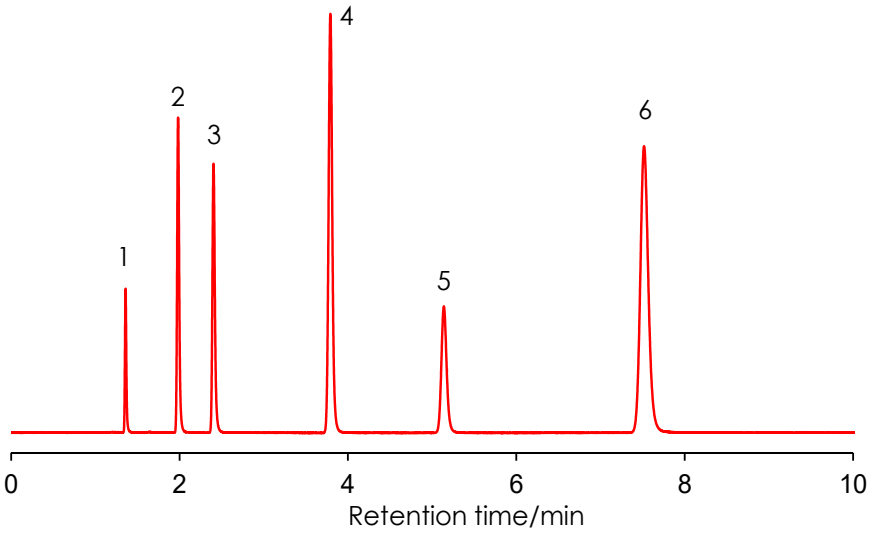
Nucleic acid

SunShell RP-AQUA 2.6 µm, 150 x 4.6 mm i.d.

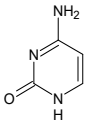
Methanol:10 mM ammonium acetate pH6.8=20:80

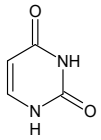


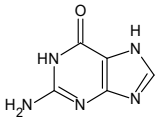
10 mM ammonium acetate pH6.8

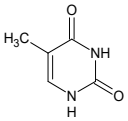


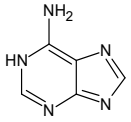
1 $NaNO_2$

2  Cytosine

3  Uracil

4  Guanine

5  Thymine

6  Adenine

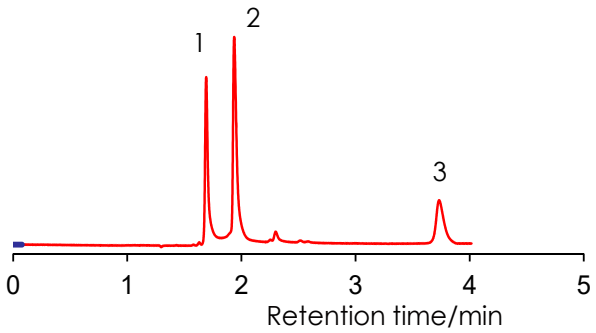
Column: SunShell RP-AQUA 2.6 µm, 150 x 4.6 mm
Mobile phase:
A) Methanol:10 mM ammonium acetate pH6.8=20:80
B) 10 mM ammonium acetate pH6.8
Flow rate: 1.0 mL / min
Temperature: 40 °C
Detection: UV@250 nm
Sample: 1 = Sodium nitrite, 2 = Cytosine, 3 = Uracil, 4 = Guanine, 5 = Thymine, 6 = Adenine

テトラサイクリン類の分離

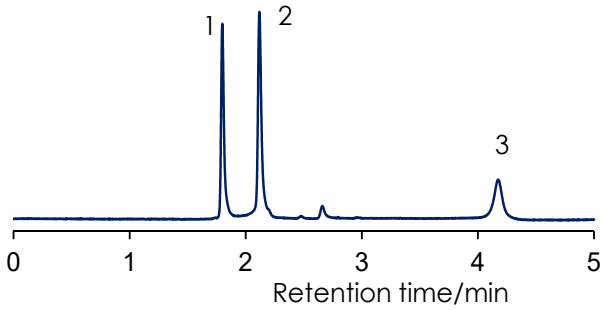
Tetracyclines

SunShell C18 2.6 µm, 150 x 4.6 mm i.d.

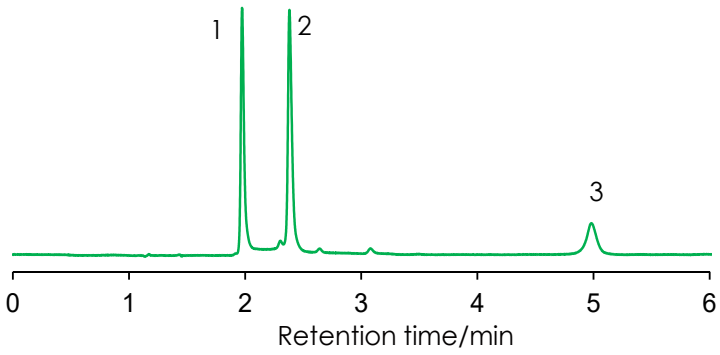
Acetonitrile:0.1% formic acid=20:80



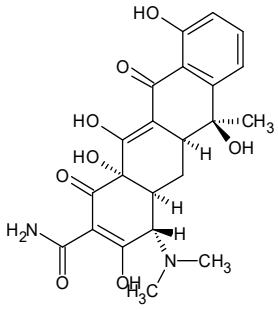
Acetonitrile:0.1% phosphoric acid=20:80



Acetonitrile: 10mM oxalic acid=20:80

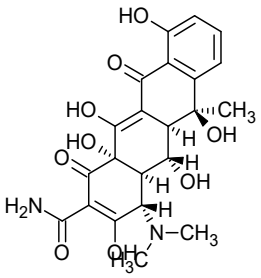


1



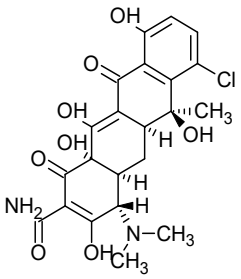
Tetracycline

2



Oxytetracycline

3



Chlortetracycline

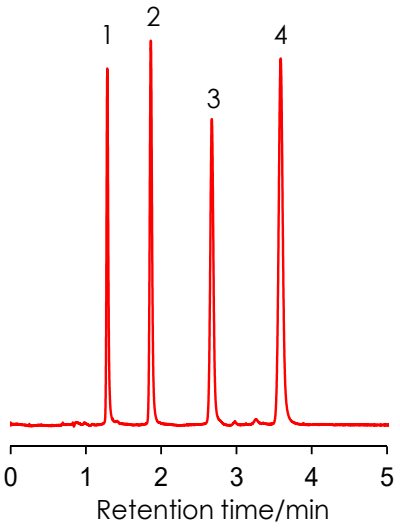
Column: SunShell C18 2.6 µm, 150 x 4.6 mm
Mobile phase:
A) Acetonitrile:0.1% formic acid=20:80
B) Acetonitrile:0.1% phosphoric acid=20:80
C) Acetonitrile: 10mM oxalic acid=20:80
Flow rate: 1.0 mL / min
Temperature: 40 °C
Detection: UV@350 nm
Sample: 1 = Tetracycline, 2 = Oxytetracycline, 3 = Chlortetracycline

フラボノイド類の分離

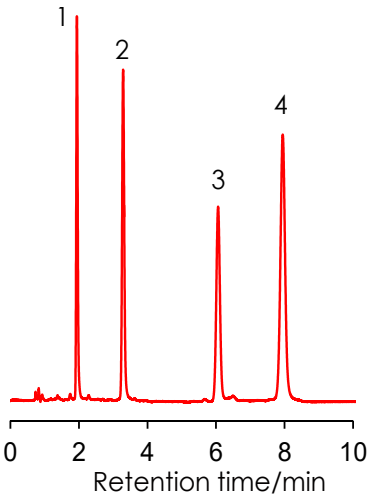
Flavonoids

SunShell C18 2.6 µm, 100 x 4.6 mm i.d.

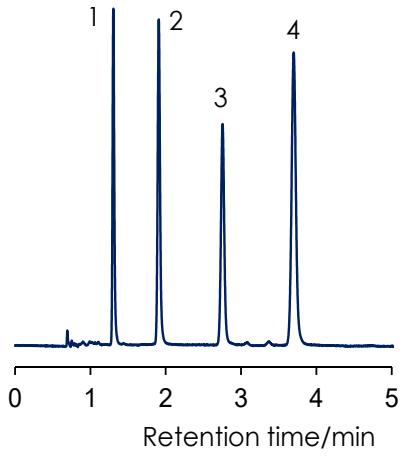
Acetonitrile:water:formic acid=35:65:0.1



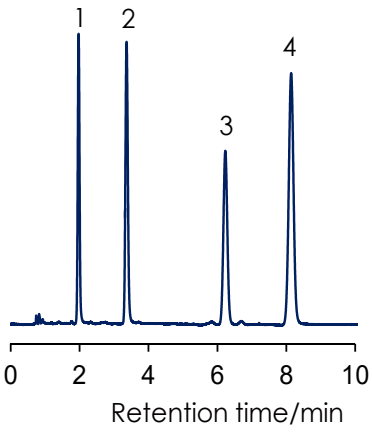
Methanol:water:formic acid=50:50:0.1



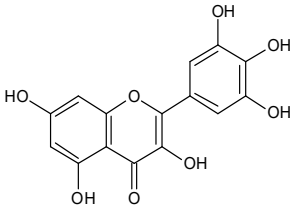
Acetonitrile:10mM phosphoric acid=35:65



Methanol:10mM phosphoric acid=50:50

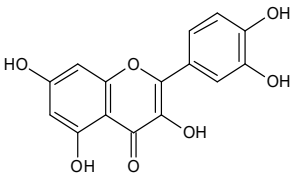


1



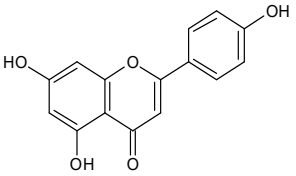
Myricetin

2



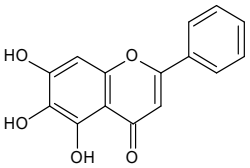
Quercetin

3



Apigenin

4



Baicalein

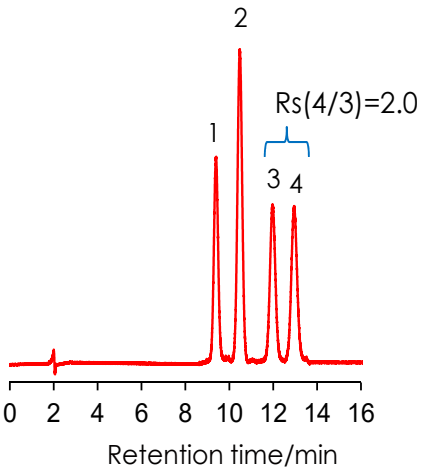
Column: SunShell C18 2.6 µm, 100 x 4.6 mm
Mobile phase:
A) Acetonitrile:water:formic acid=35:65:0.1
B) Acetonitrile:10mM phosphoric acid=35:65
C) Methanol:water:formic acid=50:50:0.1
D) Methanol:10mM phosphoric acid=50:50
Flow rate: 1.0 mL / min
Temperature: 40 °C
Detection: UV@260 nm
Sample: 1 = Myricetin, 2 = Quercetin, 3 = Apigenin, 4 = Baicalein

副腎皮質ステロイド類の分離 (1)

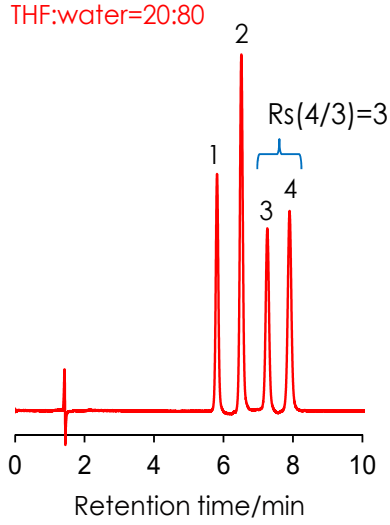
Sunniest C18 5 µm, 150 x 4.6 mm i.d.
SunShell C18 2.6 µm, 150 x 4.6 mm i.d.
SunShell C18 2.6 µm, 250 x 4.6 mm i.d.

Corticosteroids (1)

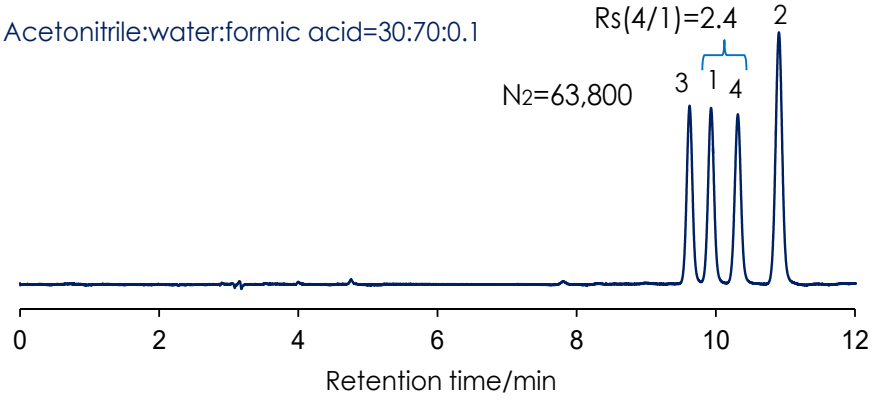
Sunniest C18 5 µm, 150 x 4.6 mm
THF:water=20:80



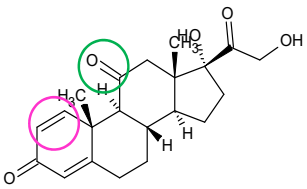
SunShell C18 2.6 µm, 150 x 4.6 mm
THF:water=20:80



SunShell C18 2.6 µm, 250 x 4.6 mm
Acetonitrile:water:formic acid=30:70:0.1

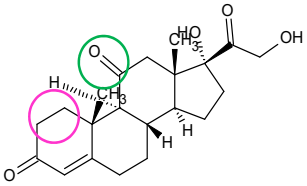


1



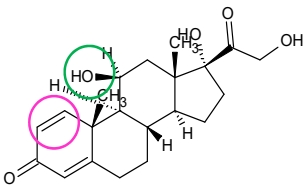
Prednisone

2



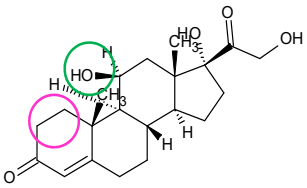
Cortisone

3



Prednisolone

4



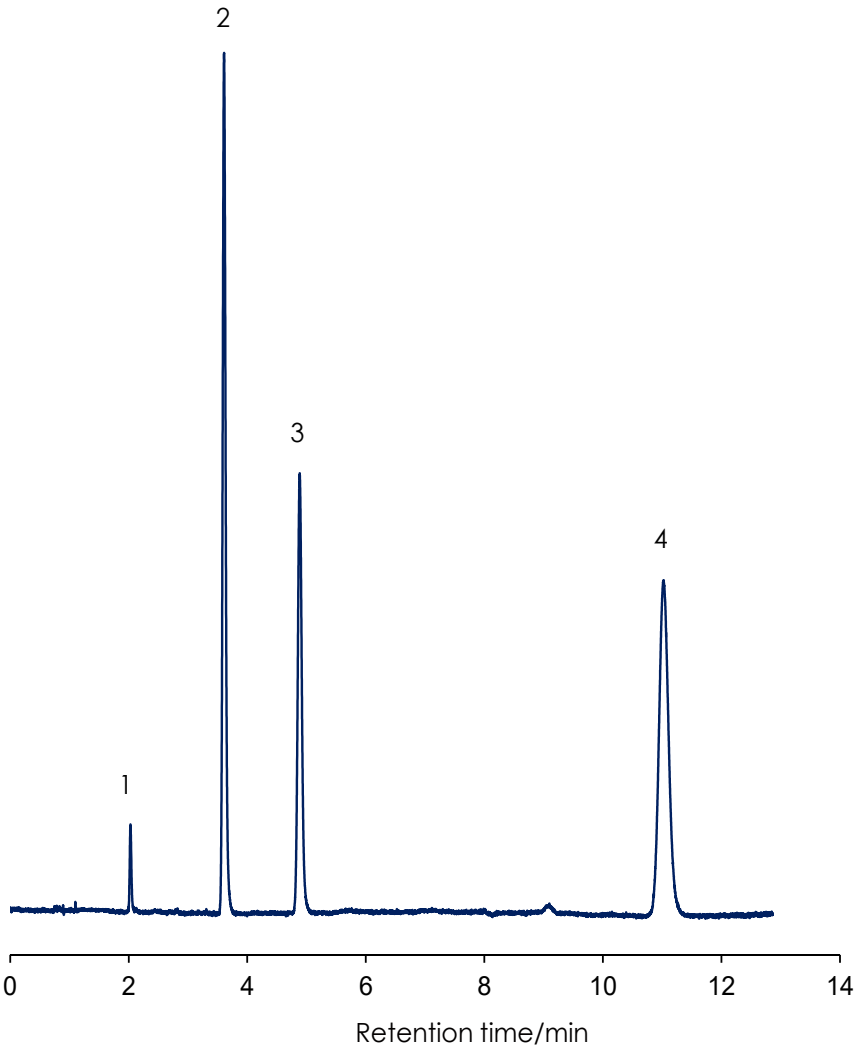
Hydrocortisone

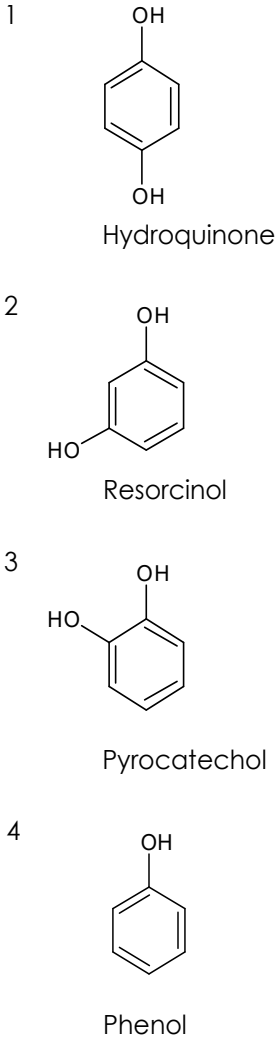
Column: Sunniest C18 5 µm, 150 x 4.6 mm
SunShell C18 2.6 µm, 150 x 4.6 mm
SunShell C18 2.6 µm, 250 x 4.6 mm
Mobile phase:
A) THF:water=20:80
B) Acetonitrile:water:formic acid=30:70:0.1
Flow rate: 1.0 mL / min for A mobile phase, 0.7 mL/min for B mobile phase
Temperature: 40 °C
Detection: UV@260 nm
Sample: 1 = Prednisone, 2 = Cortisone, 3 = Prednisolone, 4 = Hydrocortisone

レソルシノールと関連物質の分離

Resorcinol and related substances

SunShell C18 2.6 µm, 100 x 4.6 mm i.d.



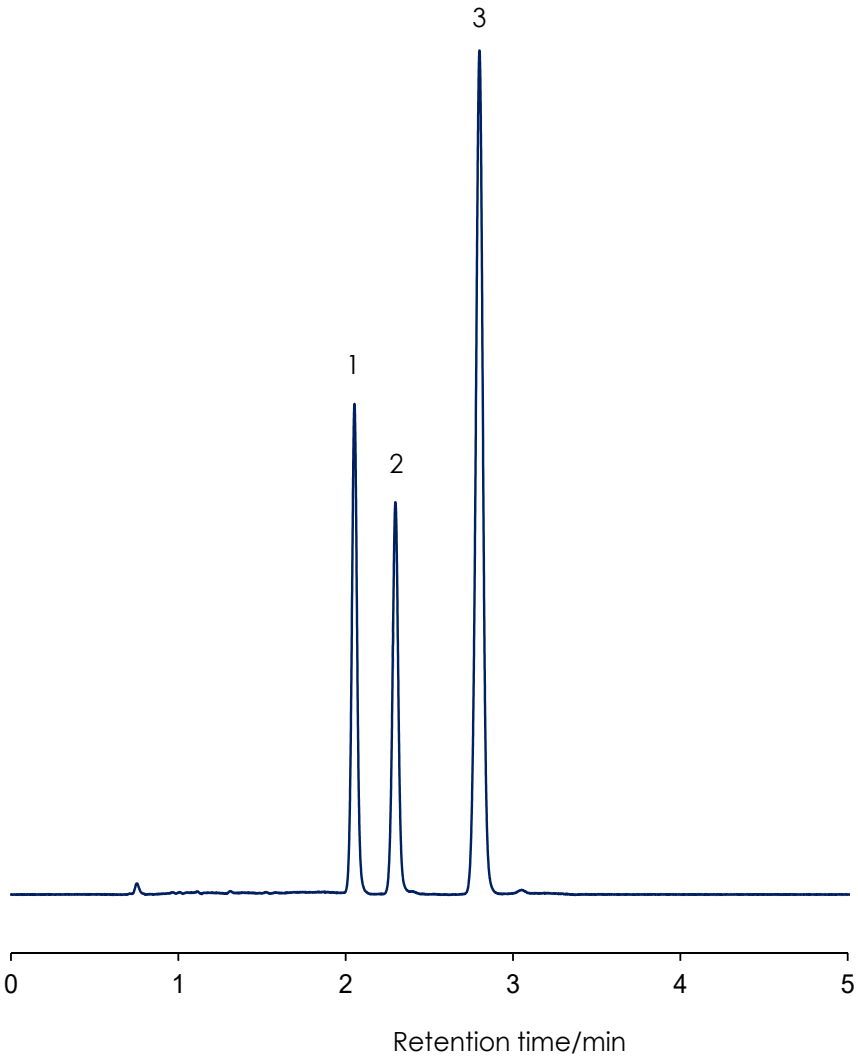


Column: SunShell C18 2.6 µm, 100 x 4.6 mm
Mobile phase: Methanol:0.1% formic acid=10:90
Flow rate: 1.0 mL / min
Temperature: 30 °C
Detection: UV@280 nm
Sample: 1 = Hydroquinone, 2 = Resorcinol, 3 = Pyrocatechol, 4 = Phenol

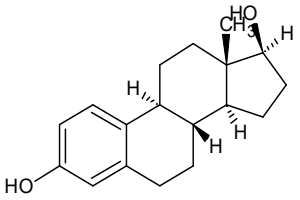
抗アンドロゲン薬と代謝物の分離 (1)

Ethynylestradiol and its metabolites (1)

SunShell C18 2.6 µm, 100 x 4.6 mm i.d.

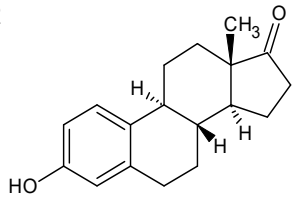


1



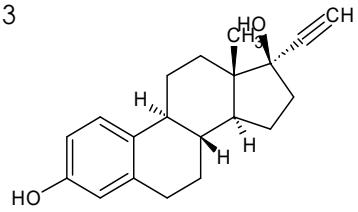
7β-Estradiol

2



Estrone

3



Ethynylestradiol

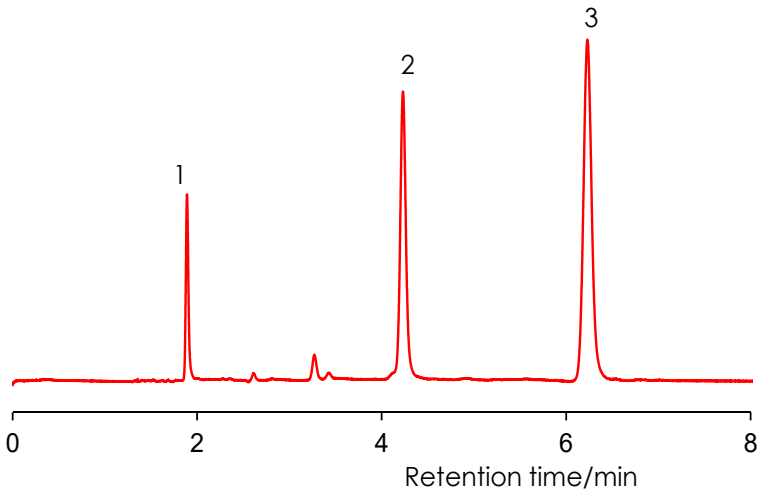
Column: SunShell C18 2.6 µm, 100 x 4.6 mm
Mobile phase: Acetonitrile:water=30:70
Flow rate: 1.0 mL / min
Temperature: 40 °C
Detection: UV@230 nm
Sample: 1 = 17β-Estradiol, 2 = Estrone, 3 = Ethynylestradiol

アントラキノン系染料の分離 (1)

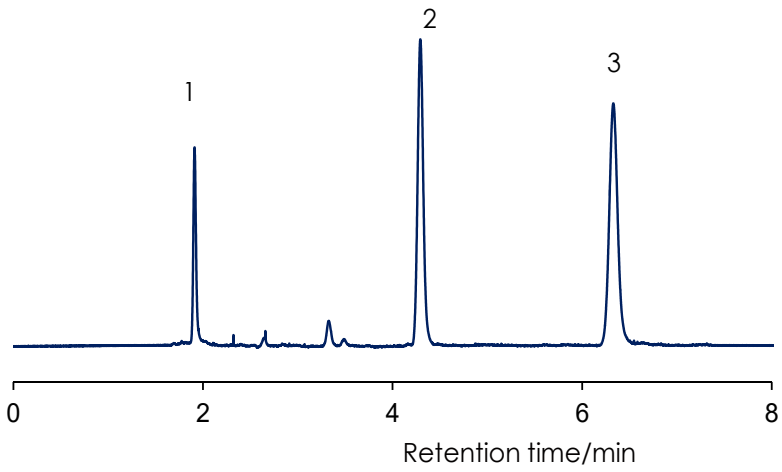
Anthraquinone dye (1)

SunShell C18 2.6 µm, 100 x 4.6 mm i.d.

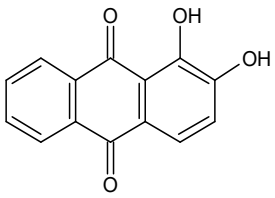
Methanol:20mM phosphate buffer pH2.5=75:25



Methanol:0.1% formic acid=75:25

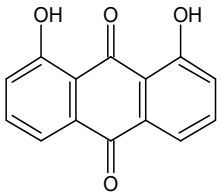


1



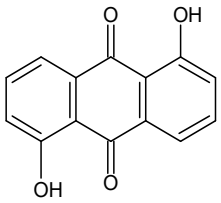
Alizalin

2



Chrysazin

3



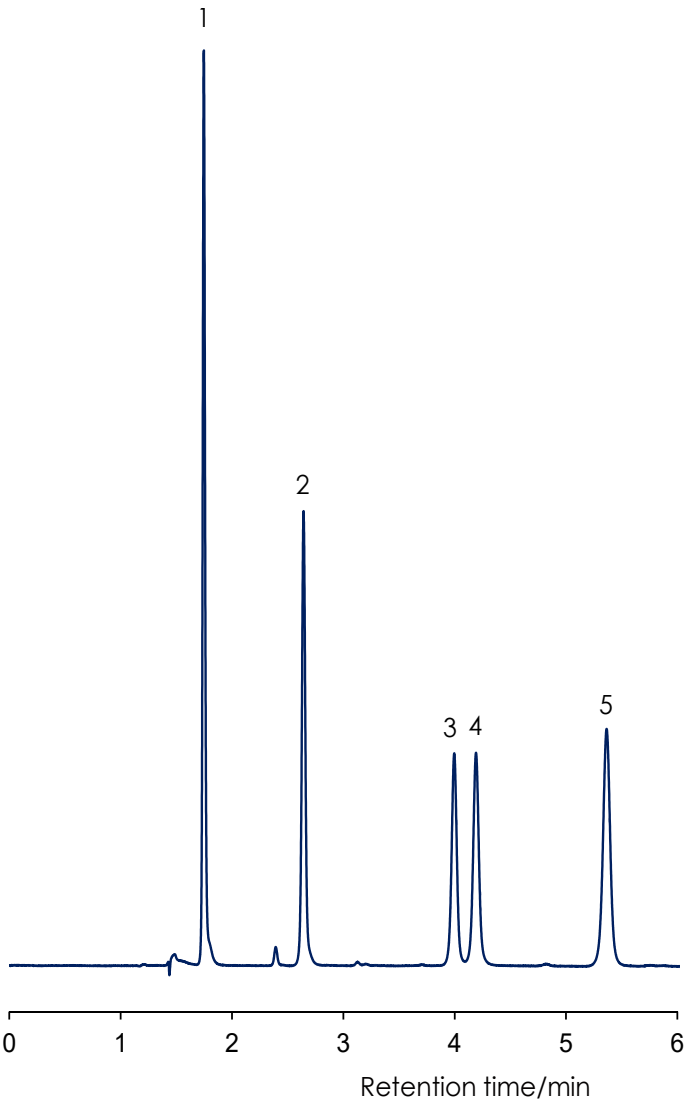
Anthrarufin

Column: SunShell C18 2.6 µm, 100 x 4.6 mm
Mobile phase:
A) Methanol:20mM phosphate buffer pH2.5=75:25
B) Methanol:0.1% formic acid=75:25
Flow rate: 1.0 mL / min
Temperature: 40 °C
Detection: UV@250 nm
Sample: 1 = Alizalin, 2 = Chrysazin, 3 = Anthrarufin

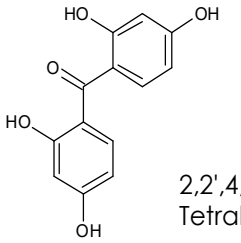
ベンゾフェノン類の分離

Benzophenones

SunShell PFP 2.6 µmµm, 150 x 4.6 mm i.d.

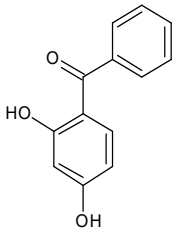


1



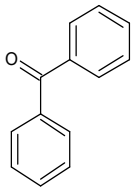
2,2',4,4'-Tetrahydroxybenzophenone

2



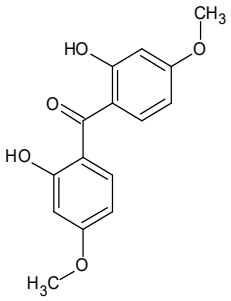
2,4-Dihydroxybenzo-phenone

3



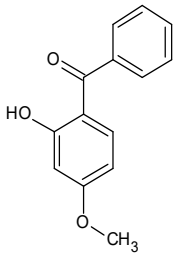
Benzophenone

4



2,2'-Dihydroxy-4,4'-dimethoxylbenzophenone

5



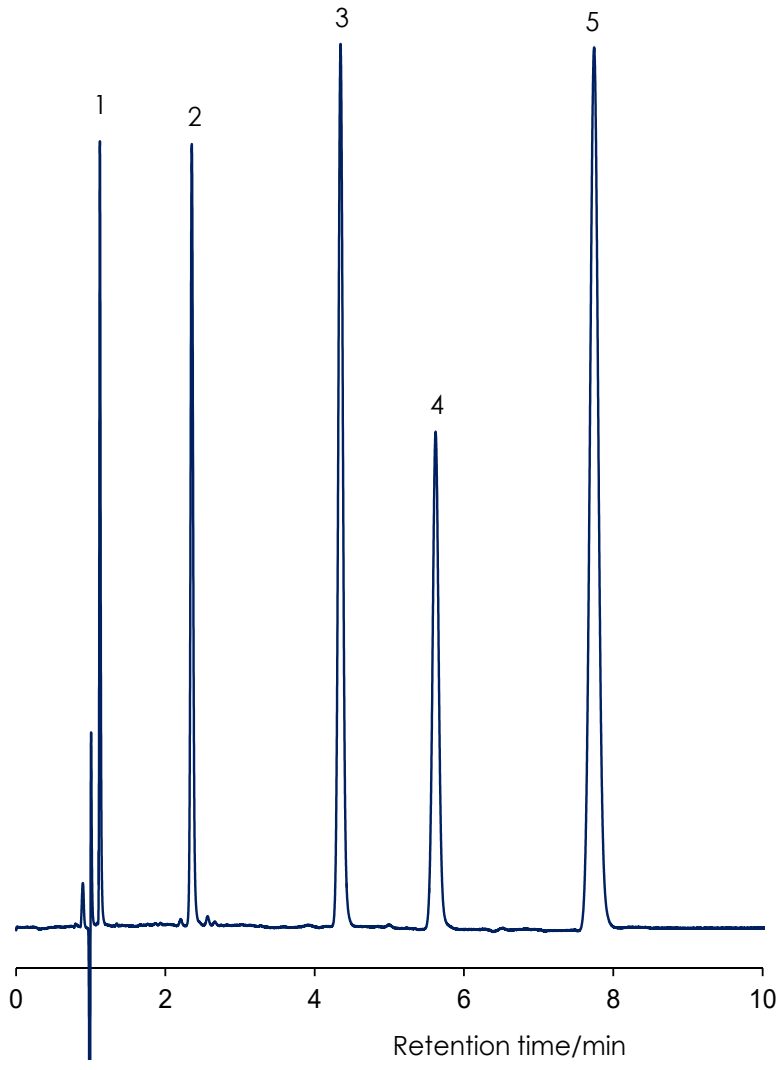
2-Hydroxy-4-methoxybenzophenone

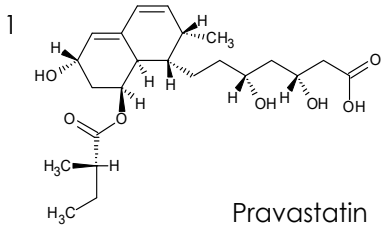
Column: SunShell PFP 2.6 µm, 150 x 4.6 mm
Mobile phase: Acetonitrile:water=50:50
Flow rate: 1.0 mL / min
Temperature: 25 °C
Detection: UV@280 nm
Sample: 1 = 2,2',4,4'-Tetrahydroxybenzophenone, 2 = 2,4-Dihydroxybenzo-phenone,
3 = Benzophenone, 4 = 2,2'-Dihydroxy-4,4'-dimethoxylbenzophenone,
5 = 2-Hydroxy-4-methoxybenzophenone.

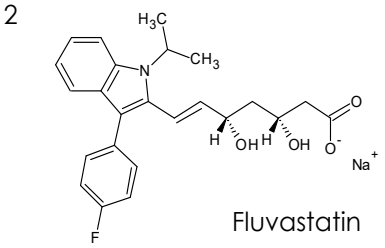
抗高脂血症剤の分離 (1)

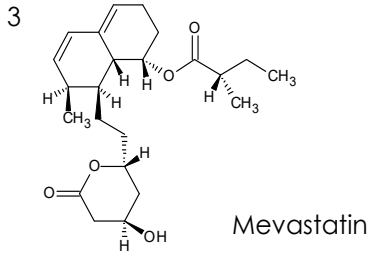
Stantins (1)

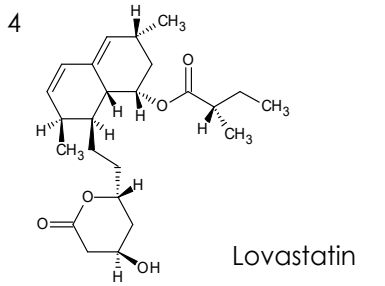
SunShell C18 2.6 µm, 100 x 4.6 mm i.d.

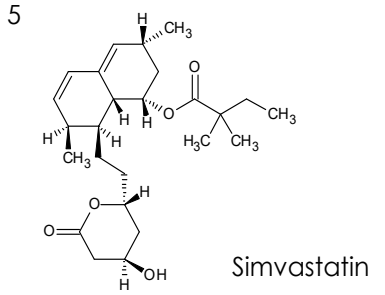










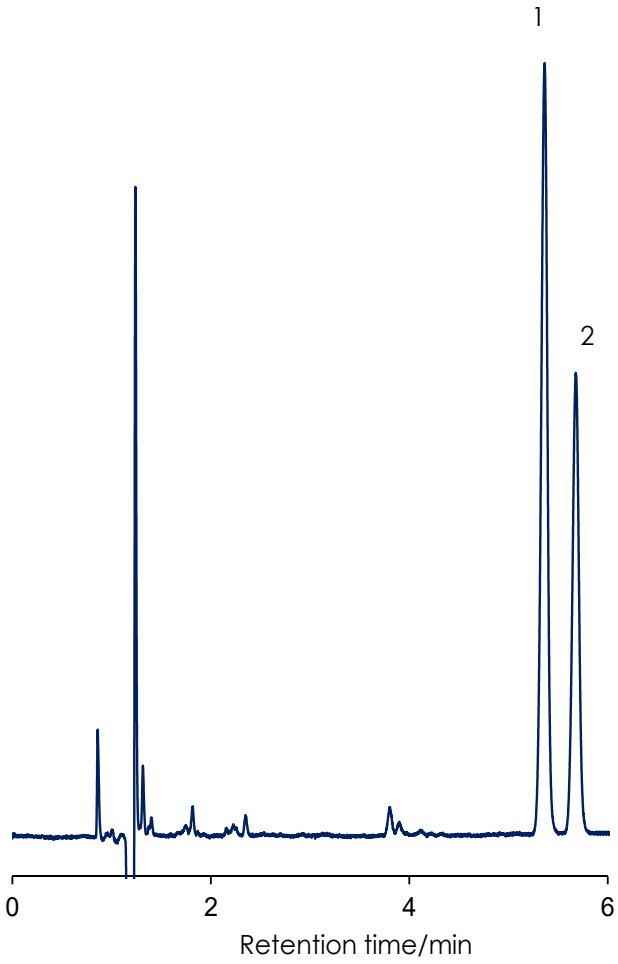


Column: SunShell C18 2.6 µm, 100 x 4.6 mm
Mobile phase: Acetonitrile:0.1% formic acid=60:40
Flow rate: 0.8 mL / min
Temperature: 40 °C
Detection: UV@240 nm
Sample: 1 = Pravastatin, 2 = Fluvastatin, 3 = Mevastatin, 4 = Lovastatin, 5 = Simvastatin.

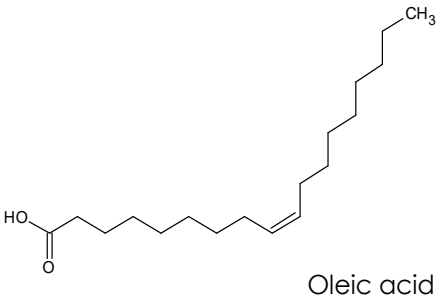
オレイン酸とエライジン酸の分離 (1)

Cis-trans isomers of 9-cotadecenoic acid (1)

SunShell C18 2.6 µm, 150 x 4.6 mm i.d.

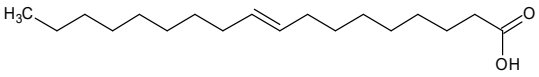


1



Oleic acid

2



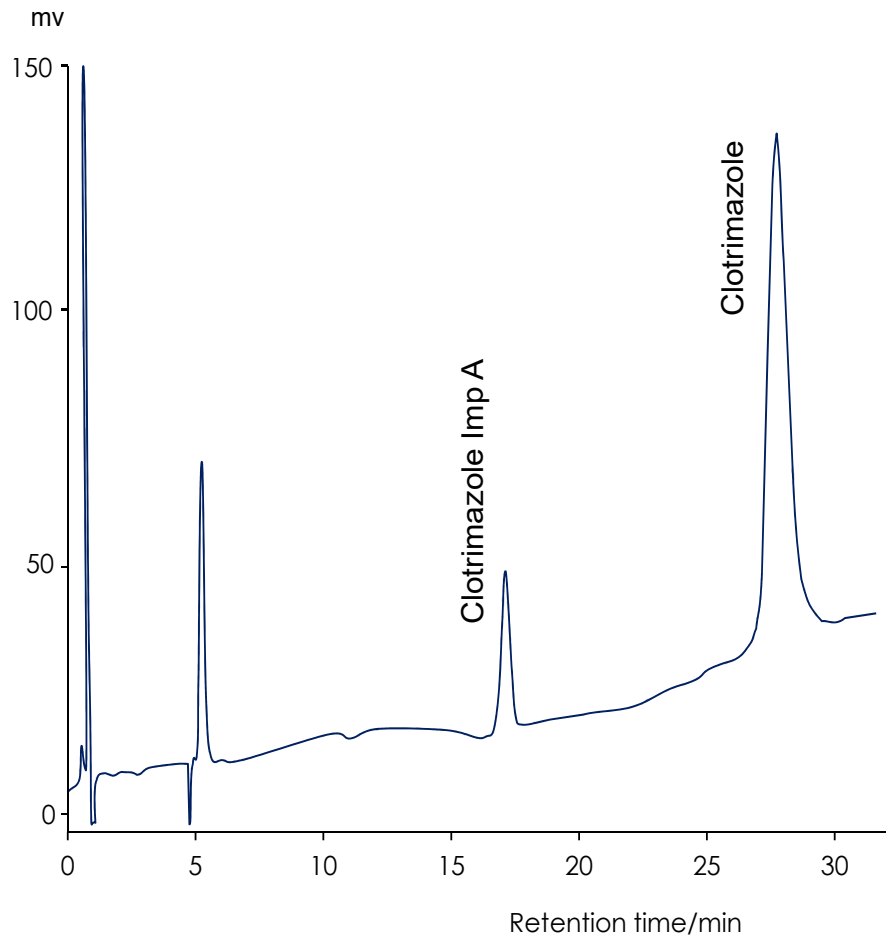
Elaidic acid

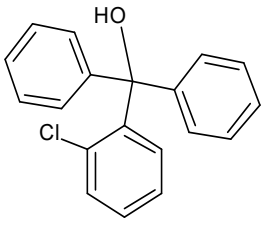
Column: SunShell C18 2.6 µm, 150 x 4.6 mm
Mobile phase: Acetonitrile:water:formic acid=90:10:0.05
Flow rate: 1.0 mL / min
Temperature: 40 °C
Detection: UV@215 nm
Sample: 1 = Oleic acid, 2 = Elaidic acid

クロトリマゾール

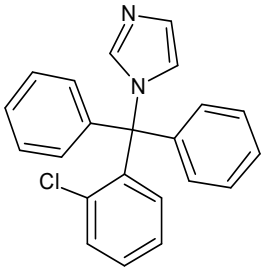
Clotrimazole

Sunrise C18-SAC 5 µm, 150 x 4.6 mm i.d.





Clotrimazole Imp A



Clotrimazole

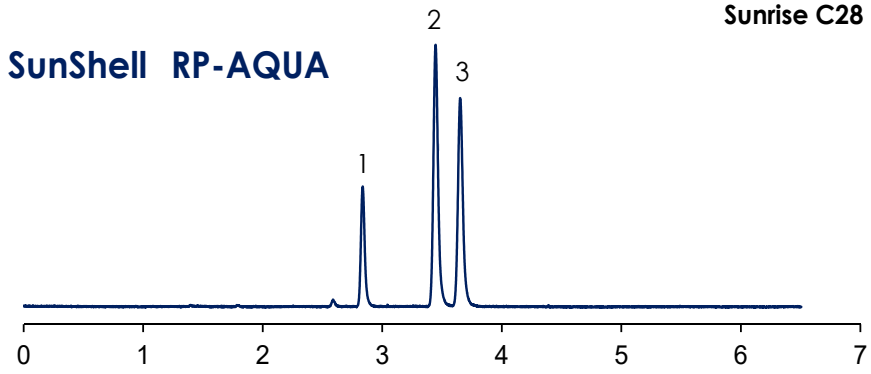
System Suitability Requirement: 1. Tailing Factor NMT 1.5
2. RSD NMT 2%

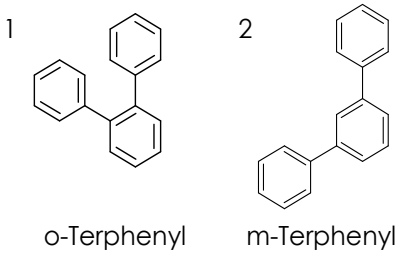
Column: Sunrise C18-SAC 5µm, 150 x 4.6 mm
Mobile phase : Acetonitrile and *Buffer (1:1)*
Buffer: 0.3 g/L of anhydrous monobasic sodium phosphate and 0.35 g/L of anhydrous dibasic sodium phosphate in water. The resulting solution has a pH of 6.i–7.0.
Flow rate : 2.0. mL/min
Detection : UV@ 206 nm
Column Temperature : Ambient
Injection Volume : 8 µL

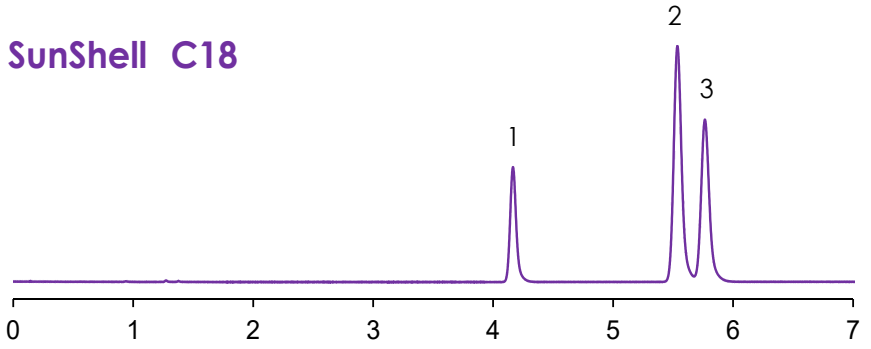
オルト，メタ，パラ - ターフェニルの分離

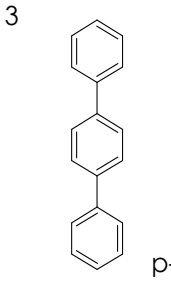
o, p, m-Terphenyl

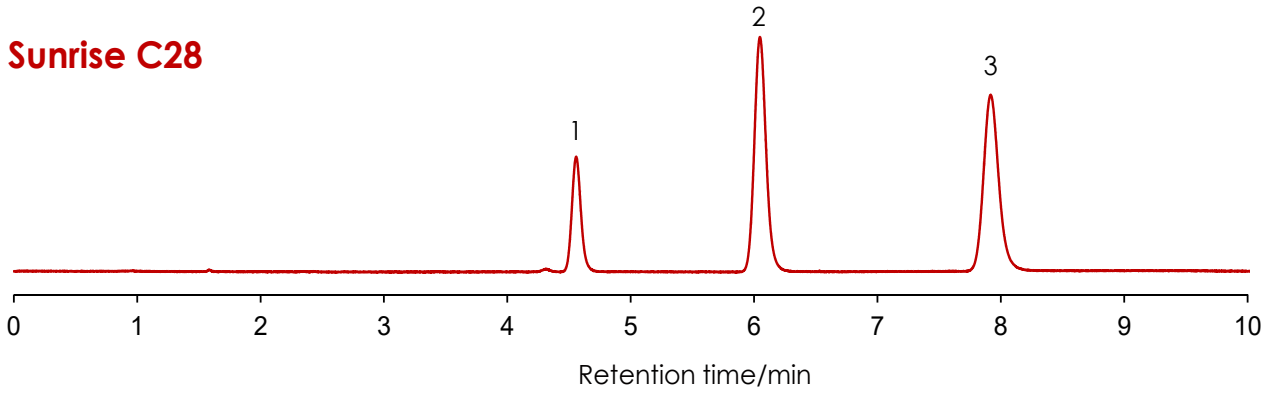
SunShell RP-AQUA 2.6 µm, 150 x 4.6 mm i.d.
SunShell C18 2.6 µm, 150 x 4.6 mm i.d.
Sunrise C28 3 µm, 150 x 4.6 mm i.d.











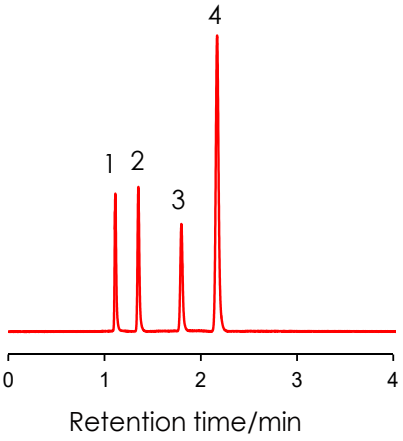
Column: SunShell RP-AQUA 2.6 µm, 150 x 4.6 mm
SunShell C18 2.6 µm, 150 x 4.6 mm
Sunrise C28 3 µm, 150 x 4.6 mm
Mobile phase: Methanol/water=90:10
Flow rate: 1.0 mL / min
Temperature: 25 °C
Detection: UV@250 nm
Sample: 1 = 0-Terphenyl, 2 = m-Terphenyl, 3 = p- Terphenyl

内分泌攪乱物質の分離 (1)

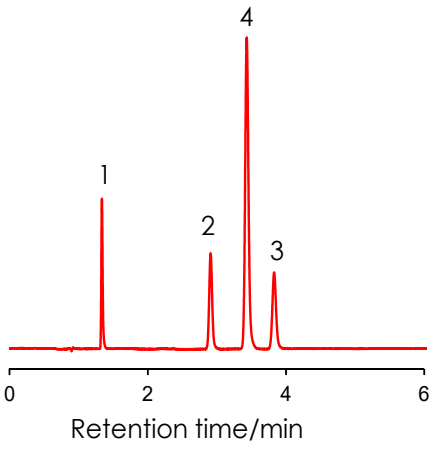
Endocrine disruptors (1)

SunShell C18 2.6 µm, 100 x 4.6 mm i.d.

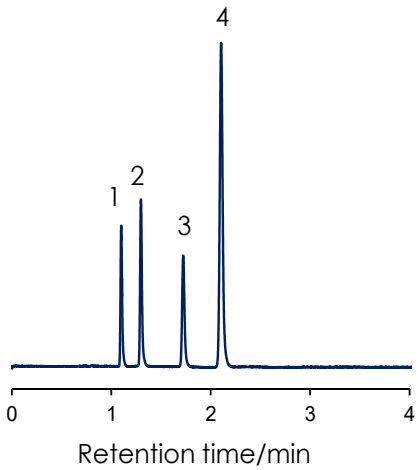
Acetonitrile:water:formic acid=60:40:0.04



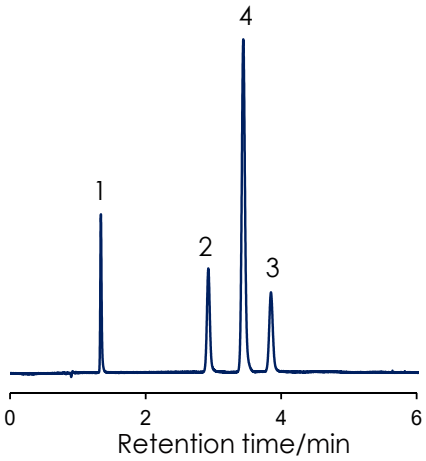
Methanol:water:formic acid=60:40:0.04

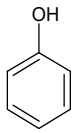


Acetonitrile:20mM Potassium phosphate buffer (pH3.0)=60:40

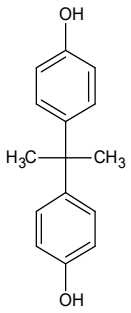


Methanol:20mM Potassium phosphate buffer (pH3.0)=60:40

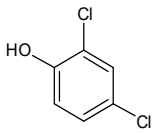


1 

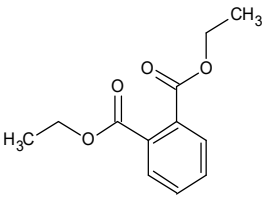
Phenol

2 

Bisphenol-A

3 

2,4-Dichlorophenol

4 

Diethylphthalate

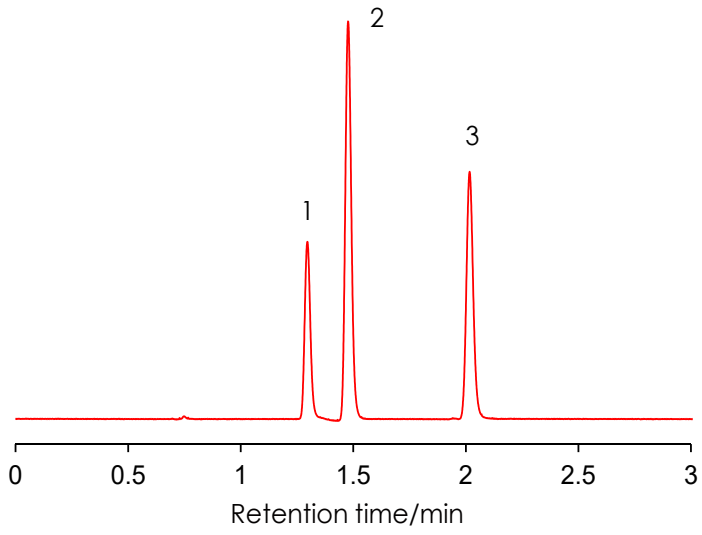
Column: SunShell C18 2.6 µm, 100 x 4.6 mm
Mobile phase:
A) Acetonitrile:water:formic acid=60:40:0.04
B) Acetonitrile:20mM Potassium phosphate buffer (pH3.0)=60:40
C) Methanol:water:formic acid=60:40:0.04
D) Methanol:20mM Potassium phosphate buffer (pH3.0)=60:40
Flow rate: 1.0 mL/min
Temperature: 40 °C
Detection: UV@280 nm
Sample: 1 = Phenol, 2 = Bisphenol-A, 3 = 2,4-Dichlorophenol, 4 = Diethylphthalate

降圧利尿剤の分離 (1)

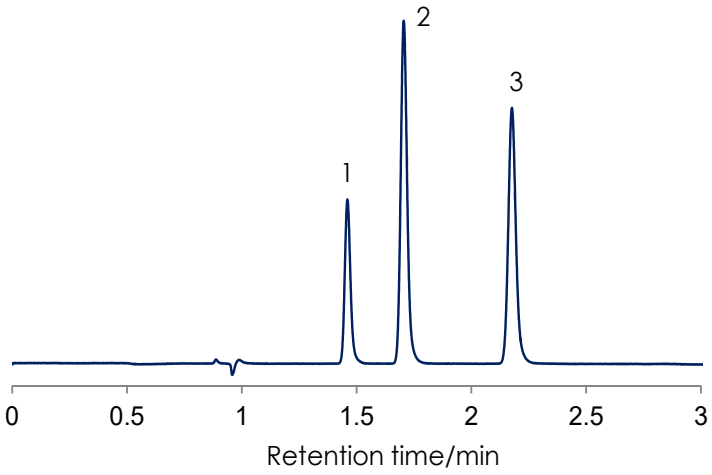
Hypotensive diuretic (1)

SunShell C18 2.6 µm, 100 x 4.6 mm i.d.

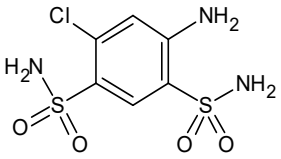
Acetonitrile:100mM phosphate buffer pH3.0=20:80



Acetonitrile:0.1% formic acid=20:80

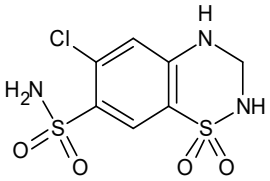


1



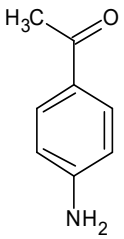
4-Amino-6-chloro-1,3-benzenedisulfonamide

2



Hydrochlorothiazide

3



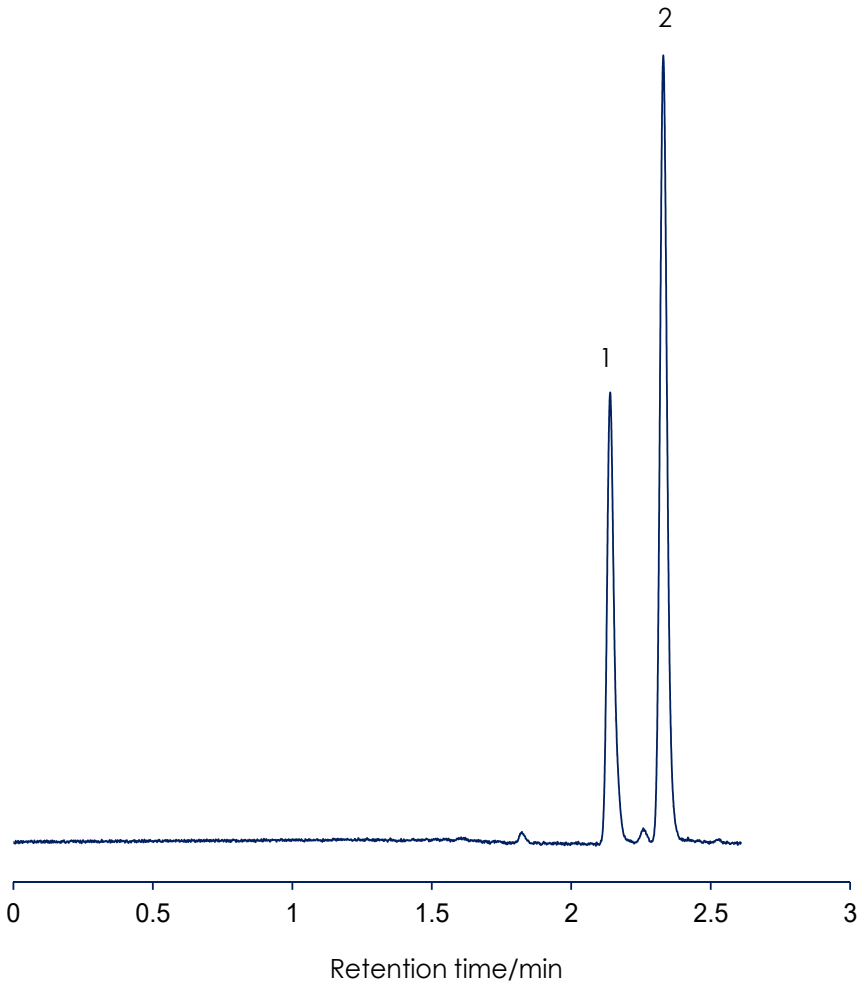
p-Aminoacetophenone

Column: SunShell C18 2.6 µm, 100 x 4.6 mm
Mobile phase:
A) Acetonitrile:100mM phosphate buffer (NaH2PO4) pH3.0=20:80
B) Acetonitrile:0.1% formic acid=20:80
Flow rate: 1.0 mL / min
Temperature: 40 °C
Detection: UV@250 nm
Sample: 1 = 4-Amino-6-chloro-1,3-benzenedisulfonamide, 2 = Hydrochlorothiazide, 3 = p-Aminoacetophenone

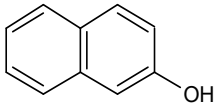
ナフトール類の分離

Naphthols

SunShell C18 2.6 μm, 150 x 4.6 mm i.d.

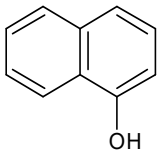


1



2-Naphthol

2



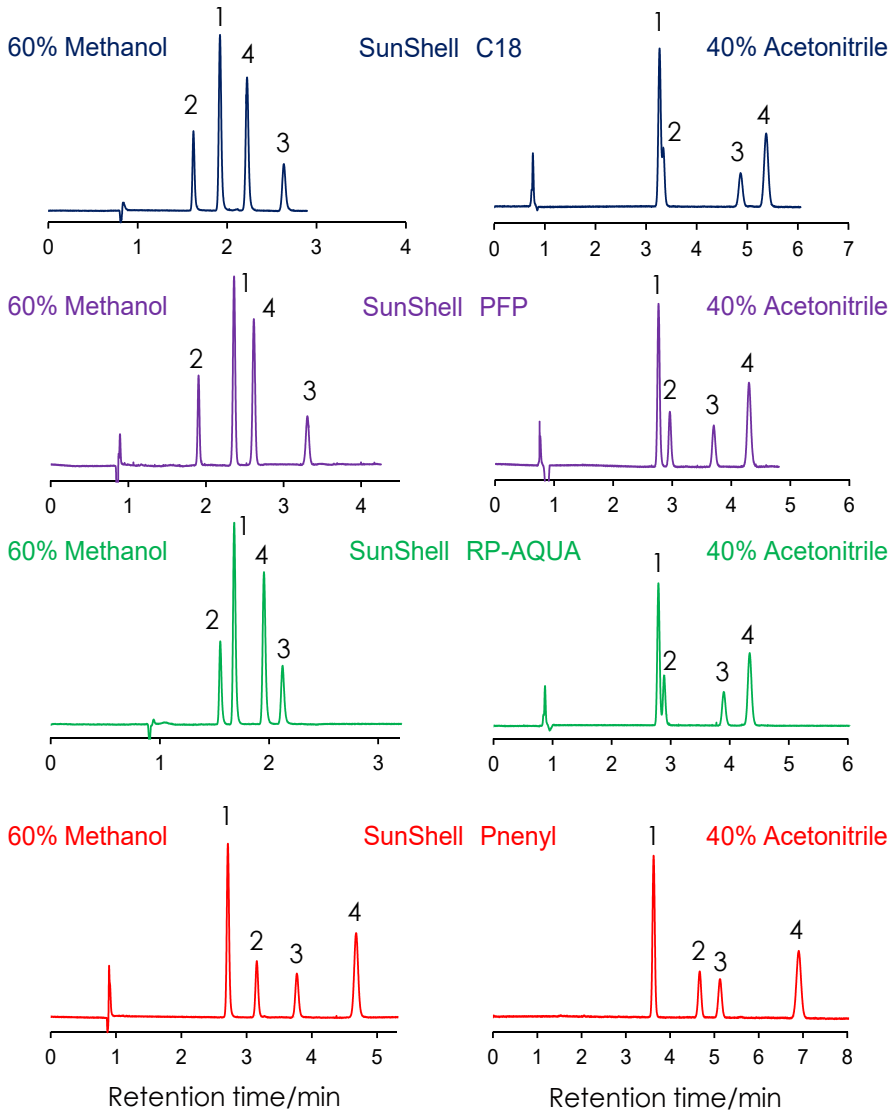
1－Naphthol

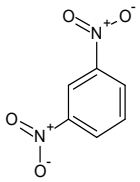
Column: SunShell C18 2.6 μm, 150 x 4.6 mm
Mobile phase: Acetonitrile:water:formic acid=60:40:0.04
Flow rate: 1.0 mL / min
Temperature: 40 °C
Detection: UV@250 nm
Sample: 1 = 2-Naphthol, 2 = 1-Naphthol

爆薬成分の分離

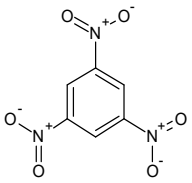
Components of explosive

SunShell C18 2.6 µm, 100 x 4.6 mm i.d.
SunShell PFP 2.6 µm, 100 x 4.6 mm i.d.
SunShell RP-AQUA 2.6 µm, 100 x 4.6 mm i.d.
SunShell Phenyl 2.6 µm, 100 x 4.6 mm i.d.

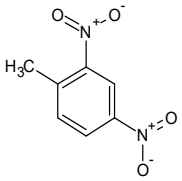


1 

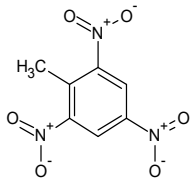
1,3-Dinitrobenzene

2 

1,3,5-Trinitrobenzene

3 

2,4-Dinitrotoluene

4 

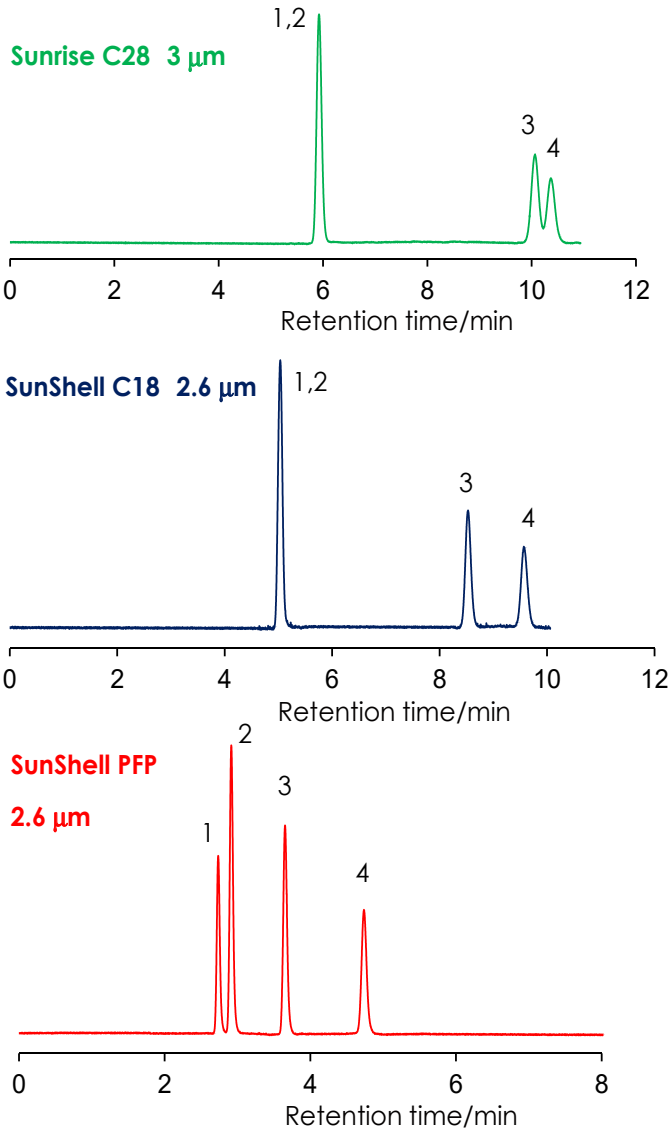
2,4,6-Trinitrotoluene

Column: SunShell C18 2.6 µm, 100 x 4.6 mm
SunShell PFP 2.6 µm, 100 x 4.6 mm
SunShell RP-AQUA 2.6 µm, 100 x 4.6 mm
SunShell Phenyl 2.6 µm, 100 x 4.6 mm
Mobile phase: Methanol:water=60:40
Acetonitrile:water=40:60
Flow rate: 1.0 mL / min
Temperature: 40 °C
Detection: UV@250 nm
Sample: 1 = 1,3-Dinitrobenzene, 2 = 1,3,5-Trinitrobenzene, 3 = 2,4-Dinitrotoluene, 4 = 2,4,6-Trinitrotoluene

フルオロベンゼンとベンゼンの分離

Fluorobenzene and benzene

Sunrise C28 3 µm, 150 x 4.6 mm i.d.
SunShell C18 2.6 µm, 150 x 4.6 mm i.d.
SunShell PFP 2.6 µm, 150 x 4.6 mm i.d.



1 Benzene

2 Fluorobenzene

3 Toluene

4 a,a,a-Trifluorotoluene

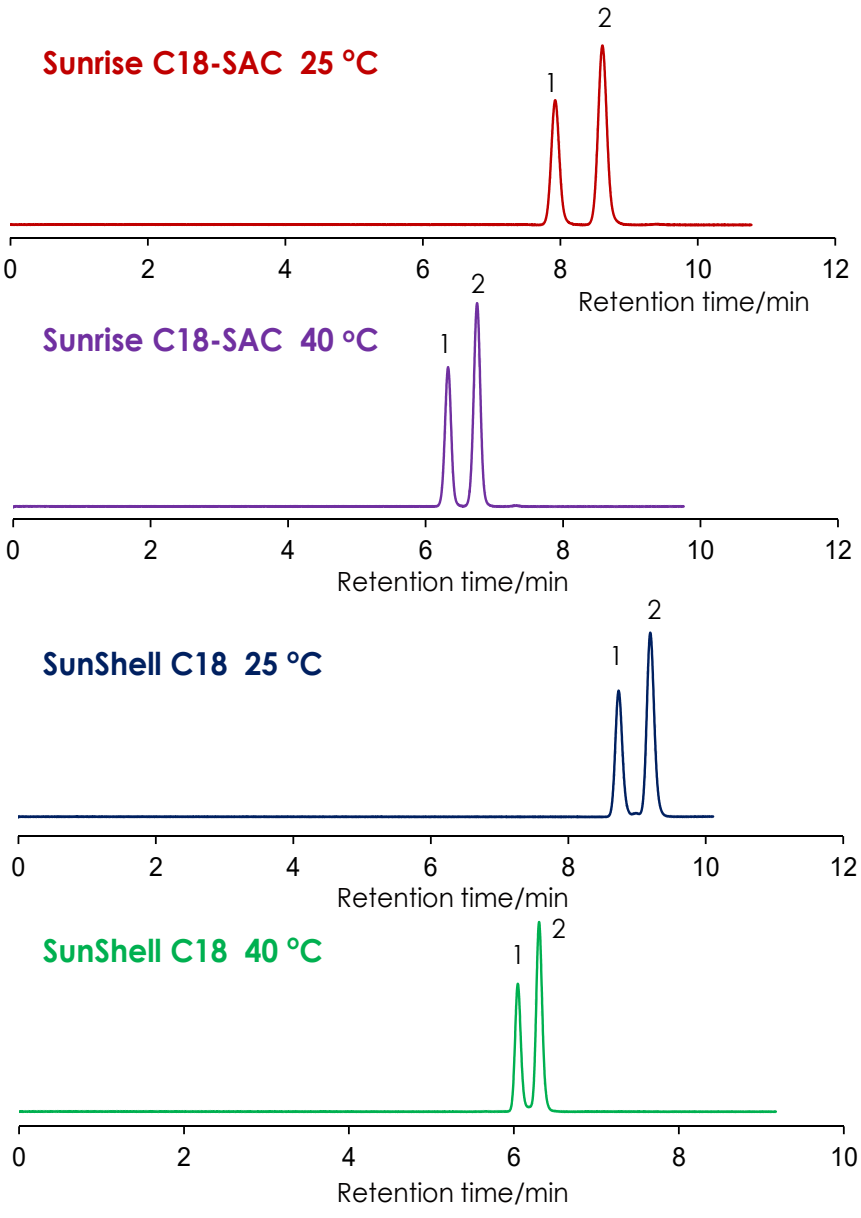
Column: Sunrise C28 3 µm, 150 x 4.6 mm
SunShell C18 2.6 µm, 150 x 4.6 mm
SunShell PFP 2.6 µm, 150 x 4.6 mm
Mobile phase: Methanol:water=60:40
Flow rate: 1.0 mL / min
Temperature: 40 °C
Detection: UV@250 nm
Sample: 1 = Benzene, 2 = Fluorobenzene, 3 = Toluene, 4 = a,a,a-Trifluorotoluene

ビタミンD_2とD_3の分離

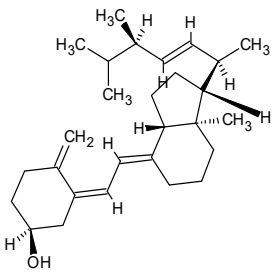
Vitamin D_2 and D_3

Sunrise C18-SAC 3 µm, 150 x 4.6 mm i.d.

SunShell C18 2.6 µm, 150 x 4.6 mm i.d.

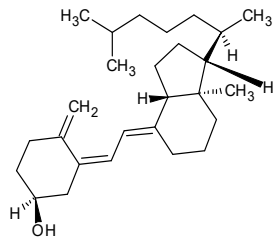


1



Vitamin D_2

2



Vitamin D_3

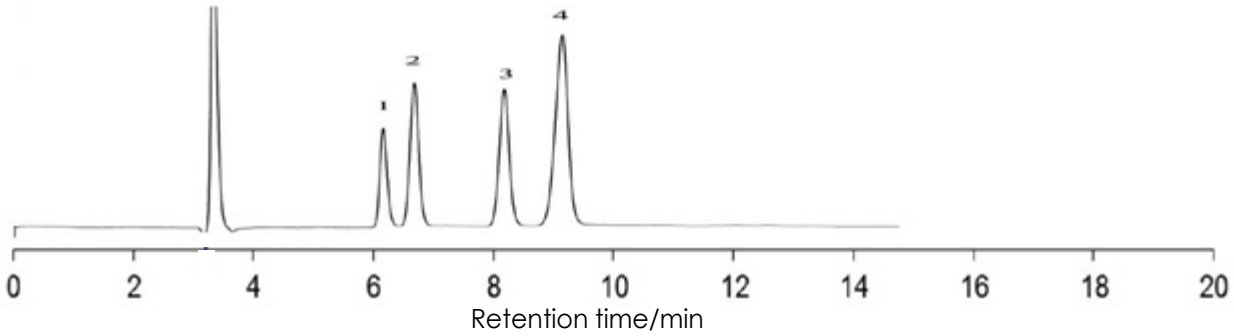
Column: Sunrise C18-SAC 3 µm, 150 x 4.6 mm
SunShell C18 2.6 µm, 150 x 4.6 mm
Mobile phase: Methanol:water=97:3
Flow rate: 1.0 mL / min
Temperature: 25 and 40 °C
Detection: UV@250 nm
Sample: 1 = Vitamin D_2, 2 = Vitamin D_3

糖の分離

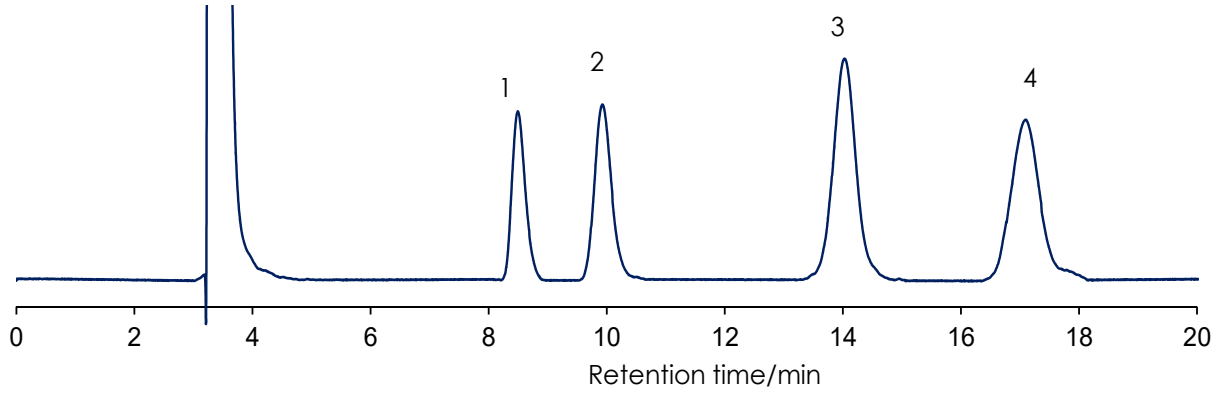
Sugar

Sunniest NH2 5 µm, 250 x 4.6 mm i.d.

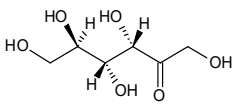
Company A NH2



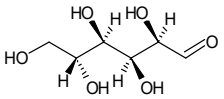
Sunniest NH2



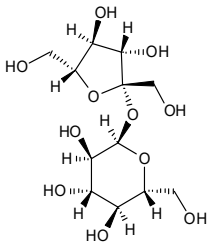
1 Fructose



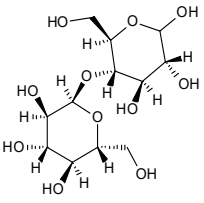
2 Glucose



3 Sucrose



4 Maltose



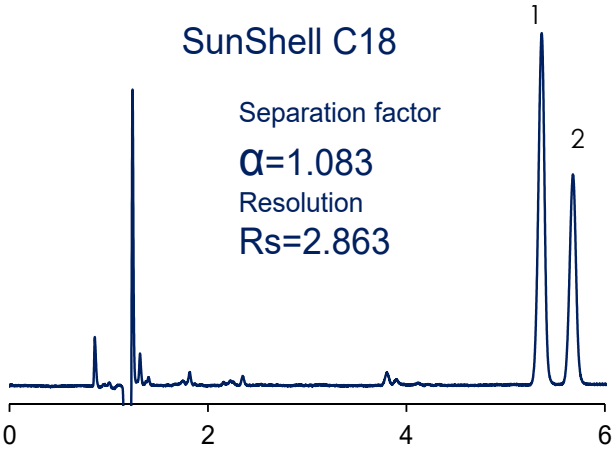
Column: Company A NH2 5 µm, 250 x 4.6 mm
Sunniest NH2 5 µm, 250 x 4.6 mm
Mobile phase: Acetonitrile:water=75:25
Flow rate: 1.0 mL / min
Temperature: 40 °C
Detection: RI
Sample: 1 = Fructose, 2 = Glucose, 3 = Sucrose, 4 = Maltose

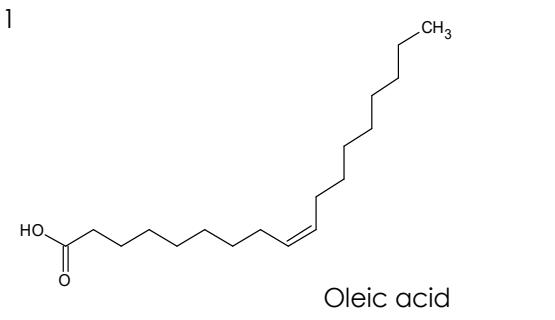
オレイン酸とエライジン酸の分離 (2)

Cis-trans isomers of 9-cotadecenoic acid (2)

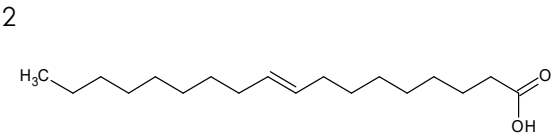
SunShell C18 2.6 µm, 150 x 4.6 mm i.d.

SunShell C30 2.6 µm, 150 x 4.6 mm i.d.

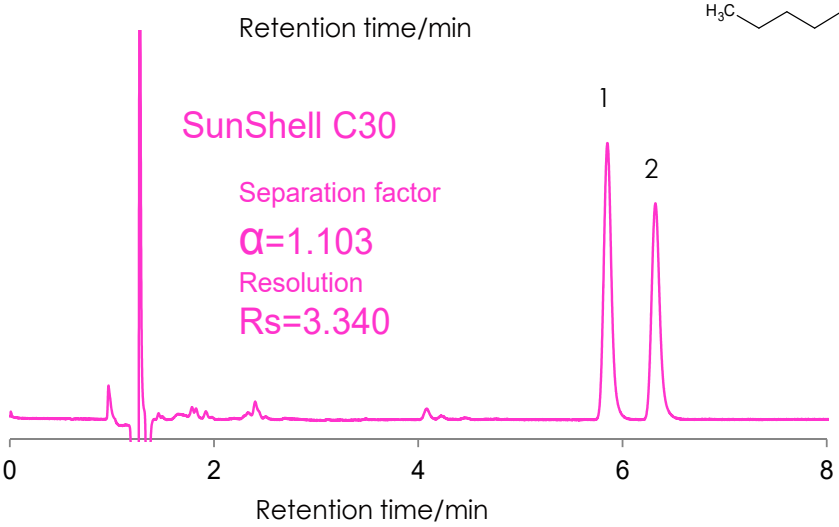




Oleic acid



Elaidic acid

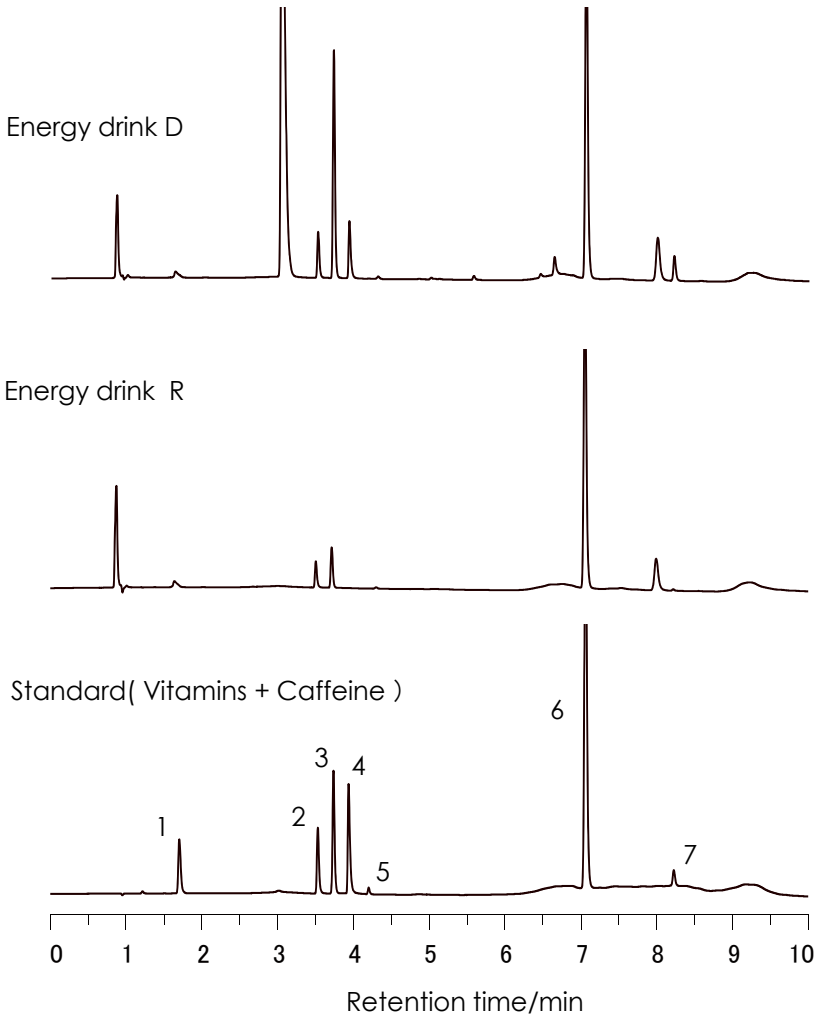


Column: SunShell C18 2.6 µm, 150 x 4.6 mm
SunShell C30 2.6 µm, 150 x 4.6 mm
Mobile phase: Acetonitrile:water:formic acid=90:10:0.05
Flow rate: 1.0 mL / min
Temperature: 40 °C
Detection: UV@215 nm
Sample: 1 = Oleic acid, 2 = Elaidic acid

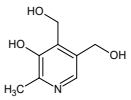
ドリンク剤中の水溶性ビタミン類の分離

Water-soluble vitamins in the drinks

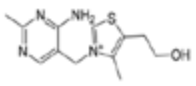
SunShell RP-AQUA 2.6 µm, 100 x 4.6 mm i.d.

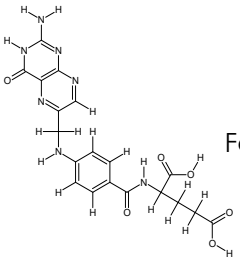


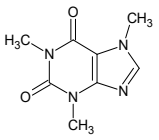
1  Nicotinic acid

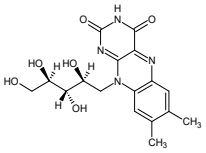
2  Pyridoxine HCl
Vitamin B_6

3  Nicotinamide

4  Thiamine HCl
Vitamin B_1

5  Folic acid

6  Caffeine

7  Riboflavin
Vitamin B_2

Column: SunShell RP-AQUA 2.6 µm, 100 x 4.6 mm
Mobile phase: A) 20mM Ammonium acetate
B) Acetonitrile

Time (min)	0	8	10
%B	0	20	20

Flow rate: 1.0 mL/min
Temperature: 40 °C
Detection: UV@230 nm
Injection volume: 1 µL

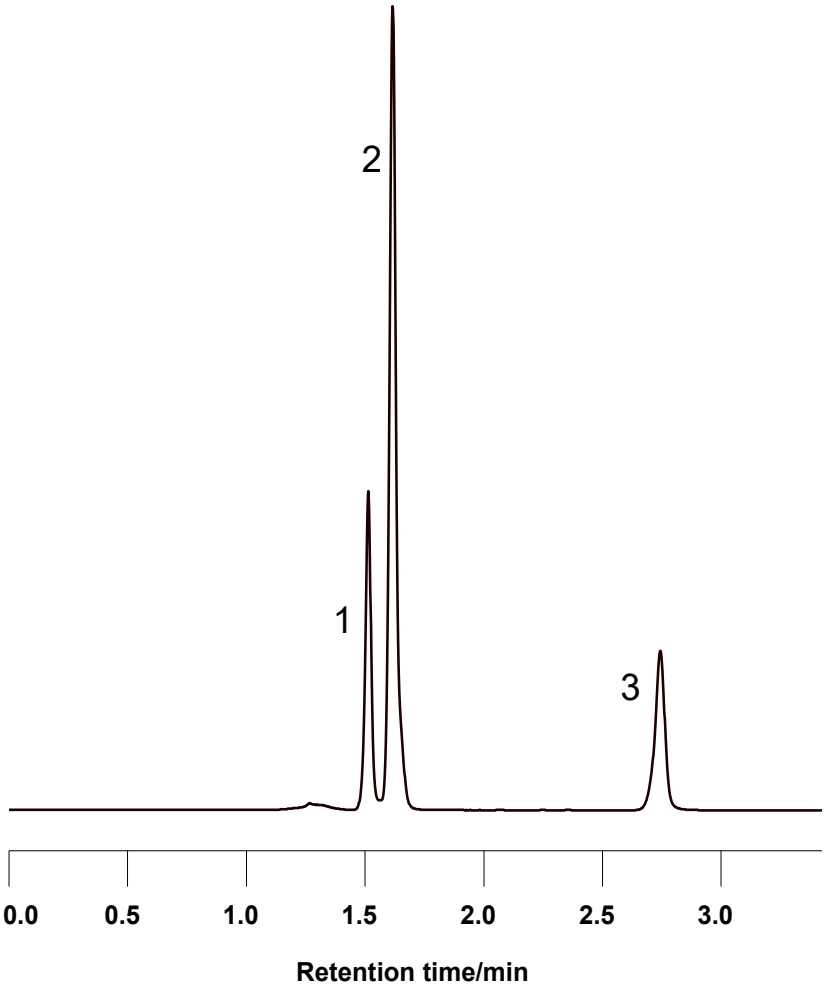
Instrulment
Hitachi Chromaster®
Detector: 5410
Oven: 5310
AutoSampler: 5260
Pump: 5160

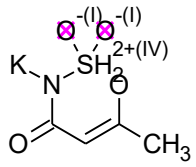
ChromaNik Technologies Inc.

合成甘味料の分離

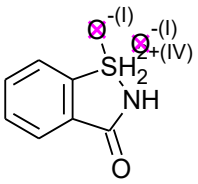
Artificial sweeteners

SunShell HILIC-Amide 2.6 μm, 150 x 4.6 mm i.d.

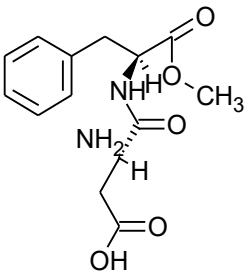




1. Acesulfame K



2. Saccharin



3. Aspartame

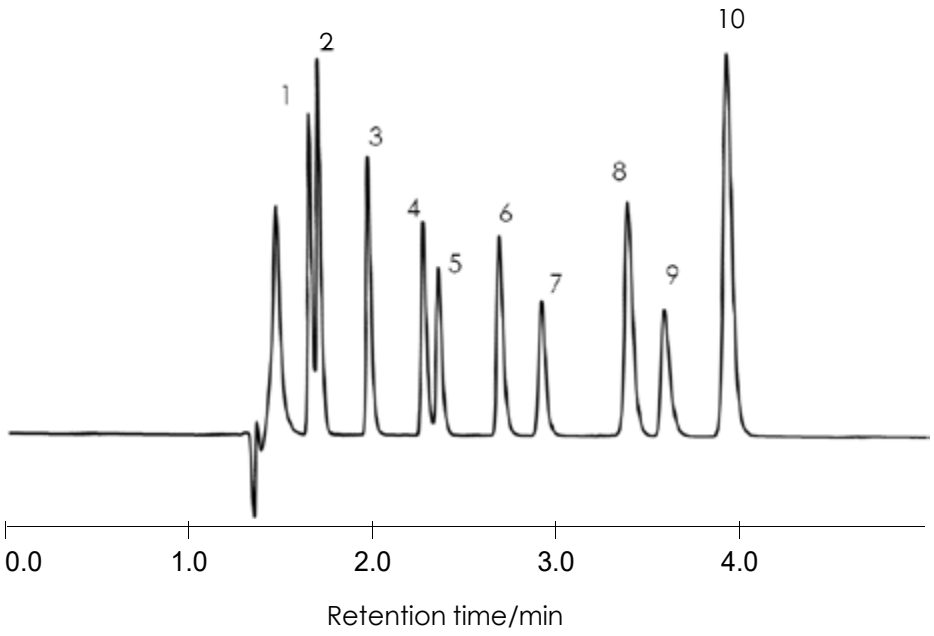
Column:
SunShell HILIC-Amide 2.6 μm, 150 x 4.6 mm i.d.
Mobile phase: acetonitrile:
25 mM phosphate buffer (pH2.5) =8:2
Flow rate: 1.0 mL/min ,
Pressure : 14.6MPa
Temperature: Ambient
Detection: UV@215 nm
Injection volume: 2 μL
Sample: 1 = Acesulfame K,
2 = Saccharin,
3 = Aspartame

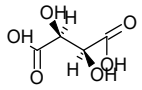
Instrulment	
Hitachi Chromaster®	
Detector:	5410
Oven:	5310
AutoSampler:	5260
Pump:	5160

有機酸の分離 (4)

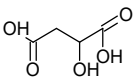
Organic acids (4)

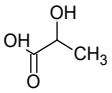
SunShell RP-AQUA 2.6 µm, 150 x 4.6 mm i.d.

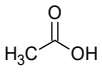


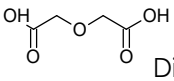
1  Tartaric acid

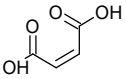
2  Formic acid

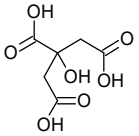
3  Malic acid

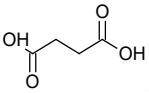
4  Lactic acid

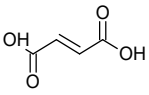
5  Acetic acid

6  Diglycolic acid

7  Maleic acid

8  Citric acid

9  Succinic acid

10  Fumaric acid

Column: SunShell RP-AQUA 2.6 µm, 150 x 4.6 mm
Mobile phase: 0.1% H_3PO_4
Flow rate: 1.0 mL/min
Pressure : 23.2 MPa
Temperature: 40 °C
Detection: UV@210nm
Injection volume: 1 µL
Sample:
1 = Tartaric acid (500 ppm)
2 = Formic acid (1000 ppm)
3 = Malic acid (1000 ppm)
4 = Lactic acid (1000 ppm)
5 = Acetic acid (1000 ppm)
6 = Diglycolic acid (1000 ppm)
7 = Maleic acid (30 ppm)
8 = Citric acid (1000 ppm)
9 = Succinic acid (1000 ppm)
10 = Fumaric acid (10 ppm)

Instrulment	
Hitachi	Chromaster®
Detector:	5410
Oven:	5310
AutoSampler:	5260
Pump:	5160

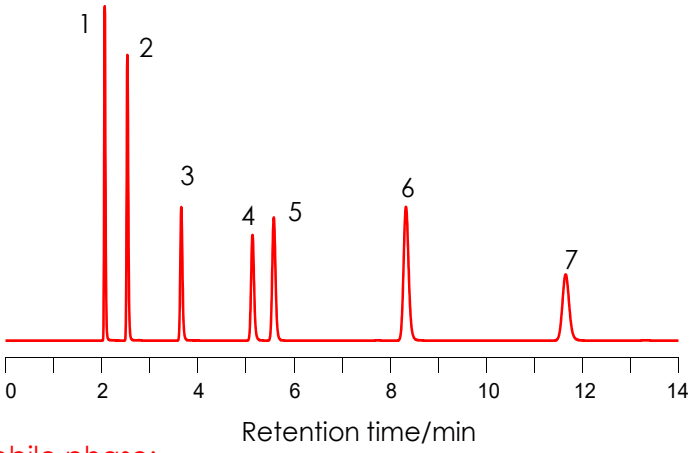
核酸の分離

Nucleic acid

SunShell RP-AQUA 2.6 µm, 150 x 4.6 mm i.d.

SunShell HILIC-Amide 2.6 µm, 150 x 4.6 mm i.d.

Column: SunShell RP-AQUA, 2.6 µm 150 x 4.6 mm



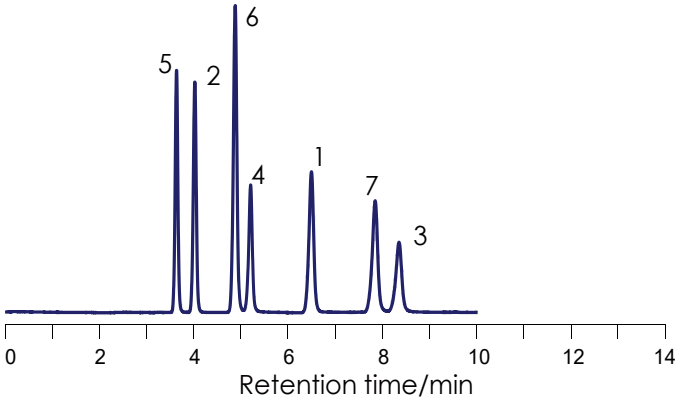
Mobile phase:

20 mM ammonium acetate pH6.8

Flow rate: 1.0 mL / min Temperature: 40 ℃

Pressure: 23.8 MPa Detection: UV@250 nm

Column: SunShell HILIC-Amide, 2.6 µm, 150 x 4.6 mm

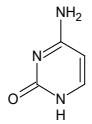


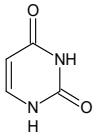
Mobile phase:

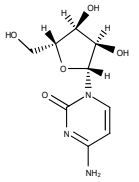
Acetonitrile:20 mM ammonium acetate pH6.8 = 80:20

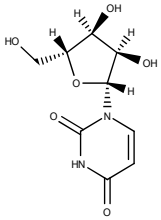
Flow rate: 0.5mL / min Temperature: 40 ℃

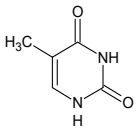
Pressure: 6.1 MPa Detection: UV@250 nm

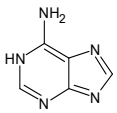
1  Cytosine

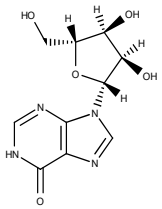
2  Uracil

3  Cytidine

4  Uridine

5  Thymine

6  Adenine

7  Inosine

Instrument	
Hitachi	Chromaster®
Detector:	5410
Oven:	5310
AutoSampler:	5260
Pump:	5160

核酸塩基は親水性の高い物質ですが、SunShell RP-AQUAであれば水100%の移動相でも使用でき、良好な分離を示します。

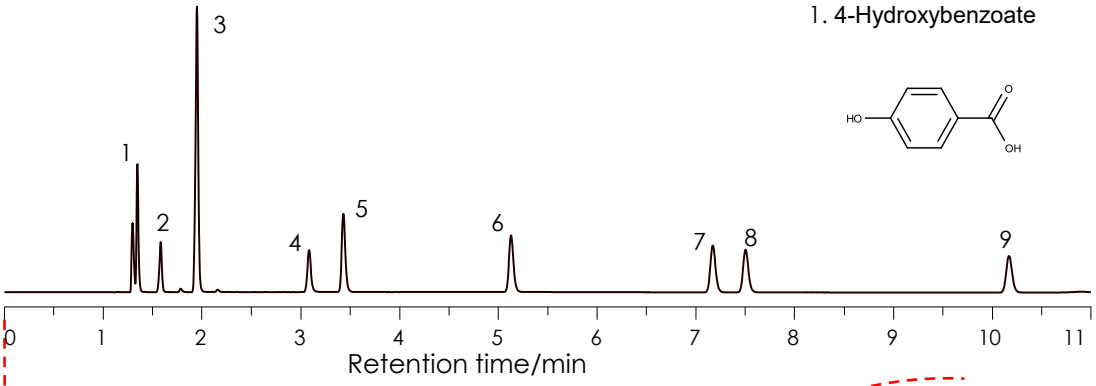
また、SunShell HILIC－Amideを使用すれば有機溶媒濃度を高くする事ができ、LC/MSでも使用可能となります。

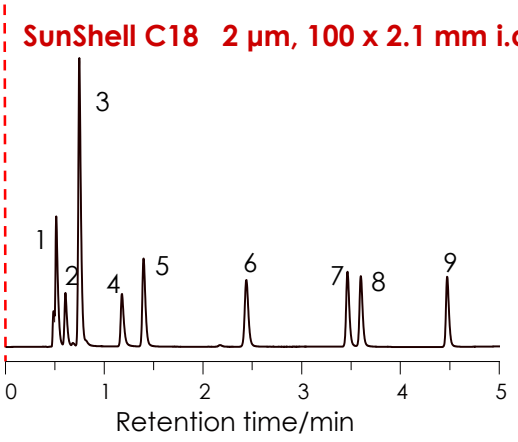
食品添加物の分離

Food additives

SunShell C18 2.6 µm, 150 x 4.6 mm i.d.

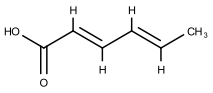
SunShell C18 2 µm, 100 x 2.1 mm i.d.



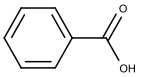


1. 4-Hydroxybenzoate

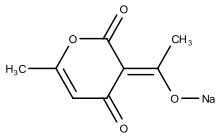
2. Sorbic acid



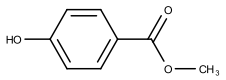
3. Benzoic acid



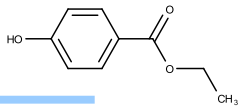
4. Dehydroacetic acid Na



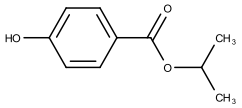
5. Methyl 4-hydroxybenzoate



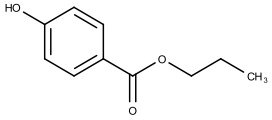
6. Ethyl 4-hydroxybenzoate



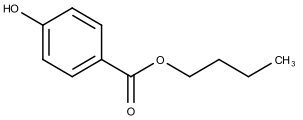
7. Isopropyl 4-hydroxybenzoate



8. Propyl 4-hydroxybenzoate



9. Butyl 4-hydroxybenzoate



Mobile phase: A) 20 mM **Ammonium formate** pH4.9
B) Acetonitrile

Time (min)	0	10	12
%B **(2.6 µm, 150 x 4.6 mm i.d.)**	30	50	30

Time (min)	0	5	6
%B **(2 µm, 100 x 2.1 mm i.d.)**	30	80	30

Flow rate : **1.0 mL / min (2.6 µm, 150 x 4.6 mm i.d.)**
: **0.4 mL / min (2 µm, 100 x 2.1 mm i.d.)**
Temperature : 40 ℃
Pressure : **21.0MPa (2.6 µm, 150 x 4.6 mm i.d.)**
: **44.3MPa (2 µm, 100 x 2.1 mm i.d.)**
Detection : UV@240 nm

SunShell C18カラムを使用する事で良好な分離を得られました。

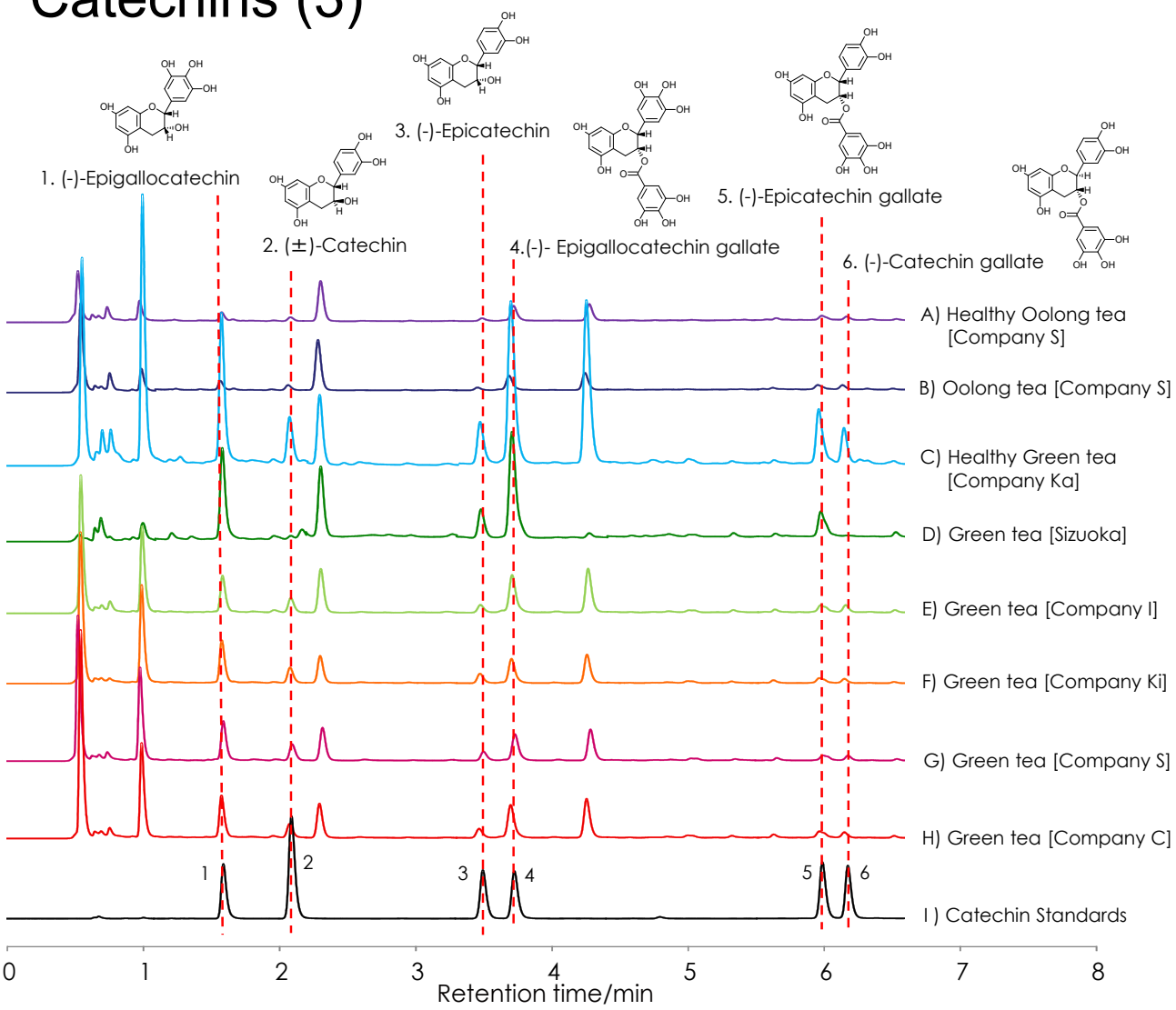
圧力は上がってしまいますが、2µmカラムを使用する事で測定サイクルを1/2にする事が出来ます。また、流速も1/2以下になるため、使用する移動相は1/4以下になります。

Instrument
Hitachi Chromaster®
Detector: 5410
Oven: 5310
AutoSampler: 5260
Pump: 5160

カテキン類の分離 (3)

Catechins (3)

SunShell C18 2.6 µm, 100 x 2.1 mm i.d.



Mobile phase: A) 0.1% phosphoric acid
B) Acetonitrile

Time (min)	0	7	8
%B	10	25	25

Flow rate : 0.35 mL/min
Temperature : 40 °C
Pressure : 20.4 MPa
Detection : UV@230 nm

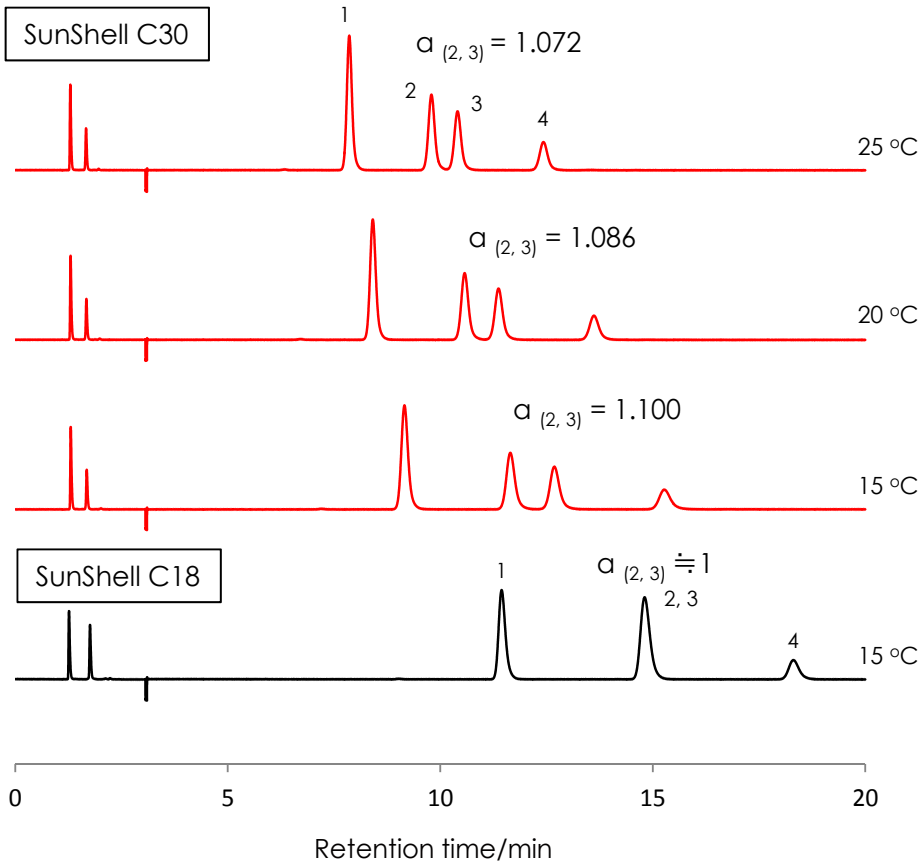
Instrument	
Hitachi Chromaster®	
Detector:	5410
Oven:	5310
AutoSampler:	5260
Pump:	5160

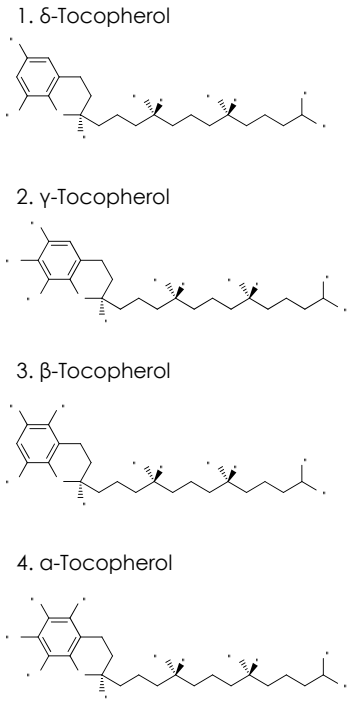
サンプルはすべて0.45µmのフィルターを通し、原液を1µL注入しています。
高濃度のカテキン含有を謳ったC)の製品や、茶葉(静岡県産)をお湯で抽出したD)のサンプルが含有量が多いという結果になりました。

ビタミンE異性体の分離

Vitamin E (Tocopherol)

SunShell C30 2.6 µm, 150 x 3.0 mm i.d.





Mobile phase : Methanol/Water = 96/4
Flow rate : 0.43 mL/min
Temperature : 15, 20, 25 °C
Pressure : SunShell C30 / 17.8 MPa (15 °C) ~ 15.7MPa (25 °C)
: SunShell C18 / 19.7 MPa (15 °C)
Detection : UV@250 nm (0 ~ 3 min) for detection t_0
: UV@295 nm (3 ~ 20 min)

脂溶性物質であるビタミンE (Tocopherol) 異性体の分離およびC18カラムとの比較です。

C18カラムでは15°Cでもβ, γ-Tocopherolを分離できませんでしたが、C30カラムでは15°Cはもちろん、25°Cにおいても良好に分離する事が出来ました。

脂溶性化合物や異性体の分離ではSunShellC30カラムがおすすめです。

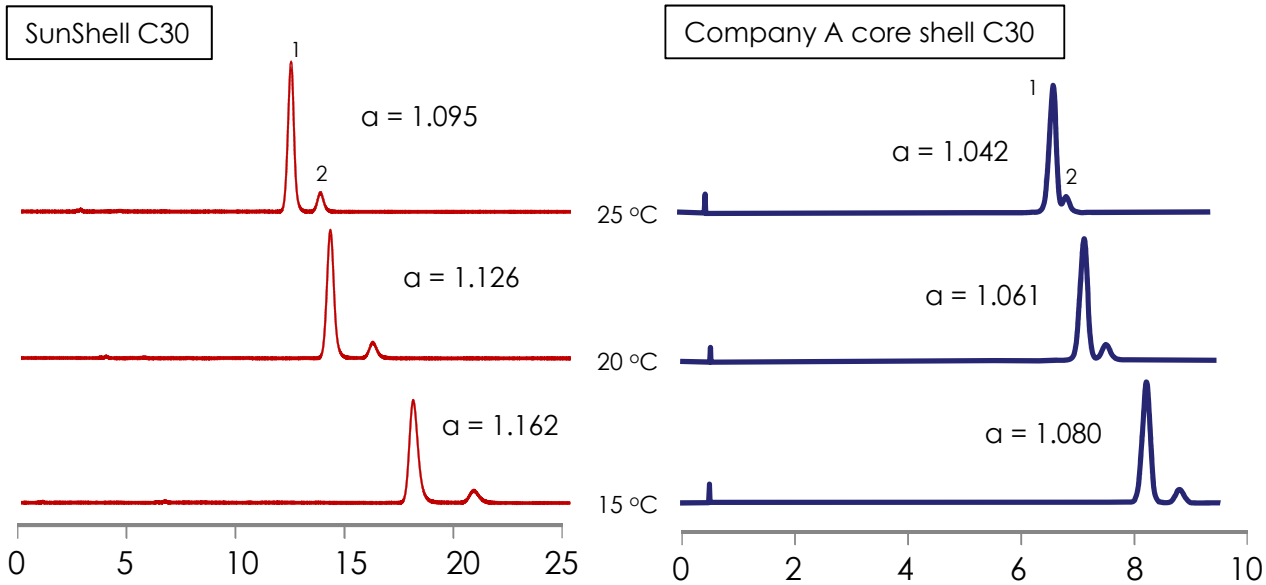
Instrument	
Hitachi Chromaster®	
Detector:	5410
Oven:	5310
AutoSampler:	5260
Pump:	5160

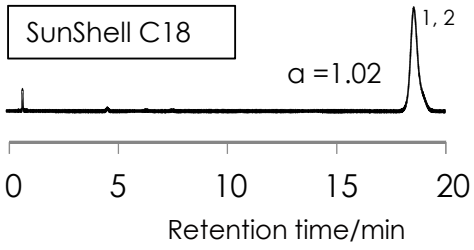
ビタミンK_1異性体の分離

Vitamin K_1 (Phylloquinone)

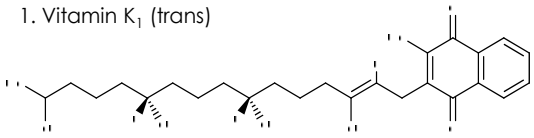
SunShell C30 2.6 µm, 100 x 2.1 mm i.d.

Company A C30 2.6 µm, 100 x 2.1 mm i.d.

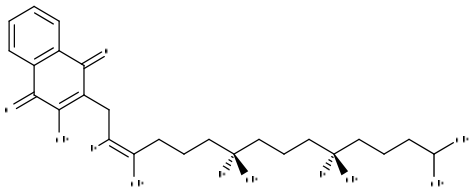




1. Vitamin K_1 (trans)



2. Vitamin K_1 (cis)



Mobile phase : Methanol/Water = 96/4
Flow rate : 0.35 mL/min
Temperature : 15, 20, 25 °C
Pressure : SunShell C30 / 18.7MPa (15 °C) ~ 21.4MPa (25 °C)
: SunShell C18 / 19.7MPa (15 °C)
Detection : UV@250 nm

ビタミンK1(Phylloquinone) のcis, trans異性体をSunShellC30カラムにて分離しました。

C18カラムでは分離が不可能でしたが、C30カラムでは25°Cでも余裕をもって分離する事ができます。

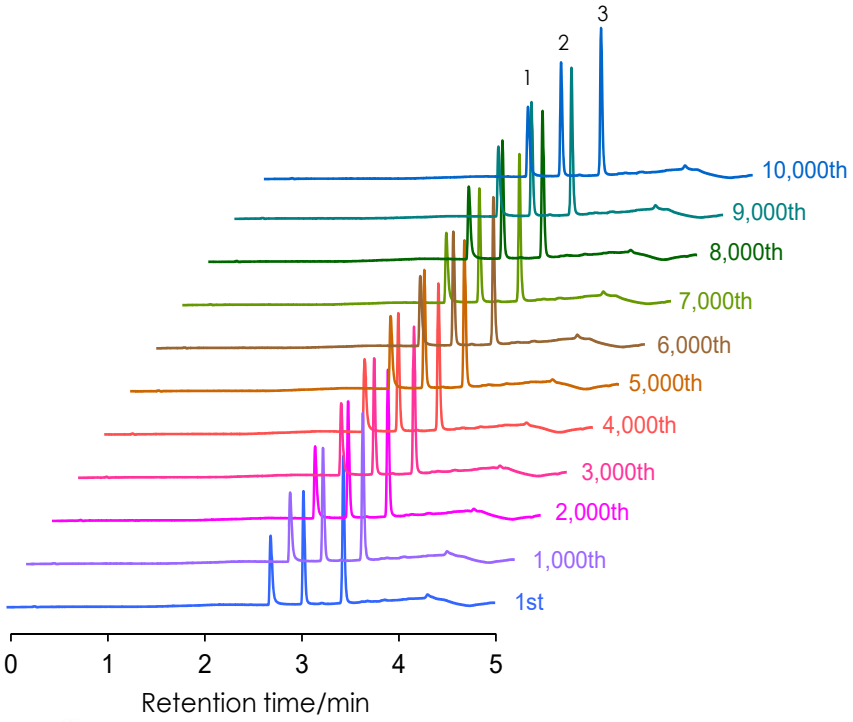
また、他社のC30カラムと比べても分離係数αは高くなっており、同じC30カラムからの変更でも分離の向上が期待できます。

Instrument	
Hitachi Chromaster®	
Detector:	5410
Oven:	5310
AutoSampler:	5260
Pump:	5160

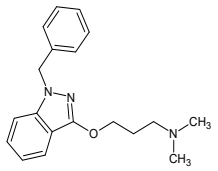
酸性条件(pH2)下の連続分析

SunShell C18 2.6 µm, 50 x 2.1 mm i.d.

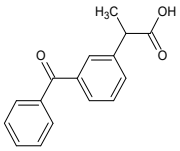
Continuous analysis under acidic pH condition



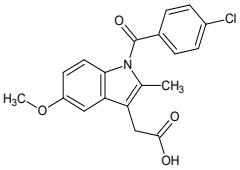
1. Benzydamine

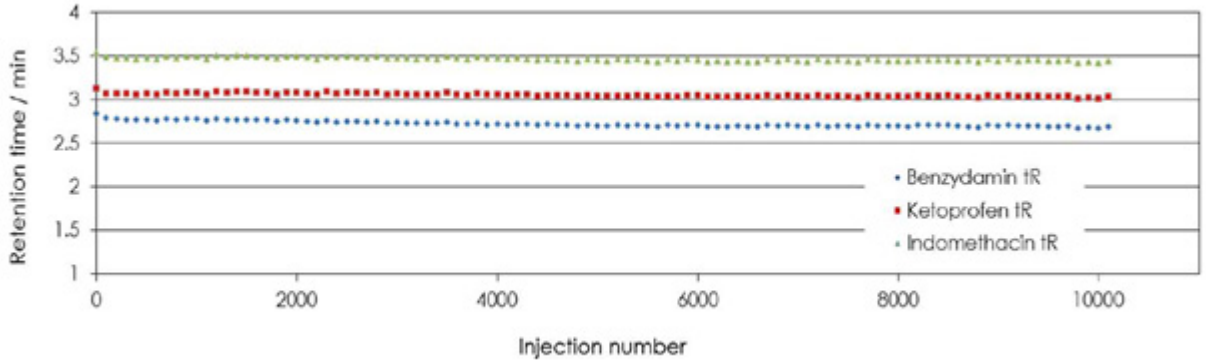


2. Ketoprofen



3. Indomethacin





Column: SunShell C18 2.6 µm, 50 x 2.1 mm
Mobile phase: A) 0.1% trifluoroacetic acid pH 2.0
B) Acetonitrile

Gradient program:

Time (min)	0	3	3.1	5
% B	10	90	10	10

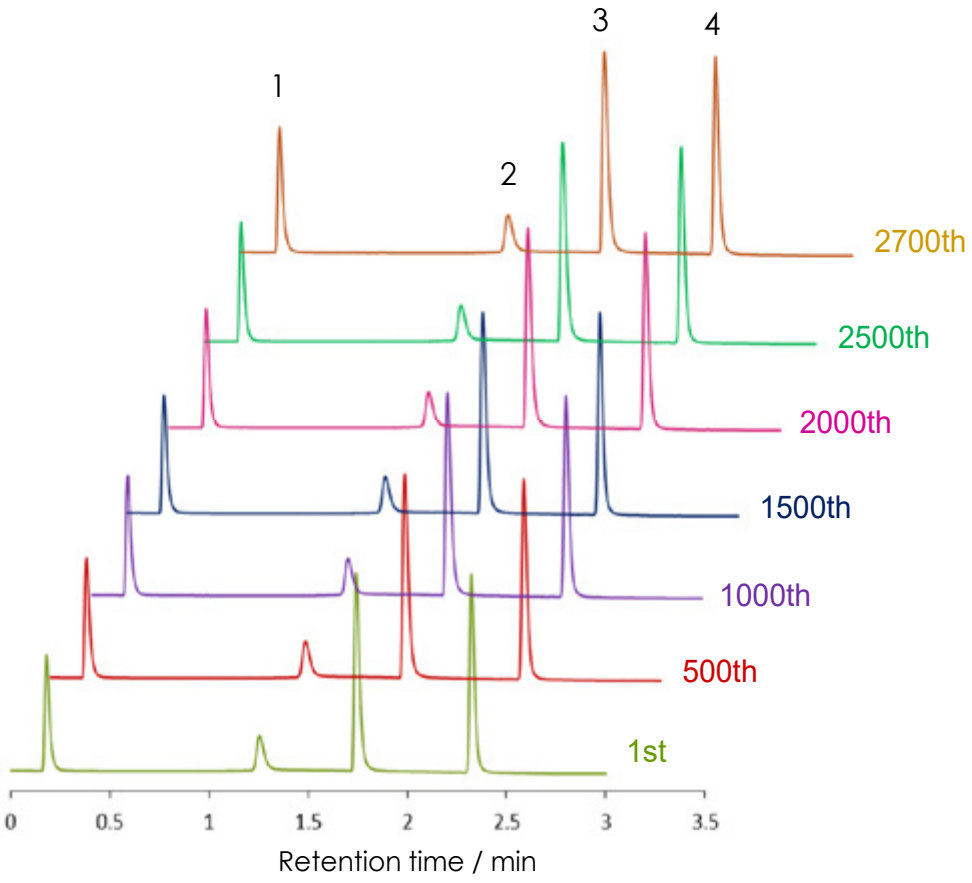
Flow rate: 0.5 mL/min
Temperature: 40 °C
Back pressure: 11 MPa to 17 MPa
Detection: UV@270nm
Injection volume: 0.5 µL
Sample: 1=Benzydamin (0.5 mg/mL), 2=Ketoprofen (0.04 mg/mL),
3= Indomethacin (0.05 mg/mL)

Instrument	
Hitachi Chromaster®	
Detector:	5410
Oven:	5310
AutoSampler:	5260
Pump:	5160

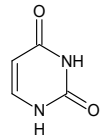
アルカリ性条件(pH9.5)下の連続分析

Continuous analysis under basic pH condition

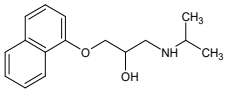
SunShell C18 2.6 µm, 50 x 2.1 mm i.d.



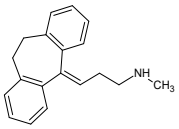
1. Uracil



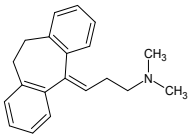
2. Propranolol



3. Nortriptyline



4. Amitriptyline



Column: SunShell C18, 2.6 um 50 x 2.1 mm
Mobile phase: A) 10 mM Ammonium bicarbonate pH 9.5
B) Acetonitrile
Gradient program:

Time (min)	0	1	3	3.1	5
% B	30	90	90	30	30

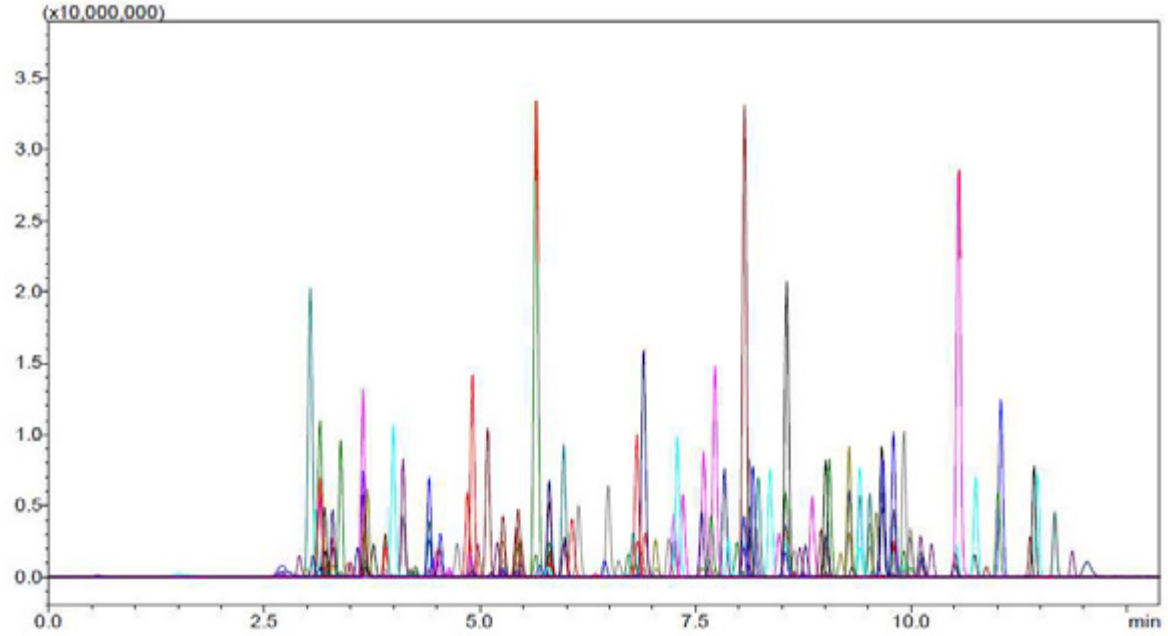
Flow rate: 0.5 mL/min
Temperature: 40 °C
Detection: UV@250nm
Injection volume: 0.5 µL
Sample: 1=Uracil, 2=Propranolol,
3= Nortriptyline, 4=Amitriptyline

Instrument	
Hitachi Chromaster®	
Detector:	5410
Oven:	5310
AutoSampler:	5260
Pump:	5160

農薬の一斉分析(LC/MS) (1)-A

SunShell C18 2.6 µm, 100 x 2.1 mm i.d.

Simultaneous Analysis of Pesticide (LC/MS) (1)-A



Sample:

1 : 3-keto Carbofuran	26 : Carbofuran	51 : Ethiprole	76 : Haloxyfop-methyl	101 : Monocrotophos	126 : Simazine
2 : 3-OH Carbofuran	27 : Carbosulfan	52 : Ethirimol	77 : Hexaconazole	102 : Norflurazon	127 : Spinetoram J
3 : Abamectin	28 : Carpropamid	53 : Etoxazole	78 : Hexaflumuron	103 : Novaluron	128 : Spinetoram L
4 : Abamectin	29 : Chlorantraniliprole	54 : Famoxadone	79 : Hexythiazox	104 : Omethoate	129 : Spinosad A
5 : Acetamiprid	30 : Chlorfluazuron	55 : Fenamiphos	80 : Imazalil	105 : Oxamyl	130 : Spinosad A
6 : Aldicarb	31 : Chromafenozide	56 : Fenazaquin	81 : Imidacloprid	106 : Oxycarboxin	131 : Spirodiclofen
7 : Aldicarb sulfone	32 : Cinosulfuron	57 : Fenbutatin-oxide	82 : Indoxacarb	107 : Pencycuron	132 : Spirotetramat
8 : Aldicarb sulfoxide	33 : Clofentezine	58 : Fenhexamid	83 : Isazofos	108 : Penoxsulam	133 : Tebufenozide
9 : Alloxydim (sodium)	34 : Clomazone	59 : Fenobucarb	84 : Isoprocarb	109 : Phosphamidon	134 : Tebufenpyrad
10 : Ametryn	35 : Clomeprop	60 : Fenothiocarb	85 : Isouron	110 : Phoxim	135 : Teflubenzuron
11 : Amisulbrom	36 : Clothianidin	61 : Fenoxycarb	86 : Linuron	111 : Pirimicarb	136 : Tepraloxydim
12 : Atrazine	37 : Cyazofamid	62 : Fenpyroximate	87 : Lufenuron	112 : Prochloraz	137 : Thiabendazole
13 : Azoxystrobin	38 : Cyclosulfamuron	63 : Fenthion	88 : Mecarbam	113 : Profenophos	138 : Thiacloprid
14 : Benalaxyl	39 : Cyflumetofen	64 : Fipronil	89 : Mepanipyrim	114 : Promecarb	139 : Thiamethoxam
15 : Bendiocarb	40 : Cymoxanil	65 : Flazasulfuron	90 : Metaflumizon	115 : Propamocarb hydrochloride	140 : Thiobencarb
16 : Benfuracarb	41 : Cyprodinil	66 : Flonicamid	91 : Metalaxyl	116 : Propanil	141 : Thiodicarb
17 : Bensulfuron-methyl	42 : Demeton-S-methyl	67 : Fluazifop-P-butyl	92 : Metconazole-cis	117 : Propargite	142 : Tolfenpyrad
18 : Bentazone	43 : Dicrotophos	68 : Fluazinam	93 : Methamidophos	118 : Propoxur	143 : Trichlorfon
19 : Benthiazole	44 : Dicrotophos	69 : Fludioxonil	94 : Methiocarb	119 : Pymetrozine	144 : Tricyclazole
20 : Bifenazate	45 : Dimethenamid	70 : Flufenoxuron	95 : Methomyl	120 : Pyraclostrobin	145 : Trifloxystrobin
21 : Boscalid	46 : Dimethoate	71 : Fluopicolide	96 : Methoxyfenozide	121 : Pyridaben	146 : Triforine
22 : Buprofezin	47 : Dimethomorph	72 : Flusilazole	97 : Metobromuron	122 : Pyridate	147 : Triphenylphosphate (ISTD)
23 : Butocarboxim	48 : Dinotefuran	73 : Flutriafol	98 : Metolcarb	123 : Pyrifenox	148 : Vamidothion
24 : Carbaryl	49 : Diuron	74 : Formetanate	99 : Metrafenone	124 : Quinoxyfen	149 : XMC (Macbal)
25 : Carbendazim	50 : Dymron	75 : Furametpyr	100 : Metribuzin	125 : Quizalofop-ethyl	150 : Xylylcarb
					151 : Zoxamide

Column: SunShell C18 2.6 µm, 100 x 2.1 mm
Mobile phase: A) 5 mM Ammonium acetate in H_2O
B) 5 mM Ammonium acetate in CH_3OH

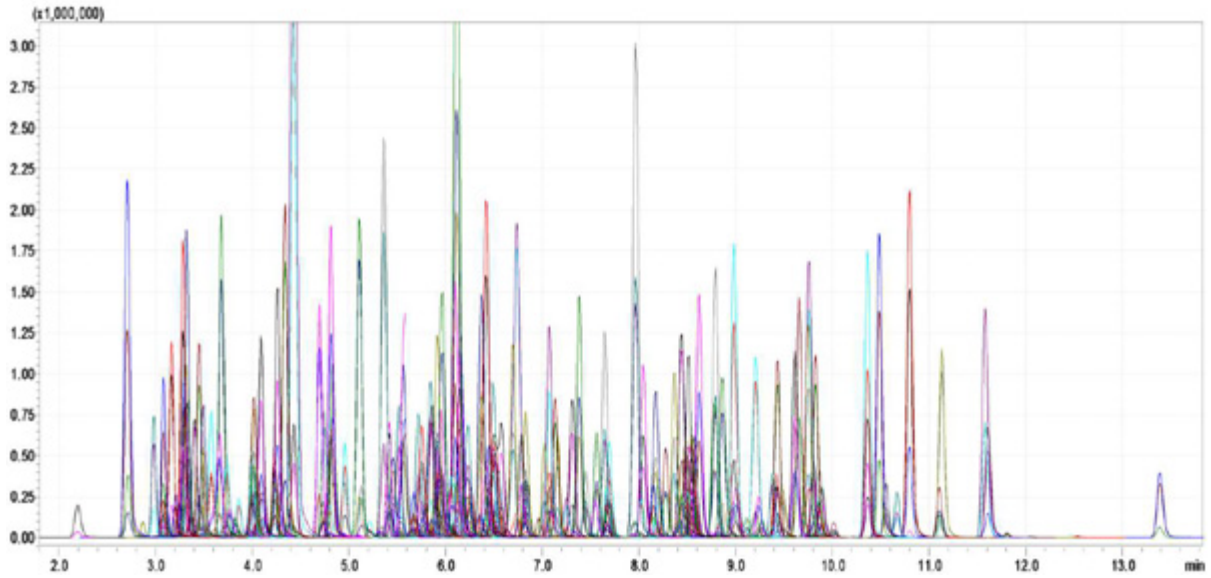
Time (min)	0	0.5	1	10	15	15.1	15.5	17.5	17.51
% B	1	1	40	98	98		1		
Flow rate (mL/min)	0.4				0.4	0.7		0.7	0.4

Temperature: 40 °C
Detection: LC/MS/MS (ESI, MRM)
Injection volume: 5 µL (100ppb pesticide STD)

農薬の一斉分析(LC/MS) (1)- B

SunShell C18 2.6 µm, 150 x 2.1 mm i.d.

Simultaneous Analysis of Pesticide (LC/MS) (1)- B



Sample:

1	Abamectin B1	37	Cymoxanil	73	Fenoxycarb	109	Isopyrazam	145	Paclobutrazole	181	Quinoclamine
2	Acephate	38	Cyproconazole(I)	74	Fenpyroximate	110	Kresoxim-methyl	146	Penconazole	182	Quizalofop-ethyl
3	Acetamiprid	39	Cyproconazole(II)	75	Fentrazamide	111	Linuron	147	Pencycuron	183	Saflufenacil
4	Aldicarb	40	Daimuron	76	Ferimzone(E)	112	Lufenuron	148	Penoxsulam	184	Sethoxydim
5	Amisulbrom	41	Demeton-S-methyl	77	Ferimzone(Z)	113	Malathion	149	Pentoxazone	185	Spinetoram(J)
6	Azimsulfuron	42	Diazinon	78	Flonicamid	114	Mandipropamid	150	Phenthoate	186	Spinetoram(L)
7	Azinphos-methyl	43	Dichlorvos(DDVP)	79	Fluacrypyrim	115	Mefenacet	151	Phosphamidone	187	Spirodiclofen
8	Azoxystrobin	44	Diethofencarb	80	Flubendiamide	116	Mepanipyrim	152	Phoxim	188	Spirotetramat
9	Bendiocarb	45	Diflubenzuron	81	Flucetosulfuron	117	Mepronil	153	Piperophos	189	Sulfoxaflor
10	Bensulfuron-methyl	46	Dimepiperate	82	Fludioxonil	118	Metalaxyl	154	Pirimicarb	190	Tebuconazole
11	Benthiavalicarb-Isopropyl	47	Dimethametryn	83	Flufenacet	119	Metamifop	155	Pirimiphos-methyl	191	Tebufenozide
12	Benzobicyclon	48	Dimethenamid	84	Flufenoxuron	120	Metazosulfuron	156	Probenazole	192	Tebufenpyrad
13	Benzoximate	49	Dimethomorph(E)	85	Fluopicolide	121	Metconazole	157	Profenofos	193	Teflubenzuron
14	Bitertanol	50	Dimethomorph(Z)	86	Fluquinconazole	122	Methabenzthiazuron	158	Propamocarb	194	Terbuthylazine
15	Boscalid	51	Diniconazole	87	Flusilazole	123	Methiocarb	159	Propanil	195	Tetraconazole
16	Bromacil	52	Dinotefuran	88	Flutolanil	124	Methomyl	160	Propaquizafop	196	Thenylchlor
17	Buprofezin	53	Diphenamid	89	Fluxapyroxad	125	Methoxyfenozide	161	Propoxur	197	Thiabendazole
18	Cadusafos	54	Dithiopyr	90	Forchlorfenuron	126	Metobromuron	162	Pyraclofos	198	Thiacloprid
19	Cafenstrole	55	Diuron	91	Fosthiazate	127	Metolcarb	163	Pyraclostrobin	199	Thiamethoxam
20	Carbaryl	56	Edifenphos	92	Furathiocarb	128	Metrafenone	164	Pyrazolate	200	Thiazopyr
21	Carbendazim	57	Esprocarb	93	Gibberellic acid	129	Mevinphos	165	Pyrazophos	201	Thidiazuron
22	Carbofuran	58	Ethaboxam	94	Halosulfuron-methyl	130	Milbemectin A3	166	Pyribenzoxim	202	Thifensulfuron-methyl
23	Carboxin	59	Ethiofencarb	95	Haloxyfop	131	Milbemectin A4	167	Pyributicarb	203	Thiobencarb
24	Carfentrazone-ethyl	60	Ethoprophos	96	Hexaconazole	132	Molinate	168	Pyridaben	204	Thiodicarb
25	Carpropamide	61	Ethoxysulfuron	97	Hexaflumuron	133	Monocrotophos	169	Pyridaphenthion	205	Tiadinil
26	Chlorpyrifos	62	Etofenprox	98	Hexazinone	134	Myclobutanil	170	Pyrifluquinazon	206	Triadimefon
27	Chlorsulfuron	63	Etoxazole	99	Hexythiazox	135	Napropamide	171	Pyriftalid	207	Triazophos
28	Chromafenozide	64	Etrimfos	100	Imazalil	136	Nicosulfuron	172	Pyrimethanil	208	Tricyclazole
29	Clethodim	65	Famoxadone	101	Imazosulfuron	137	Novaluron	173	Pyrimidifen	209	Trifloxystrobin
30	Clofentezine	66	Fenamiphos	102	Imicyafos	138	Nuarimol	174	Pyriminobac-methyl(E)	210	Triflumizole
31	Clomazone	67	Fenarimol	103	Imidacloprid	139	Ofurace	175	Pyriminobac-methyl(Z)	211	Triflumuron
32	Clothianidin	68	Fenazaquin	104	Inabenfide	140	Omethoate	176	Pyrimisulfan	212	Uniconazole
33	Cyazofamid	69	Fenbuconazole	105	Iprobenfos	141	Oxadiazon	177	Pyriproxyfen	213	Vamidothion
34	Cyclosulfamuron	70	Fenhexamid	106	Iprovalicarb	142	Oxadixyl	178	Pyroquilon		
35	Cyflufenamid	71	Fenobucarb	107	Isoprocarb	143	Oxamyl	179	Quinalphos		
36	Cyhalofop-butyl	72	Fenoxaprop-ethyl	108	Isoprothiolane	144	Oxaziclomefon	180	Quinmerac		

Column: SunShell C18 2.6 µm, 150 x 2.1 mm
Mobile phase: A) 5 mM Ammonium acetate and 0.1% formic acid in H_2O
B) 5 mM Ammonium acetate and 0.1 % formic acid in CH_3OH

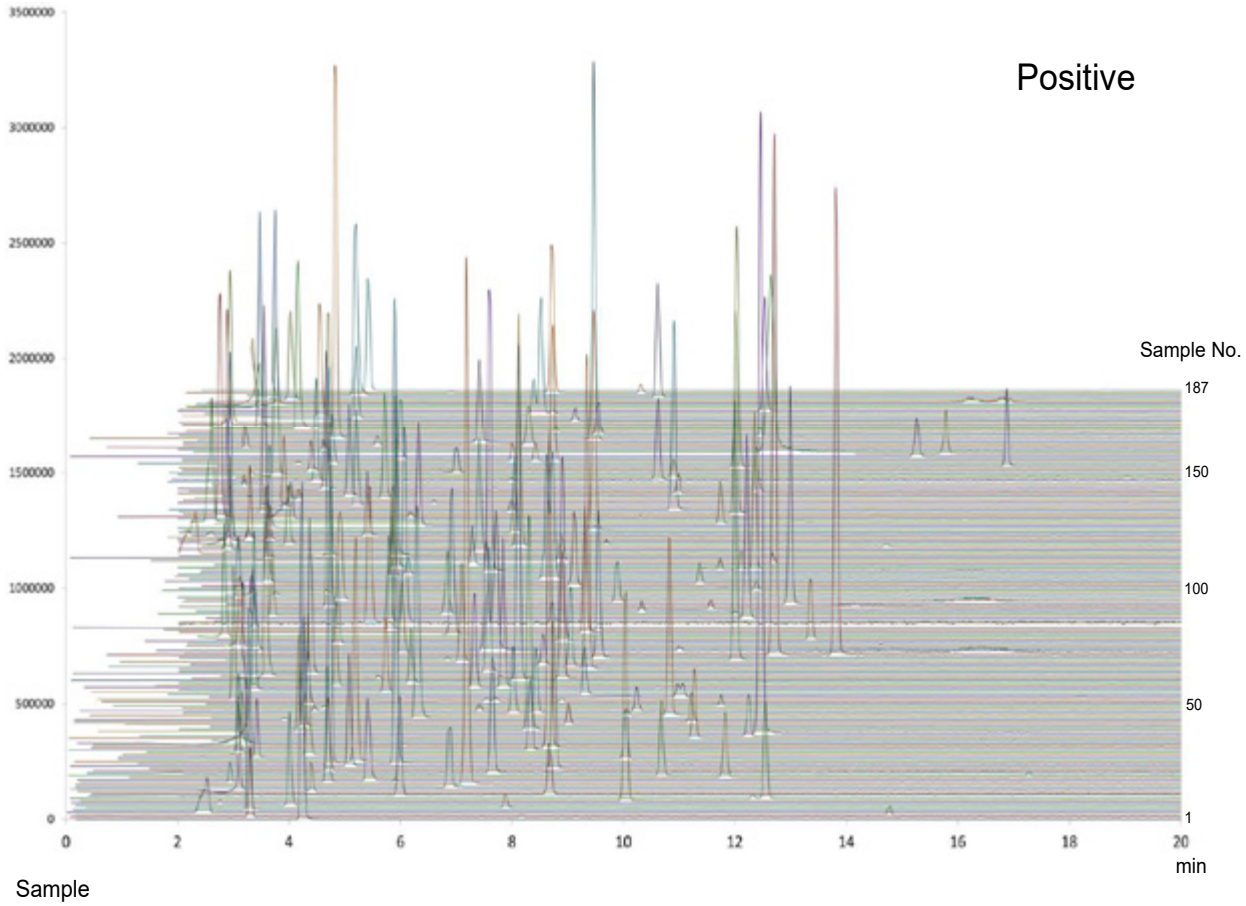
Time (min)	0	1	1.5	10	12	12.1	16	16.1	19
% B	15	15	60	60	90	98	98	15	15

Flow rate: 0.3 mL/min
Temperature: 40 °C
Detection: LC/MS/MS (ESI, MRM), Shimadzu LCMS-8050
Injection volume: 3 µL (10ppb pesticide STD)

農薬の一斉分析(LC/MS) (2)

SunShell C18 2.6 µm, 100 x 2.1 mm i.d.

Simultaneous Analysis of Pesticide (LC/MS) (2)



Sample

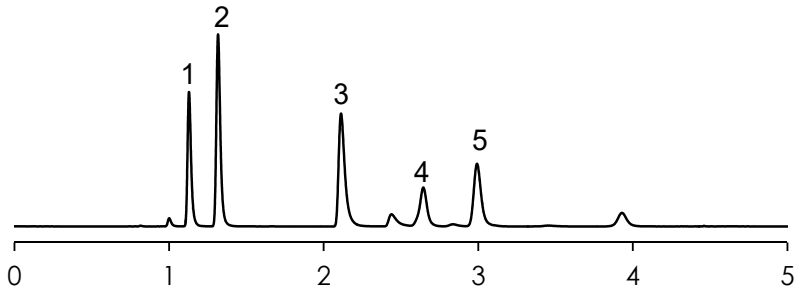
1. 1-Napthylacetamide
2. 3-oh-Carbofuran
3. Abamection
4. Acephate
5. Acetamiprid
6. Acibenzolar-s-methyl
7. Aldicarb
8. Aldoxycarb
9. Anilofos
10. Aramite
11. Atrazine
12. Azafenidin
13. Azamethiphos
14. Azimsulfuron
15. Azinphos-methyl
16. Azoxystrobin
17. Bendiocarb
18. Bensulfuron-methyl
19. Benzofenap
20. Bitertanol
21. Boscalid
22. Bromacil
23. Butafenacil
24. Carbaryl
25. Carbofuran
26. Carboxin
27. Carpropamide
28. Chloridazon
29. Chlorimuron-ethyl
30. Chlorsulfuron
31. Chlorxuron
32. Chromafenozide
33. Chrothianidin
34. Cinosulfuron
35. Clodinafop acid
36. Clofentezine
37. Clomeprop
38. Cloquintocet-methyl
39. Cloransulam-methyl
40. Cumyruron
41. Cyanazine
42. Cyazofamid
43. Cycloate
44. Cycloprothrin
45. Cyclosulfamuron
46. Cyflufenamide
47. Cyproconazole
48. Cyprodinil
49. DDVP
50. Diallate
51. Dichlosulam
52. Diclomezine
53. Diclotopos
54. Difenoconazole
55. Diflubenzuron
56. Dimethirimol
57. Dimethoate
58. Dimethomorph
59. Dimeton-s-methyl
60. Diuron
61. Dymuron
62. Epoxiconazole
63. Ethametsulfuron-methyl
64. Ethoxysulfuron
65. Fenamidon
66. Fenamiphos
67. Fenbuconazole
68. Fenhexamid
69. Fenobucarb
70. Fenoxaprop-ethyl
71. Fenoxycarb
72. Fenpyroximate
73. Fensulfothion
74. Ferimzone
75. Flazasulfuron
76. Florasulam
77. Fluazifop
78. Flufenacet
79. Flufenoxuron
80. Flumetsulam
81. Fluridone
82. Flusilazole
83. Flutriahol
84. Foramsulfuron
85. Forchlofenuron
86. Fostiazate
87. Furametpyr
88. Furathiocarb
89. Halosulfuron-methyl
90. Haloxyfop
91. Hexaconazole
92. Hexaflumuron
93. Hexazinon
94. Hexythiazox
95. Imazalil
96. Imazamethabenz-methyl
97. Imazaquin
98. Imazosulfuron
99. Imibenconazole debenzil
100. Imibenconazole
101. Imidacloprid
102. Indanofan
103. Indoxacarb
104. Iodosulfuron-methyl
105. Iprovalicarb
106. Isoprocarb
107. Isoxaflutole
108. Isoxation-oxon
109. Lactofen
110. Lenacil
111. Linuron
112. Lufenuron
113. Mepanipyrim
114. Mesosulfuron-methyl
115. Methabenzthiazuron
116. Methamidofos
117. Methiocarb
118. Methomyl
119. Methoxyfenozide
120. Metosulam
121. Metsulfuron-methyl
122. Mevinphos
123. Monocrotophos
124. Monolinuron
125. Myclobutanil
126. Naproanilide
127. Naptalam
128. Norflurazon
129. Novaluron
130. Ometoate
131. Oxadixyl
132. Oxamyl
133. Oxaziclomefone
134. Oxycarboxin
135. Pencycuron
136. Penoxsulam
137. Pentoxazone
138. Phenmedhipham
139. Phosphamidone
140. Primicarb
141. Primisulfuron
142. Prohydrojasmon
143. Propaquizafop
144. Propoxur
145. Propoxycarbazone
146. Prosulfuron
147. Pyorquilon
148. Pyraclostrobin
149. Pyrazolynate
150. Pyrazosulfuron-ethyl
151. Pyriftalid
152. Quinoclamine
153. Quizalofop-ethyl
154. Silafluofen
155. Simazine
156. Simeconazole
157. Simetryn
158. Spinosyna
159. Spinosynd
160. Spiroxamine
161. Sulfentrazone
162. Sulfosulfuron
163. Tarlkoxydim
164. Tcmtb
165. Tebufenozide
166. Tebuthiuron
167. Teflubenzuron
168. Tetrachlorvinphos
169. Tetraconazole
170. Thiabendazole
171. Thiacloprid
172. Thiamethoxam
173. Thifensulfuron-methyl
174. Thifluzamide
175. Thiodicarb
176. Tidiazuron
177. Tiradimenol
178. Tolfenpyrad
179. Triasulfuron
180. Tribenuron
181. Tricyclazole
182. Tridemorph
183. Trifloxysulfuron
184. Triflumuron
185. Triflusulfuron
186. Triticonazole
187. XMC

局所麻酔薬の分離 (1)

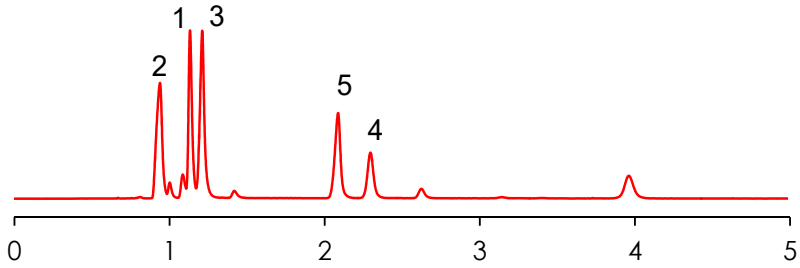
Local anesthetic (1)

SunShell C18 2.6 µm, 100 x 4.6 mm i.d.

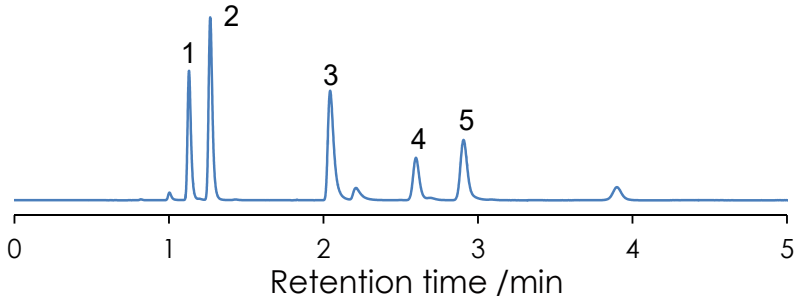
Methanol: 20 mM Phosphate buffer (pH 7.0) = 70:30



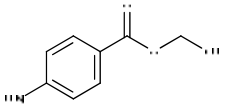
Methanol: 20 mM Ammonium acetate buffer (pH 6.8) = 70:30



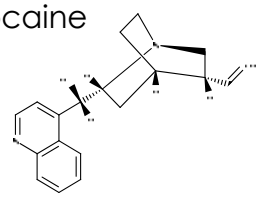
Methanol: 20 mM Ammonium bicarbonate buffer (pH 9.5) = 70:30



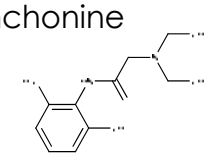
1. Benzocaine



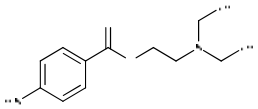
2. Procaine



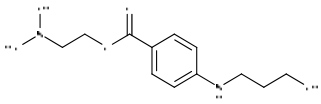
3. Cinchonine



4. Lidocaine



5. Tetracaine



Column :
SunShell C18 2.6 µm, 100 x 4.6 mm
Mobile phase : Methanol : 20 mM Phosphate buffer (pH 7.0) = 70:30
Methanol : 20 mM Ammonium acetate buffer (pH 6.8) = 70:30
Methanol : 20 mM Ammonium bicarbonate buffer (pH 9.5) = 70:30
Flow rate : 1.0 mL/min
Pressure : 24.8 MPa
Temperature : 40 °C
Detection : UV@250nm
Injection volume : 1 µL
Sample : 1 = Benzocaine,
2 = Procaine,
3 = Cinchonine,
4 = Lidocaine,
5 = Tetracaine

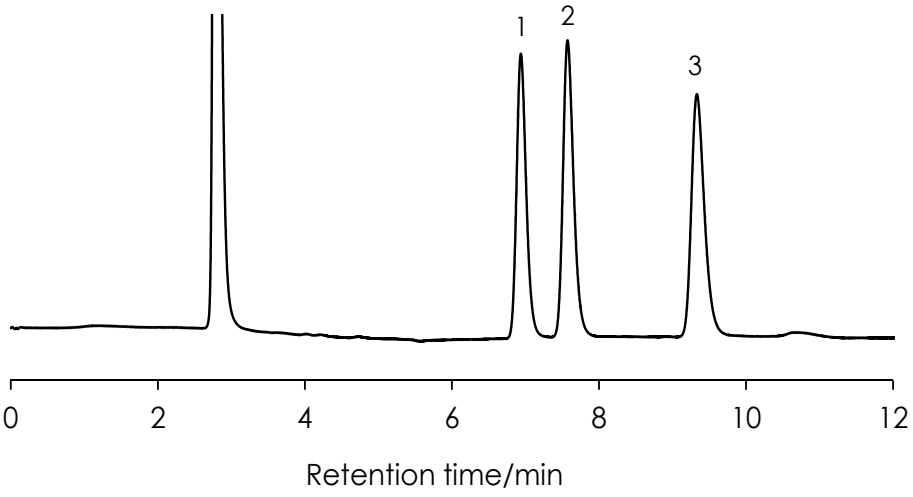
Instrulment	
Hitachi Chromaster®	
Detector:	5410
Oven:	5310
AutoSampler:	5260
Pump:	5160

分岐鎖アミノ酸の分離

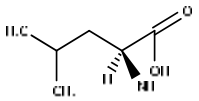
Branched-chain amino acids

SunArmor NH2 5 µm, 250 x 4.6 mm i.d.

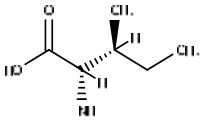
Temperature: 25 °C



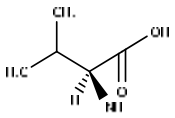
1. L-Leucine



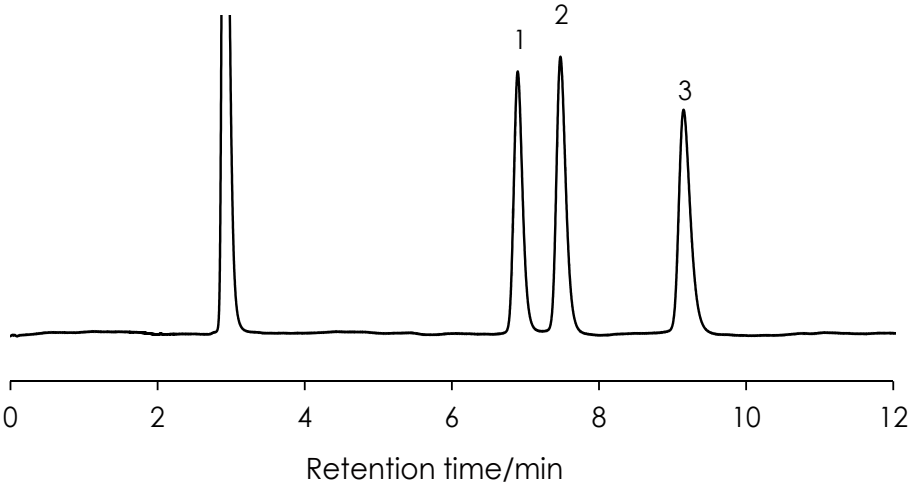
2. L-Isoleucine



3. L-Valine



Temperature: 40 °C



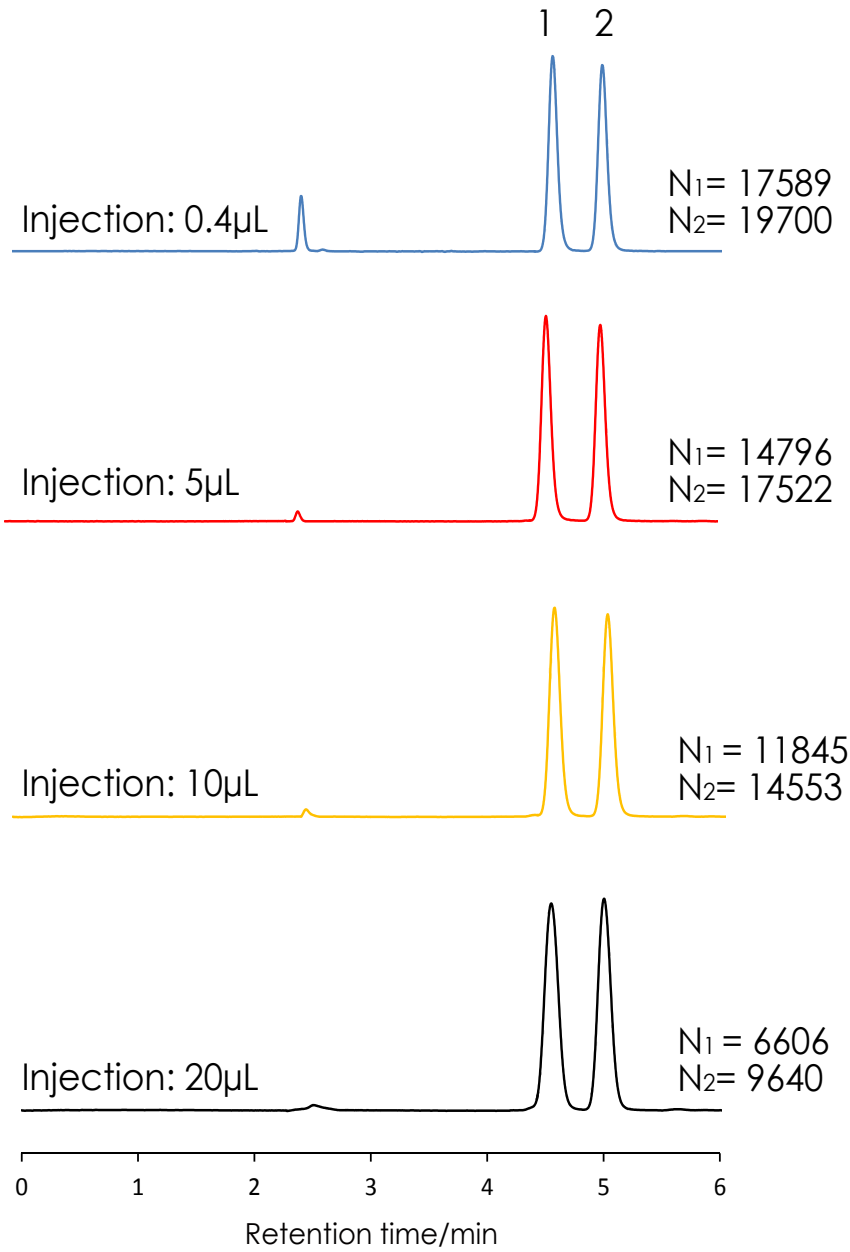
These samples have little temperature dependence.

Column: SunArmor NH2 5 µm, 250 x 4.6 mm
Mobile phase: Acetonitrile:10mM ammonium acetate = 70:30
Flow rate: 1.0 mL/min
Temperature: 25, 40 °C
Detection: RI
Sample: 1 = L-Leucine, 2 = L-Isoleucine, 3 = L-Valine

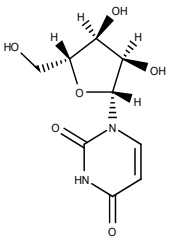
水溶解サンプルの注入量による比較(核酸塩基)

Comparison of injection volume of water-dissolved sample (nucleobases)

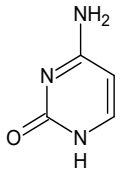
SunArmor NH2 5 µm, 250 x 4.6 mm i.d.



1. Uridine



2. Cytosine



Sample was dissolved in water

Column: SunArmor NH2 5 µm, 250 x 4.6 mm

Mobile phase: Acetonitrile:10 mM ammonium acetate (pH 6.8) = 70:30

Flow rate: 1.0 mL/min

Temperature: 40 °C

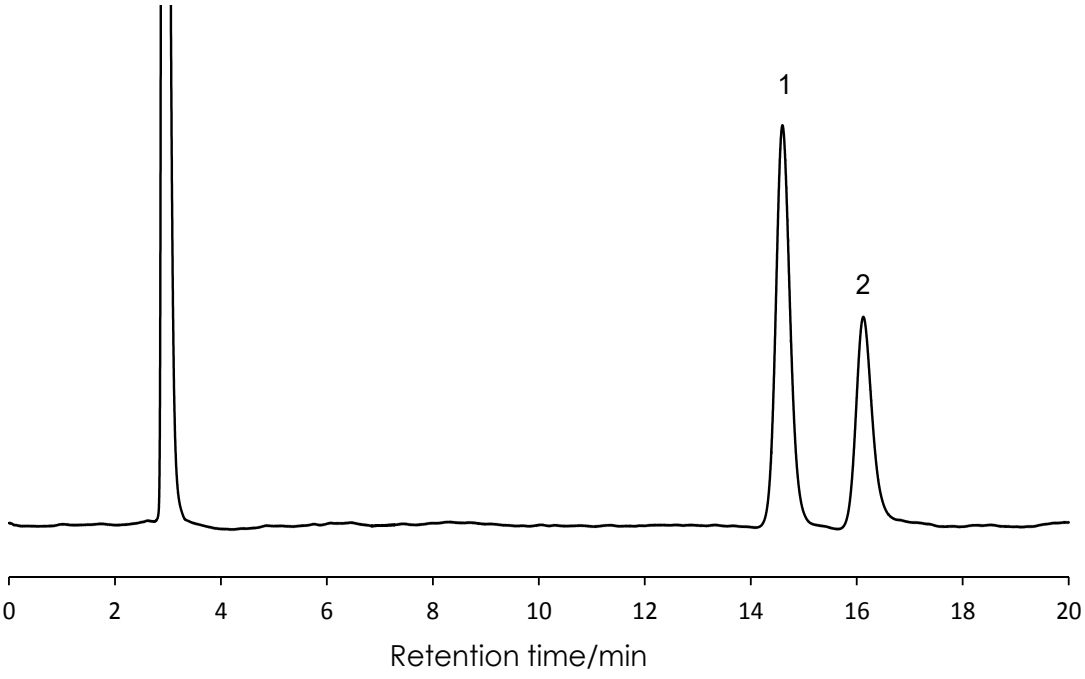
Detection: UV@250nm

Sample: 1 = Uridine, 2 = Cytosine

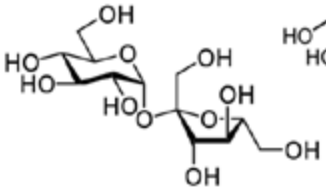
スクロースとパラチノースの分離

Sucrose and Palatinose

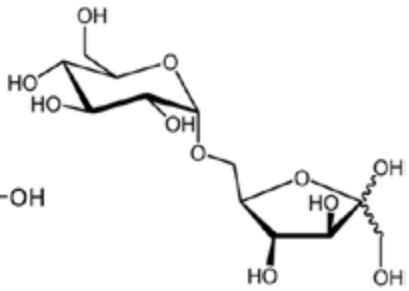
SunArmor NH2 5 µm, 250 x 4.6 mm i.d.

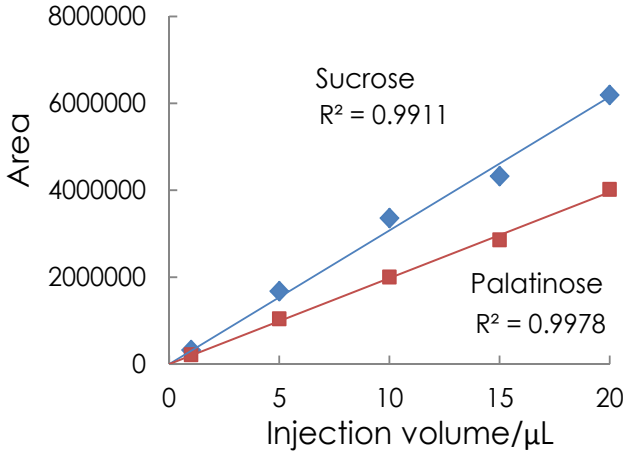


1. Sucrose



2. Palatinose





Column: SunArmor NH2 5 µm, 250 x 4.6 mm
Mobile phase: Acetonitrile:50mM ammonium acetate = 75:25
Flow rate: 1.0 mL/min
Temperature: 40 °C
Detection: RI
Sample: 1 = Sucrose, 2 = Palatinose

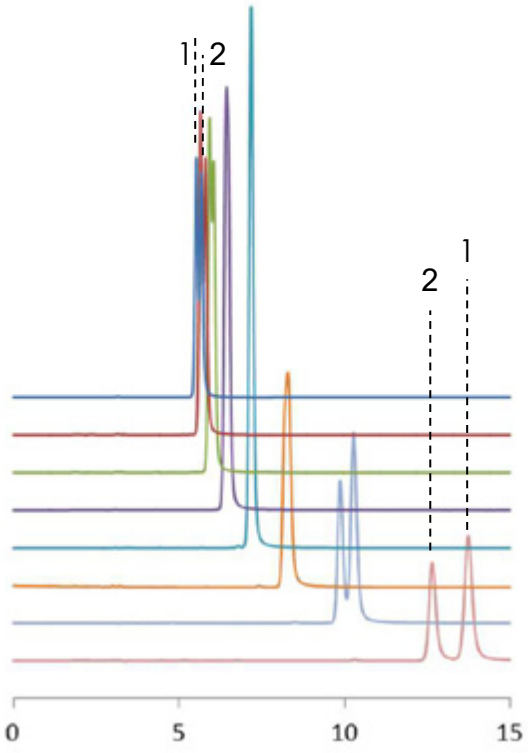
アスコルビン酸とエリソルビン酸の分離

Ascorbic acid

SunArmor NH2 5 µm, 250 x 4.6 mm i.d.

A: 5% Acetic acid in water

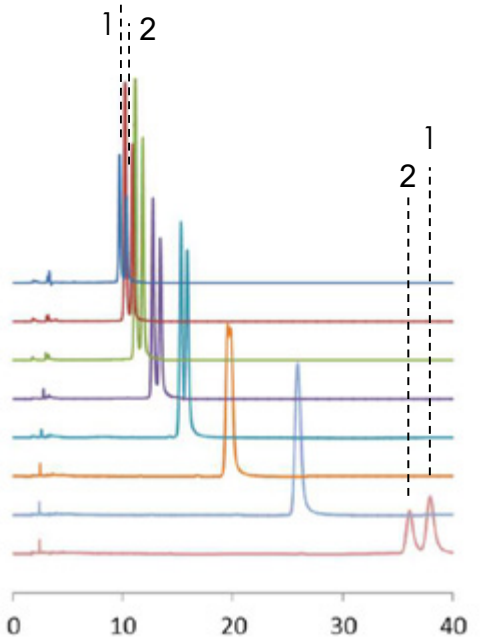
B: 5% Acetic acid in acetonitrile



Retention time/min

A: 1% Acetic acid in water

B: 1% Acetic acid in acetonitrile

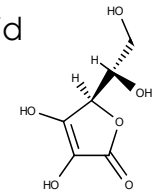


Retention time/min

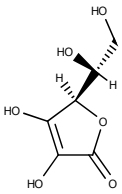
Ion exchange mode

Normal phase mode

1. Ascorbic acid



2. Erythorbic acid



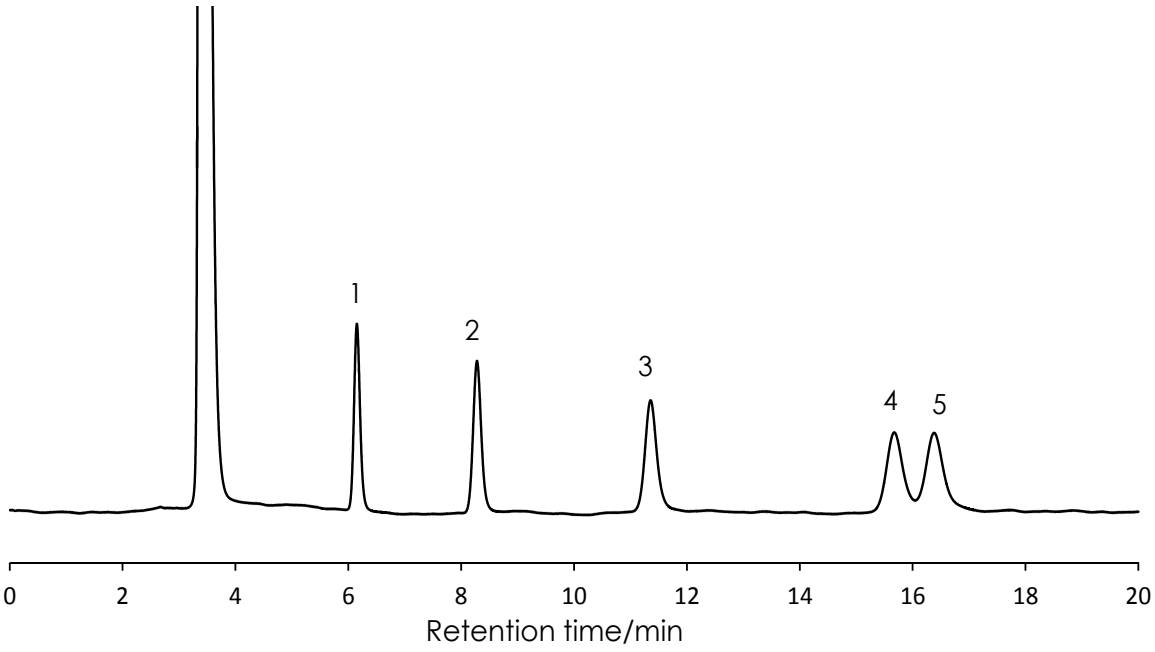
Column :
SunArmor NH2, 5µm 250 x 4.6 mm i.d.
Mobile phase : A) (1% or 5%) Acetic acid in water
B) (1% or 5%) Acetic acid in acetonitrile
Flow rate : 1.0 mL/min
Temperature : 40 °C
Detection : UV@260 nm
Injection volume : 1 µL
Sample : 1 = Ascorbic acid,
2 = Erythorbic acid

Instrulment	
Hitachi Chromaster®	
Detector:	5410
Oven:	5310
AutoSampler:	5260
Pump:	5160

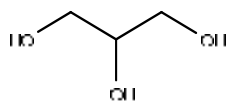
糖アルコールの分離

Sugar alcohol

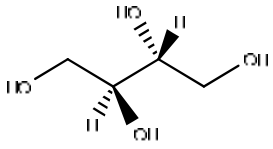
SunArmor NH2 5 µm, 250 x 4.6 mm i.d.



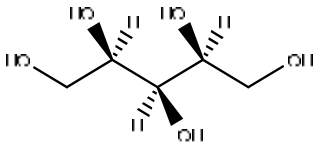
1. Grycerine



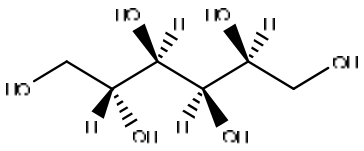
2. Erythritol



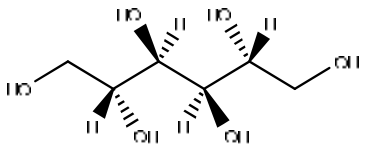
3. Xylitol



4. Sorbitol



5. Mannitol



Column: SunArmor NH2 5 µm, 250 x 4.6 mm
Mobile phase: Acetonitrile:Water = 80:20
Flow rate: 1.0 mL/min
Temperature: 40 °C
Detection: RI
Sample: 1= Grycerine, 2= Erythritol, 3= Xylitol, 4= Sorbitol, 5= Mannitol

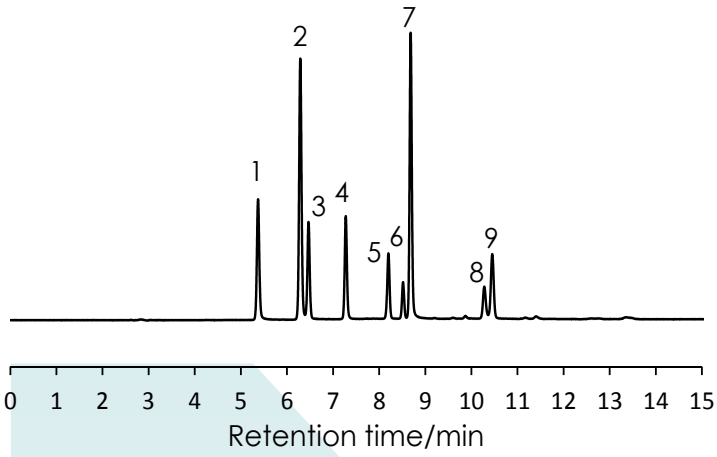
フェノール系酸化防止剤の分離

phenolic antioxidants

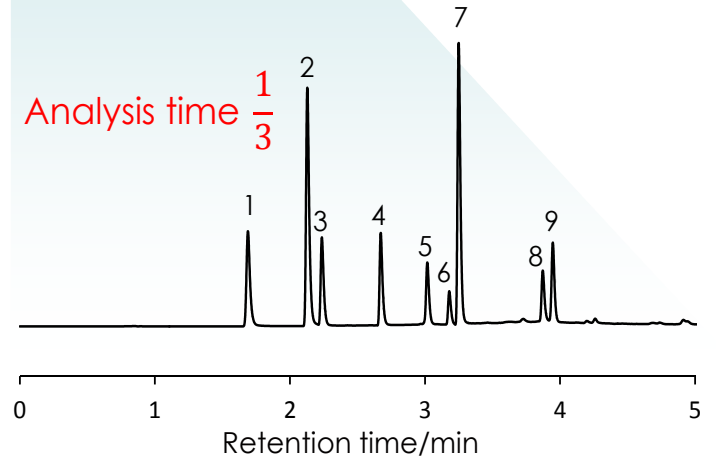
Sunniest C18 5 µm, 150 x 4.6 mm i.d.

SunShell C18 2.6 µm, 100 x 4.6 mm i.d.

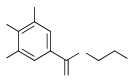
Sunniest C18 5 µm, 150 x 4.6 mm i.d.



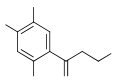
SunShell C18 2.6 µm, 100 x 4.6 mm i.d.



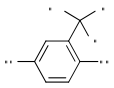
1. PG(Propyl Gallate)



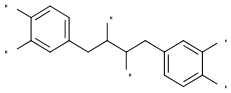
2. THBP (2,4,5-Trihydroxybutyrophenone)



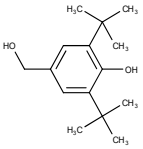
3. TBHQ (tert-Butylhydroquinone)



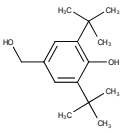
4. NDGA (Nordihydroguaiaretic acid)



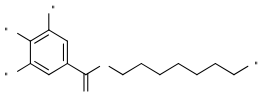
5. BHA
(Butylated Hydroxyanisole)



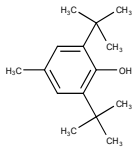
6. HMBP (4 - Hydroxymethyl - 2,6 - di - tert - butylphenol)



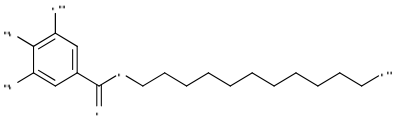
7. OG (Octyl gallate)



8. BHT
(Butylated hydroxytoluene)



9. DG (Dodecyl gallate)



Instrument
Hitachi Chromaster®
Detector: 5410
Oven: 5310
AutoSampler: 5260
Pump: 5160

Column: Sunniest C18 5 µm, 150 x 4.6 mm i.d.
SunShell C18 2.6 µm, 100 x 4.6 mm i.d.

Mobile phase: A) 5% Acetic acid in water , B) Methanol, C) Acetonitrile

150 x 4.6 mm i.d. 0.6 mL/min

Time (min)	0	5	15
% B	60	0	0
% C	20	50	50

100 x 4.6 mm i.d. 1.0 mL/min

Time (min)	0	2	5
% B	60	0	0
% C	20	50	50

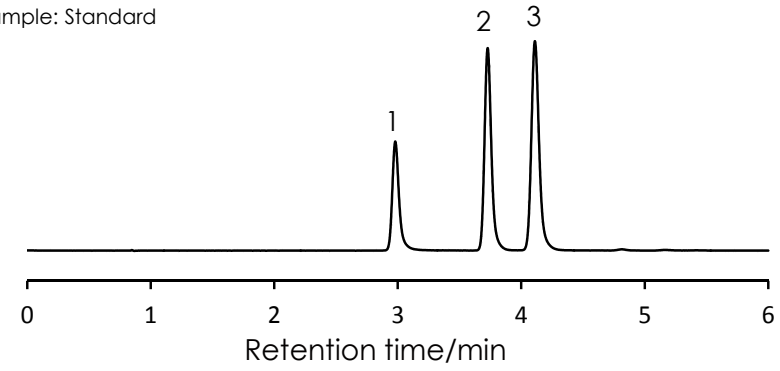
Flow rate: 0.6, 1.0 mL/min
Temperature: 40 °C
Detection: UV@280nm
Sample: 1= PG, 2= THBP, 3= TBHQ, 4= NDGA, 5= BHA, 6= HMBP, 7= OG, 8= BHT, 9= DG

コーヒー成分(ポリフェノール)の分離

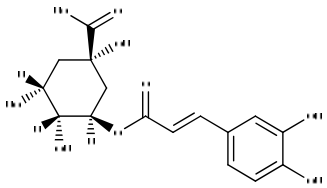
Coffee polyphenol

SunShell C18 2.6 µm, 100 x 4.6 mm i.d.

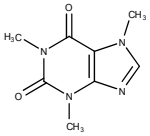
Sample: Standard



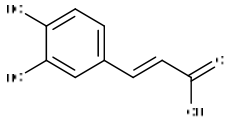
1. Chlorogenic Acid



2. Caffeine

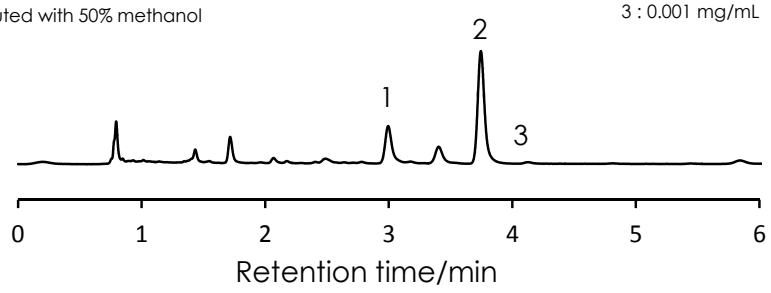


3. Caffeic acid



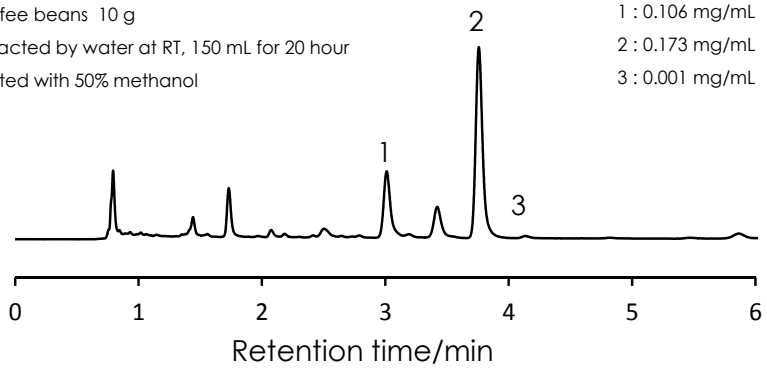
Sample: Boiled water extracted
Coffee beans 10 g
Extracted by boiled water at 90 °C , 150 mL for 1min
Diluted with 50% methanol

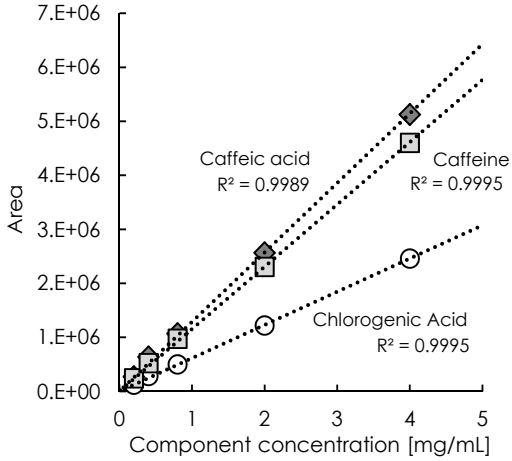
Component concentration
1 : 0.063 mg/mL
2 : 0.101 mg/mL
3 : 0.001 mg/mL



Sample: Water extracted
Coffee beans 10 g
Extracted by water at RT, 150 mL for 20 hour
Diluted with 50% methanol

Component concentration
1 : 0.106 mg/mL
2 : 0.173 mg/mL
3 : 0.001 mg/mL





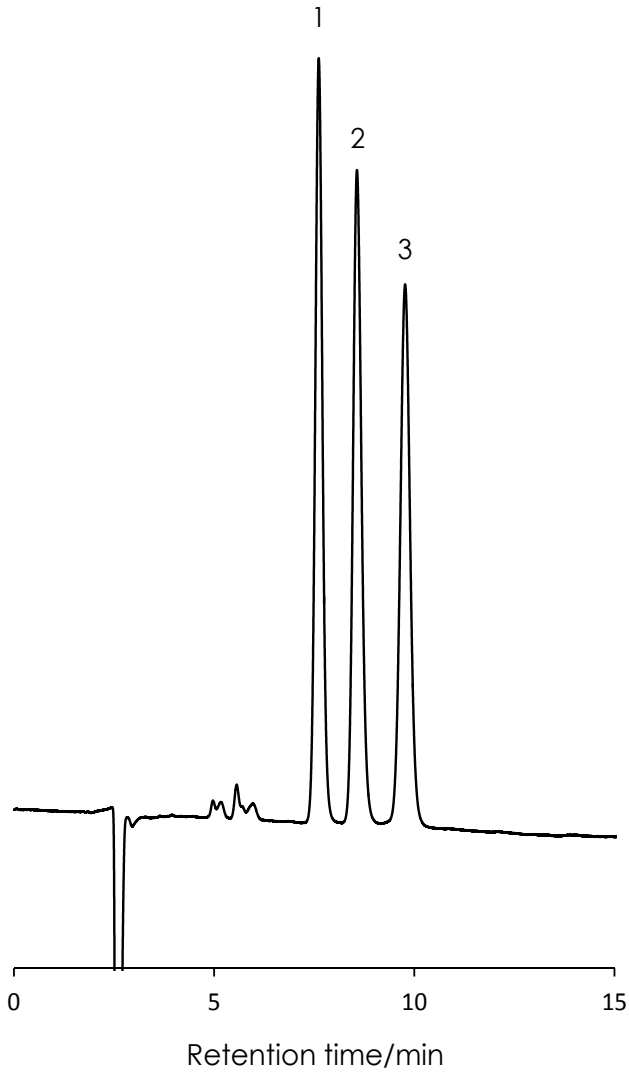
Column: SunShell C18, 2.6 µm 100 x 4.6 mm i.d.
Mobile phase: Methanol:0.1% Formic acid = 20:80
Flow rate: 1.0 mL/min
Temperature: 40 °C
Detection: UV@280nm
Sample: 1= Chlorogenic Acid, 2= Caffeine, 3= Caffeic acid

Instrulment	
Hitachi	Chromaster®
Detector:	5410
Oven:	5310
AutoSampler:	5260
Pump:	5160

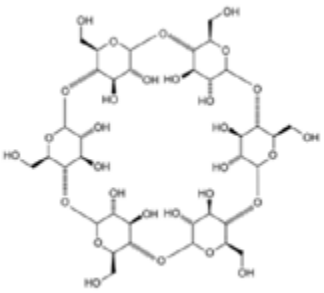
シクロデキストリンの分離

Cyclodextrin

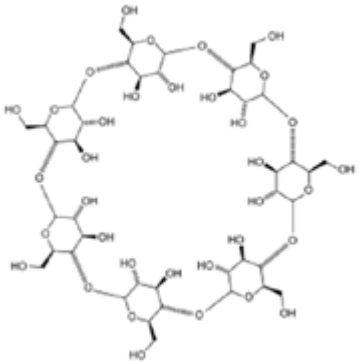
SunArmor NH2 5 µm, 250 x 4.6 mm i.d.



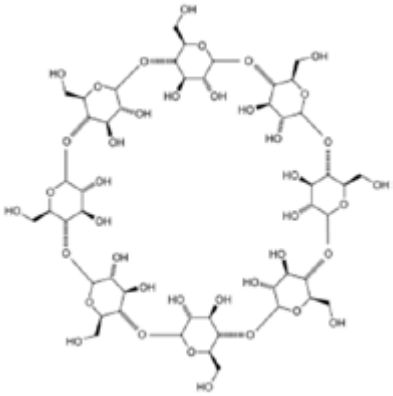
1. α-Cyclodextrin



2. β-Cyclodextrin



3. γ-Cyclodextrin



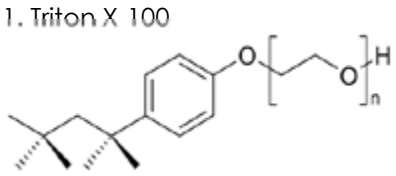
Column: SunArmor NH2 5 µm, 250 x 4.6 mm
Mobile phase: Acetonitrile:Water = 60:40
Flow rate: 1.0 mL/min
Temperature: 25 °C
Detection: RI
Sample: 1= α-Cyclodextrin, 2= β-Cyclodextrin, 3=γ-Cyclodextrin

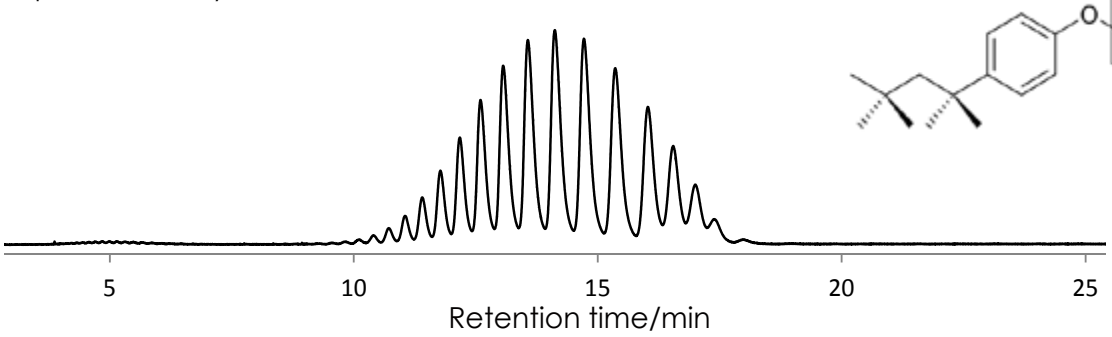
非イオン界面活性剤の分離

Triton X-100

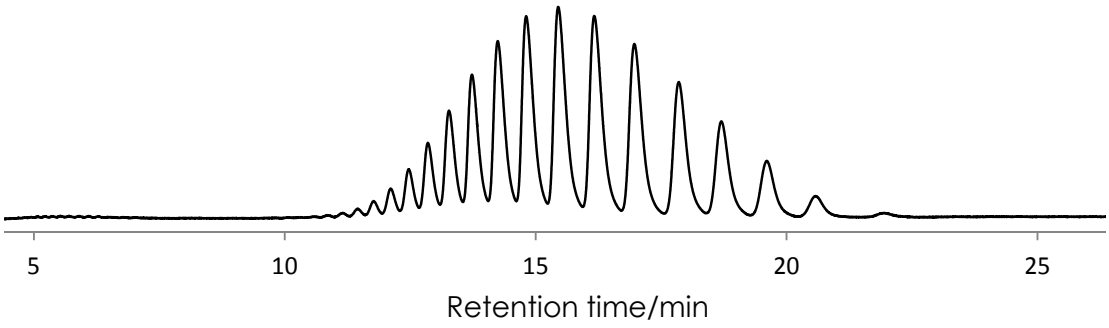
SunShell C18 2.6 µm, 150 x 3.0 mm i.d.

Mobile phase: Tetrahydrofuran:Acetonitrile:Water = **0:50:50**

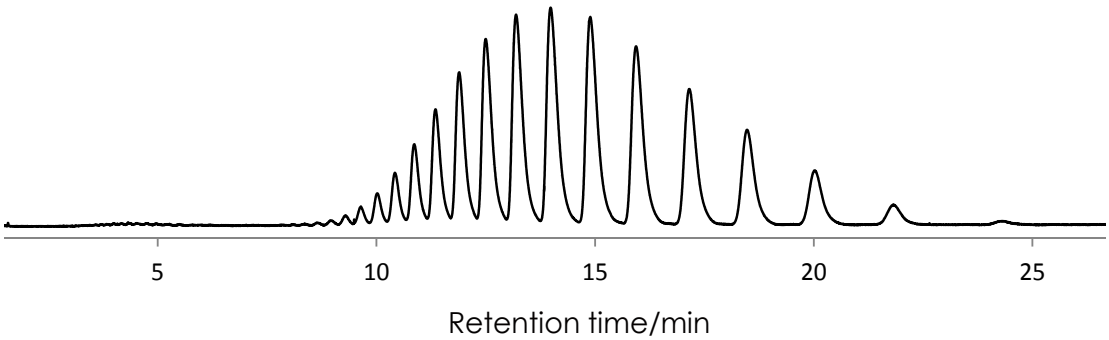




Mobile phase: Tetrahydrofuran:Acetonitrile:Water = **10:35:55**



Mobile phase: Tetrahydrofuran:Acetonitrile:Water = **20:20:60**



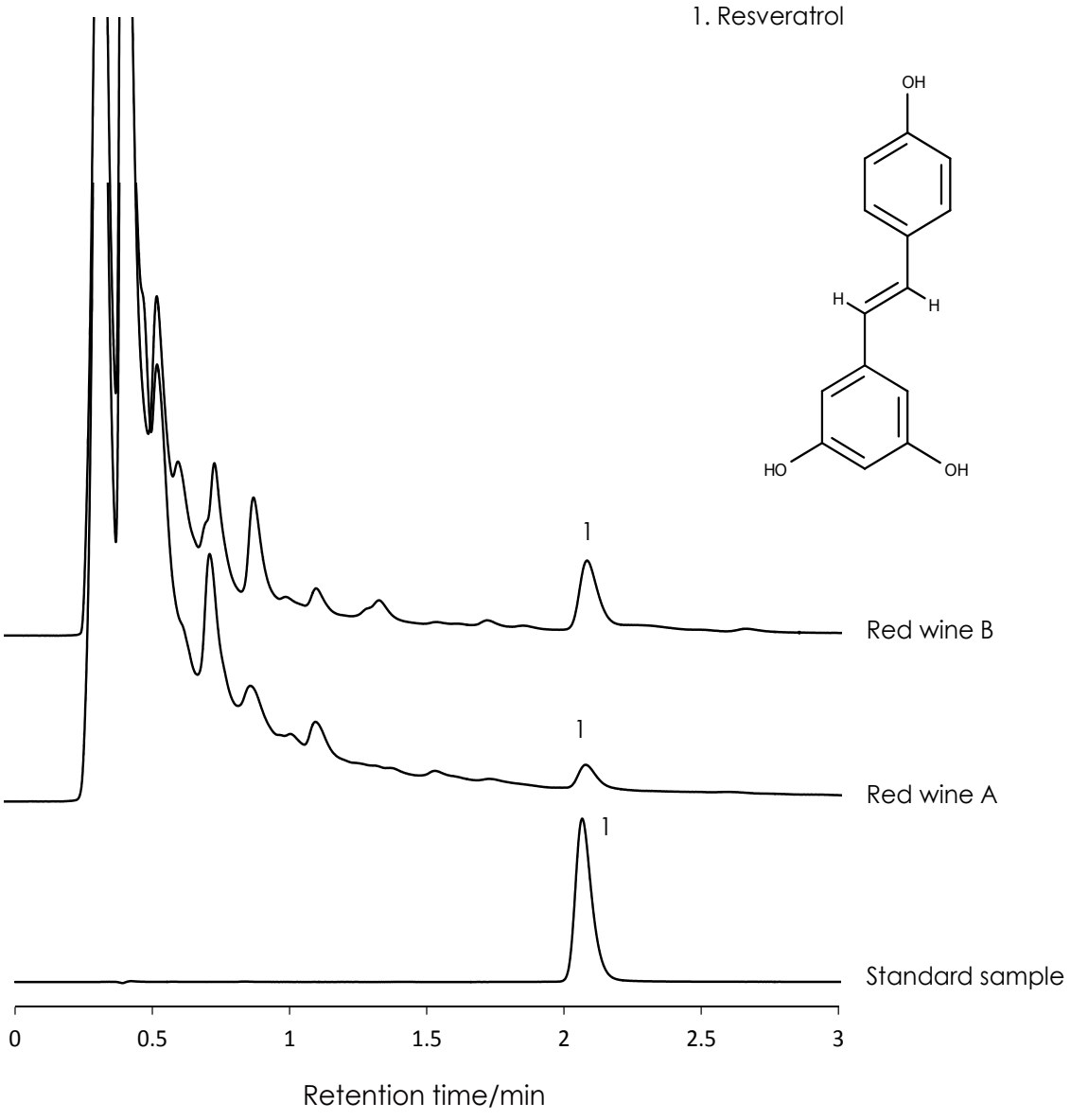
Column: SunShell C18, 2.6 µm 150 x 3.0 mm i.d.
Mobile phase: Tetrahydrofuran:Acetonitrile:Water
= 0:50:50, 10:35:55, 20:20:60
Flow rate: 0.5 mL/min
Temperature: 25 °C
Detection: UV@275nm
Sample: 1= Triton X-100

Instrument	
Hitachi	Chromaster®
Detector:	5410
Oven:	5310
AutoSampler:	5260
Pump:	5160

赤ワイン中ポリフェノール(レスベラトロール)の分離

Resveratrol

SunShell C18 2.6 µm, 50 x 2.1 mm i.d.



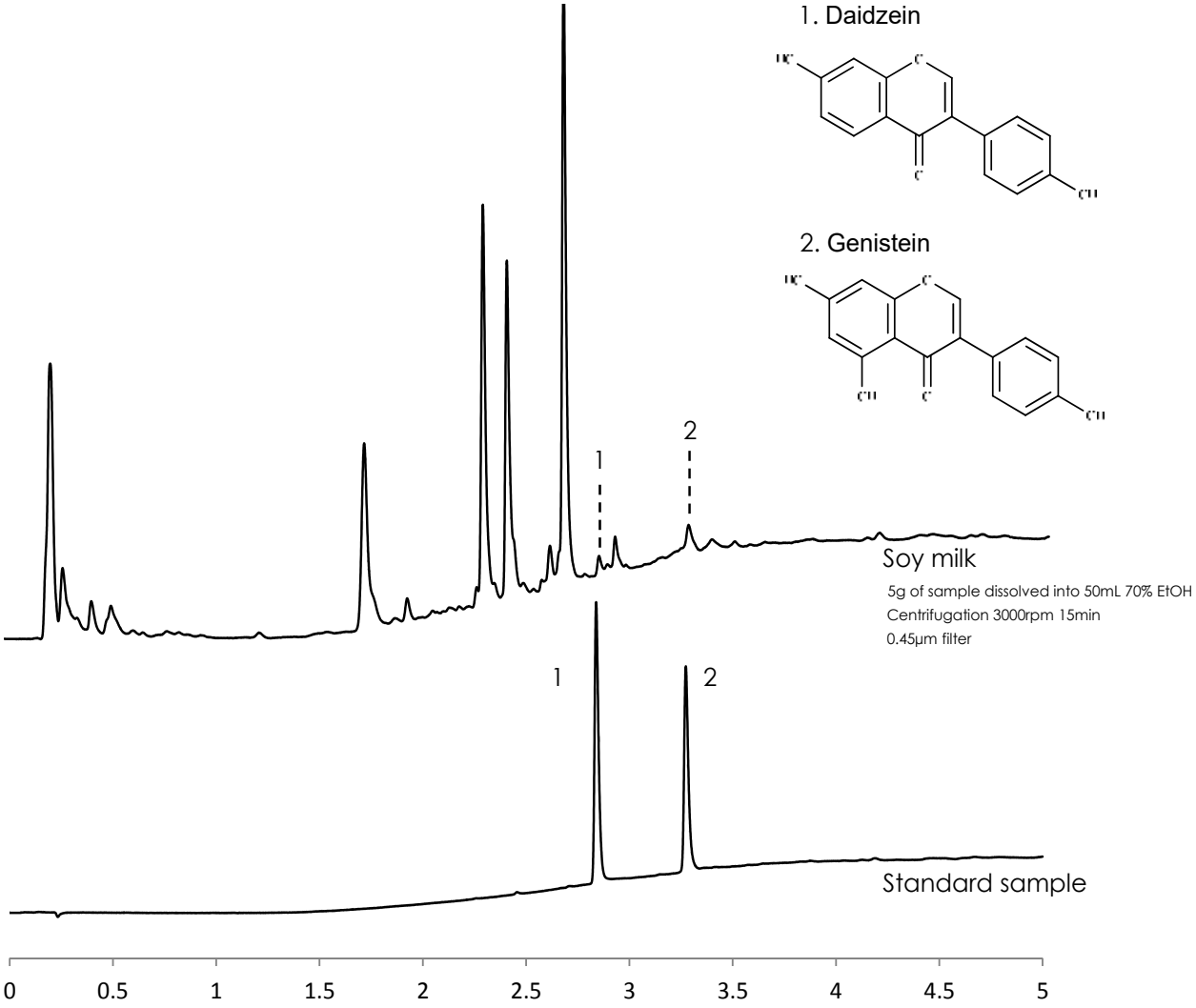
Column: SunShell C18 2.6 µm, 50 x 2.1 mm i.d.
Mobile phase: Acetonitrile:Water = 20:80
Flow rate: 0.3 mL/min
Temperature: 40 °C
Detection: UV@310nm
Sample: 1= Resveratrol

Instrulment	
Hitachi	Chromaster®
Detector:	5410
Oven:	5310
AutoSampler:	5260
Pump:	5160

大豆イソフラボンの高速分離

Isoflavone

SunShell C18 2.0 µm, 50 x 2.1 mm i.d.



Column: SunShell C18, 2.0 µm 50 x 2.1 mm i.d.

Mobile phase: A) Water:Acetic acid = 100:3

B) Acetonitrile:Acetic acid = 100:3

Gradient program:

Time (min)	0	1	5
% B	10	40	40

Flow rate: 0.5mL/min

Temperature: 40 °C

Detection: UV@250nm

Sample: 1= Daidzein, 2 = Genistein

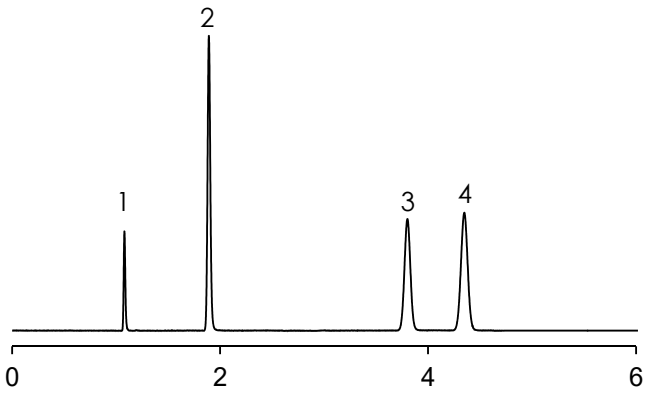
Instrulment	
Hitachi Chromaster®	
Detector:	5410
Oven:	5310
AutoSampler:	5260
Pump:	5160

解熱鎮痛剤の分離 (3)

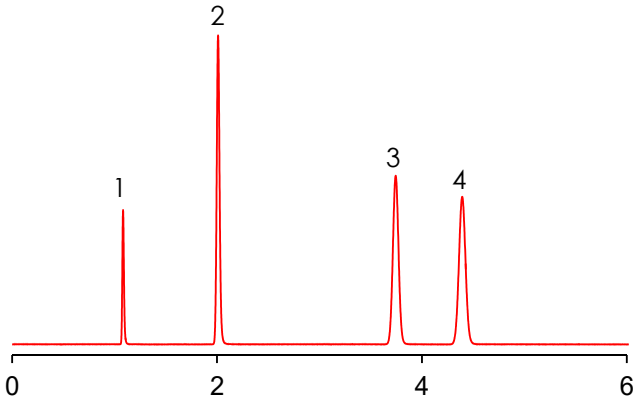
Analgesics (3)

SunShell C18 2.6µm, 100 x 4.6 mm i.d.

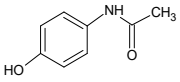
A) CH_3CN:20 mM Phosphoric acid = 20:80



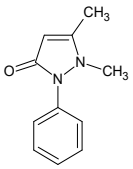
B) CH_3CN:0.1% Formic acid = 20:80



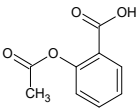
1. Acetaminophen



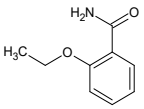
2. Antipyrine



3. Aspirin



4. Ethenzamide



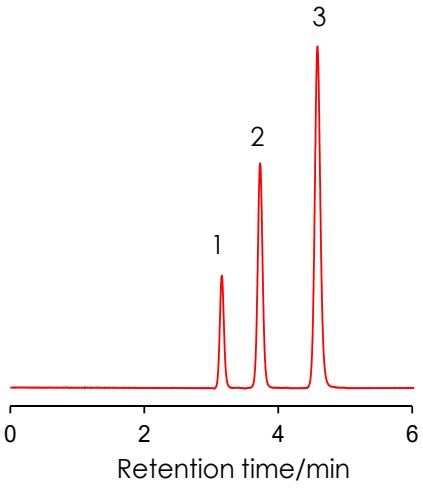
Column: SunShell C18 2.6 µm, 100 x 4.6 mm i.d.
Mobile phase:
A) CH_3CN:20 mM Phosphoric acid = 20:80
B) CH_3CN:0.1% Formic acid = 20:80
Flow rate: 1.0 mL/min
Temperature: 40 °C
Detection: UV@230nm
Sample: 1 = Acetaminophen, 2 = Antipyrine, 3 = Aspirin, 4= Ethenzamide

降圧利尿剤の分離 (2)

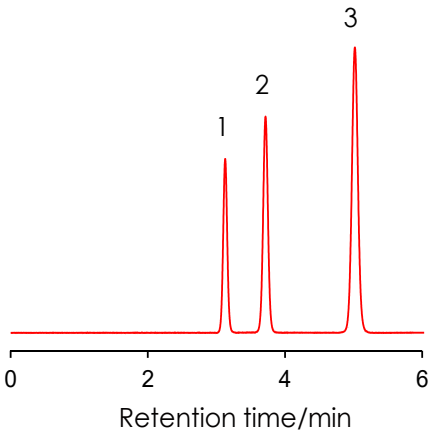
Hypotensive diuretic (2)

Sunniest C18 5µm, 150 x 4.6 mm i.d.

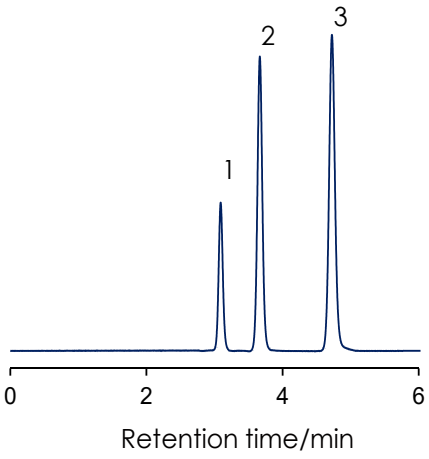
Acetonitrile:100 mM phosphate buffer pH 3.0 = 20:80



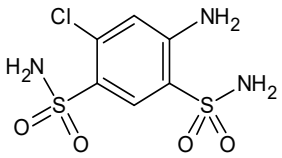
Acetonitrile:20 mM phosphate buffer pH 3.0 = 20:80



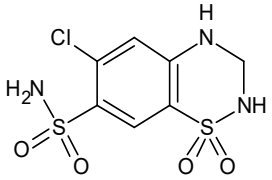
Acetonitrile:0.1% formic acid = 20:80



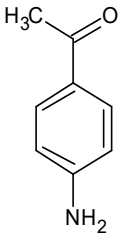
1. 4-Amino-6-chloro-1,3-benzenedisulfonamide



2. Hydrochlorothiazide



3. p-Aminoacetophenone



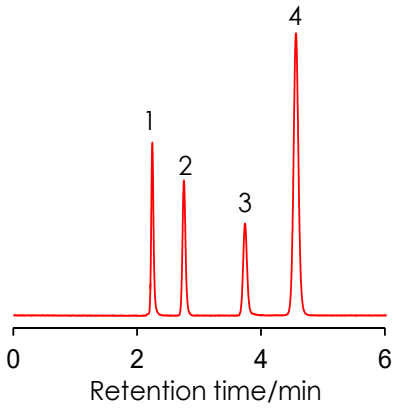
Column: Sunniest C18 5 µm, 150 x 4.6 mm
Mobile phase: A) Acetonitrile:100 mM phosphate buffer (KH_2PO_4) pH 3.0 = 20:80
B) Acetonitrile:20 mM phosphate buffer (KH_2PO_4) pH 3.0 = 20:80
C) Acetonitrile:0.1% formic acid = 20:80
Flow rate: 1.0 mL/min
Temperature: 40 °C
Detection: UV@250nm
Sample: 1 = 4-Amino-6-chloro-1,3-benzenedisulfonamide, 2 = Hydrochlorothiazide, 3 = p-Aminoacetophenone

内分泌攪乱物質の分離 (2)

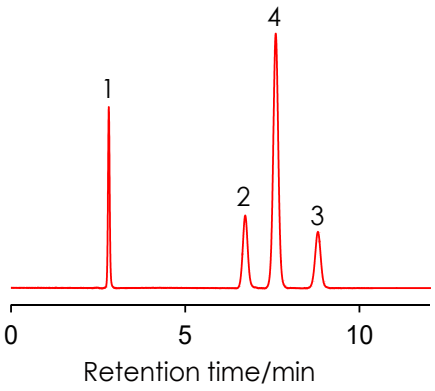
Endocrine disruptors (2)

Sunniest C18 5 µm, 150 x 4.6 mm i.d.

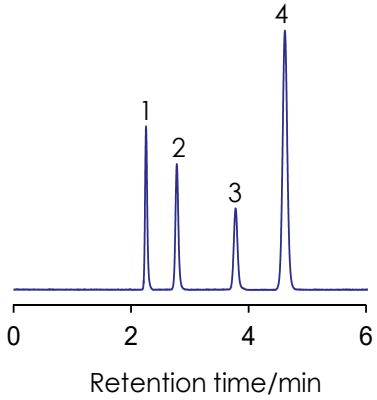
Acetonitrile:water:formic acid=60:40:0.04



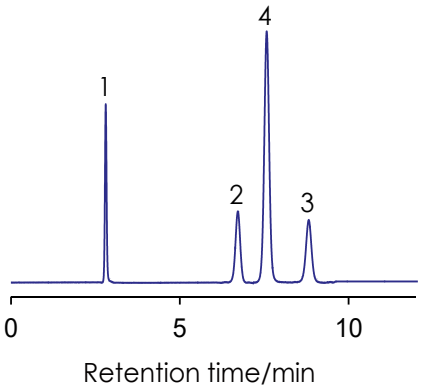
Methanol:water:formic acid = 60:40:0.04



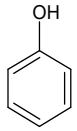
Acetonitrile:20 mM Potassium phosphate buffer (pH 3.0) = 60:40



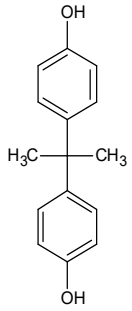
Methanol:20 mM Potassium phosphate buffer (pH 3.0) = 60:40



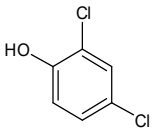
1. Phenol



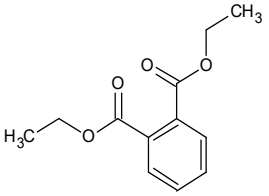
2. Bisphenol-A



3. 2,4-Dichlorophenol



4. Diethylphthalate



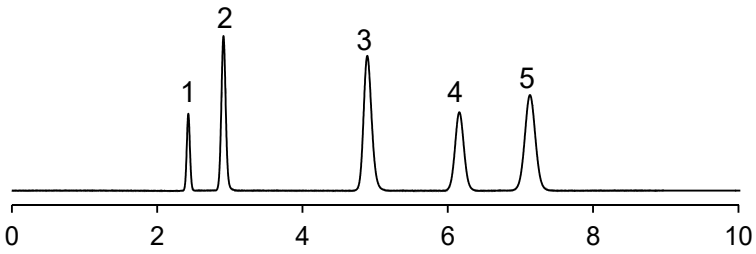
Column: Sunniest C18 5 µm, 150 x 4.6 mm
Mobile phase:
A) Acetonitrile:water:formic acid=60:40:0.04
B) Acetonitrile:20 mM Potassium phosphate buffer (pH 3.0)=60:40
C) Methanol:water:formic acid=60:40:0.04
D) Methanol:20 mM Potassium phosphate buffer (pH 3.0)=60:40
Flow rate: 1.0 mL/min
Temperature: 40 °C
Detection: UV@280nm
Sample: 1 = Phenol, 2 = Bisphenol-A, 3 = 2,4-Dichlorophenol, 4 = Diethylphthalate

局所麻酔薬の分離 (2)

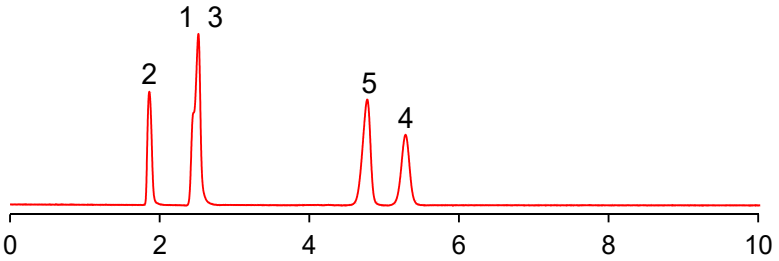
Local anesthetic (2)

Sunniest C18 5 µm, 150 x 4.6 mm i.d.

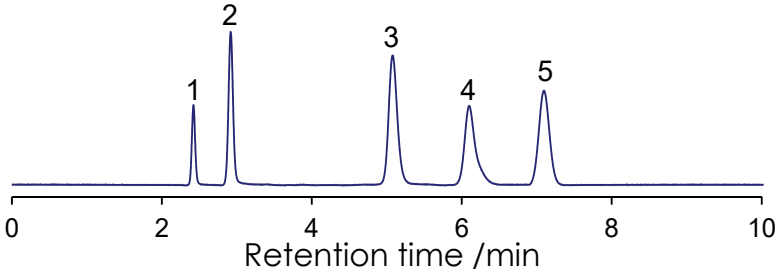
Methanol:20 mM Phosphate buffer (pH 7.0) = 70:30



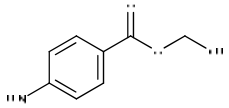
Methanol:20 mM Ammonium acetate buffer (pH 6.8) = 70:30



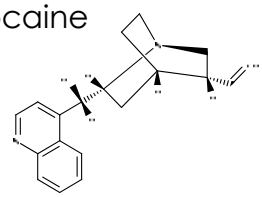
Methanol:20 mM Ammonium bicarbonate buffer (pH 9.5) = 70:30



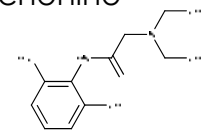
1. Benzocaine



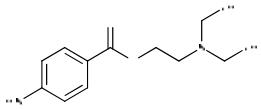
2. Procaine



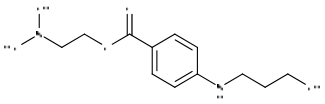
3. Cinchonine



4. Lidocaine



5. Tetracaine



Column :
Sunniest C18 5 µm, 150 x 4.6 mm i.d.
Mobile phase : Methanol:20 mM Phosphate buffer (pH 7.0) = 70:30
Methanol:20 mM Ammonium acetate buffer (pH 6.8) = 70:30
Methanol:20 mM Ammonium bicarbonate buffer (pH 9.5) = 70:30
Flow rate : 1.0 mL/min
Pressure : 10.4 MPa
Temperature : 40 °C
Detection : UV@250nm
Injection volume : 1 µL
Sample : 1 = Benzocaine,
2 = Procaine,
3 = Cinchonine,
4 = Lidocaine,
5 = Tetracaine

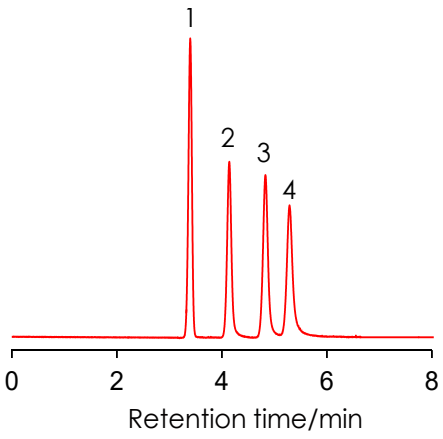
神経伝達物質の分離

Neurotransmitter

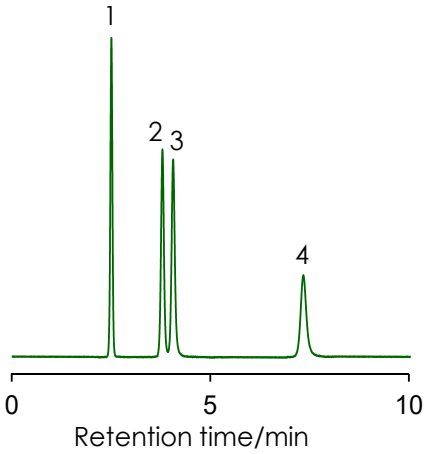
Sun Shell HILIC-S 2.6 µm, 100 x 2.1 mm i.d.
Sun Shell HILIC-Amide 2.6 µm, 100 x 2.1 mm i.d.
Sun Shell RP-AQUA 2.6 µm, 100 x 2.1 mm i.d.

SunShell HILIC-S, 2.6 µm

ACN:100 mM ammonium formate(pH3.0)=92.5:7.5

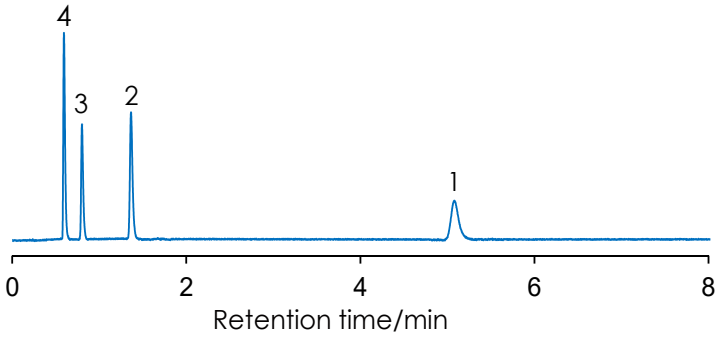


SunShell HILIC Amide, 2.6 µm

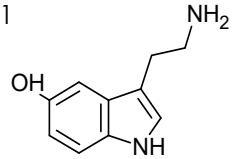


Sun Shell RP-AQUA, 2.6 µm

10 mM ammonium formate(pH3.0)

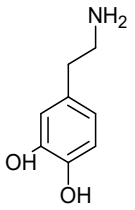


1



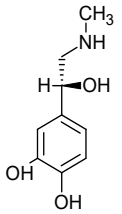
Serotonin

2



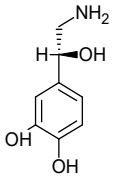
Dopamine

3



Epinephrine

4



Norepinephrine

Column: Sun Shell HILIC Silica 2.6 µm 100 x 2.1 mm
Sun Shell HILIC Amide 2.6 µm 100 x 2.1 mm
Sun Shell RP-AQUA 2.6 µm 100 x 2.1 mm

Mobile phase:

A) ACN:100 mM ammonium formate(pH3.0)=92.5:7.5

B) 10 mM ammonium formate(pH3.0)

Flow rate: 0.4mL /min

Temperature: 25 °C

Detection: UV@270 nm

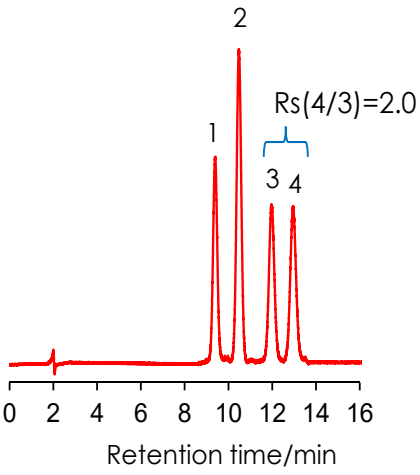
Sample: 1 = Serotonin, 2 = Dopamine, 3 = Epinephrine, 4 = Norepinephrine

副腎皮質ステロイド類の分離 (2)

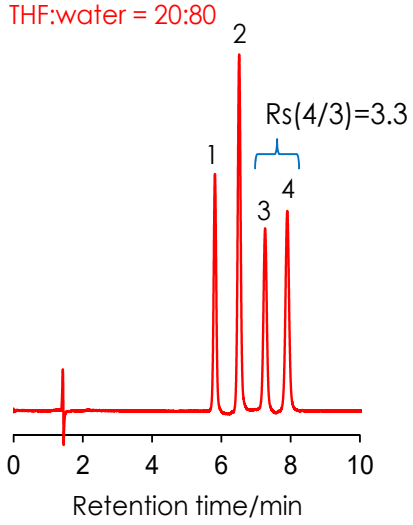
Sunniest C18 5 µm, 150 x 4.6 mm i.d.
SunShell C18 2.6 µm, 150 x 4.6 mm i.d.
SunShell PFP 2.6 µm, 150 x 4.6 mm i.d.

Corticosteroids (2)

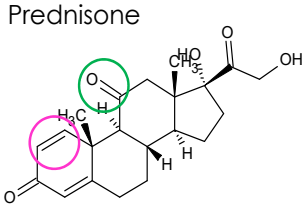
Sunniest C18 5 µm, 150 x 4.6 mm
THF:water = 20:80



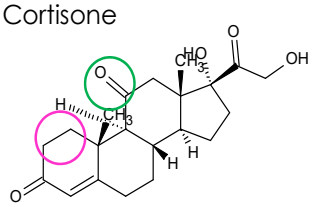
SunShell C18 2.6 µm, 150 x 4.6 mm
THF:water = 20:80



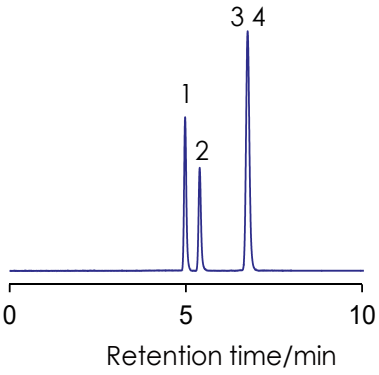
1. Prednisone



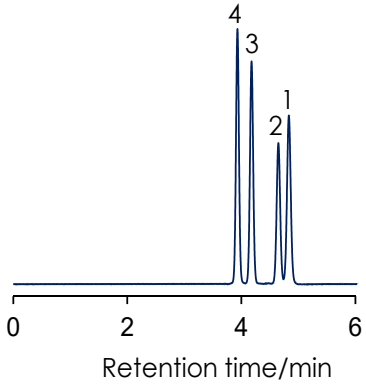
2. Cortisone



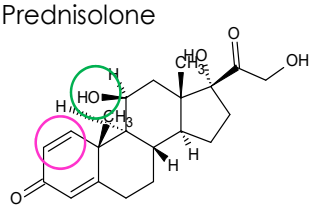
SunShell C18 2.6 µm, 150 x 4.6 mm
Methanol:water = 50:50



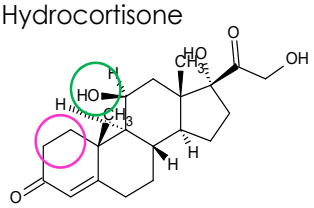
SunShell PFP 2.6 µm, 150 x 4.6 mm
Methanol:water = 50:50



3. Prednisolone



4. Hydrocortisone

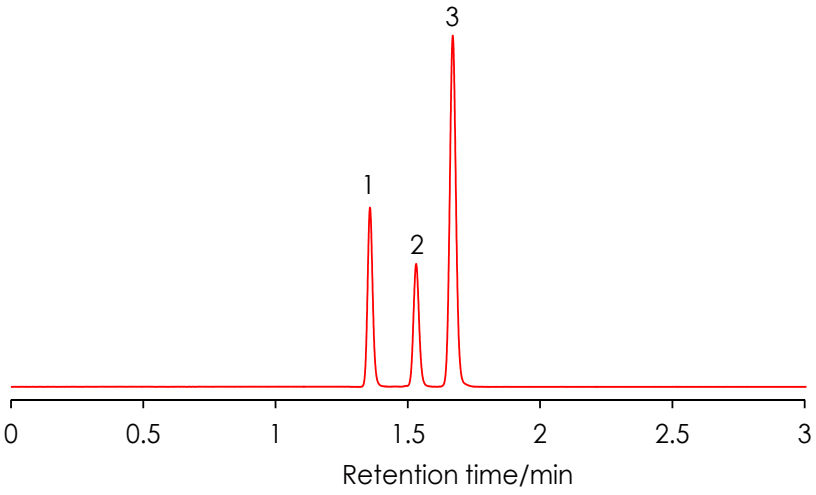


Column: Sunniest C18 5 µm, 150 x 4.6 mm
SunShell C18 2.6 µm, 150 x 4.6 mm
SunShell PFP 2.6 µm, 150 x 4.6 mm
Mobile phase:
A) THF:water = 20:80
B) Methanol:water = 50:50
Flow rate: 1.0 mL/min
Temperature: 40 °C
Detection: UV@260nm
Sample: 1 = Prednisone, 2 = Cortisone, 3 = Prednisolone, 4 = Hydrocortisone

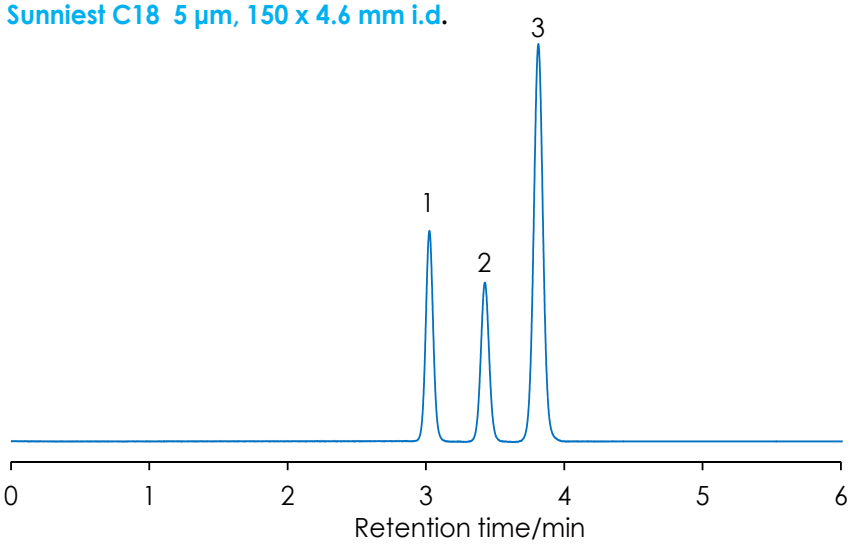
抗アンドロゲン薬と代謝物の分離 (2)

Ethynylestradiol and its metabolites (2)

SunShell C18 2.6 µm, 100 x 4.6 mm i.d.

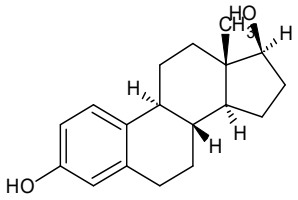


Sunniest C18 5 µm, 150 x 4.6 mm i.d.

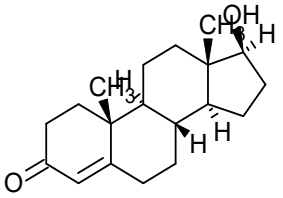


SunShell C18 2.6 µm, 100 x 4.6 mm
Sunniest C18 5 µm, 150 x 4.6 mm

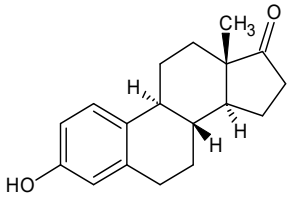
1.17β-Estradiol



2.Testosterone



3.Estrone



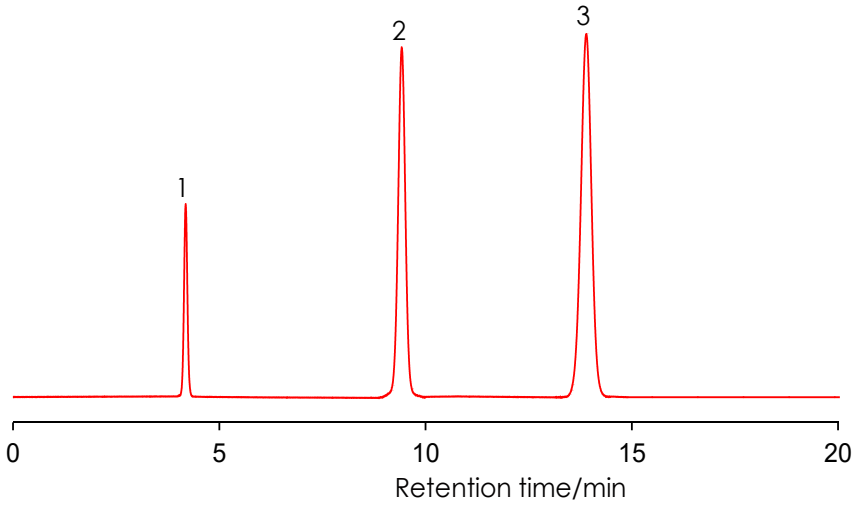
Column: SunShell C18 2.6 µm, 100 x 4.6 mm
Sunniest C18 5 µm, 150 x 4.6 mm
Mobile phase: Acetonitrile:water = 60:40
Flow rate: 1.0 mL/min
Temperature: 40 °C
Detection: UV@230nm
Sample: 1 = 17β-Estradiol, 2 = Testosterone, 3 = Estrone

アントラキノン系染料の分離 (2)

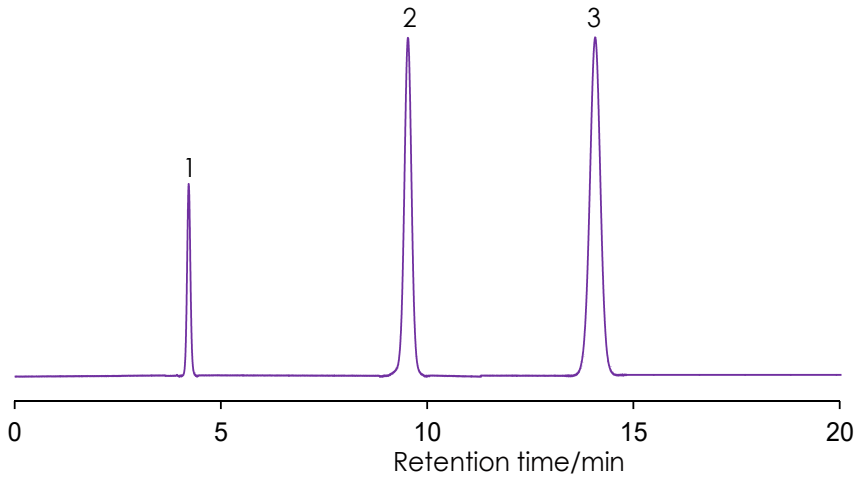
Anthraquinone dye (2)

Sunniest C18 5 µm, 150 x 4.6 mm i.d.

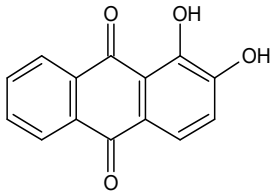
Methanol:20 mM phosphate buffer (pH 2.5) = 75:25



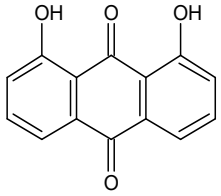
Methanol:0.1% formic acid = 75:25



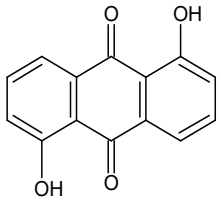
1. Alizalin



2. Chrysazin



3. Anthrarufin

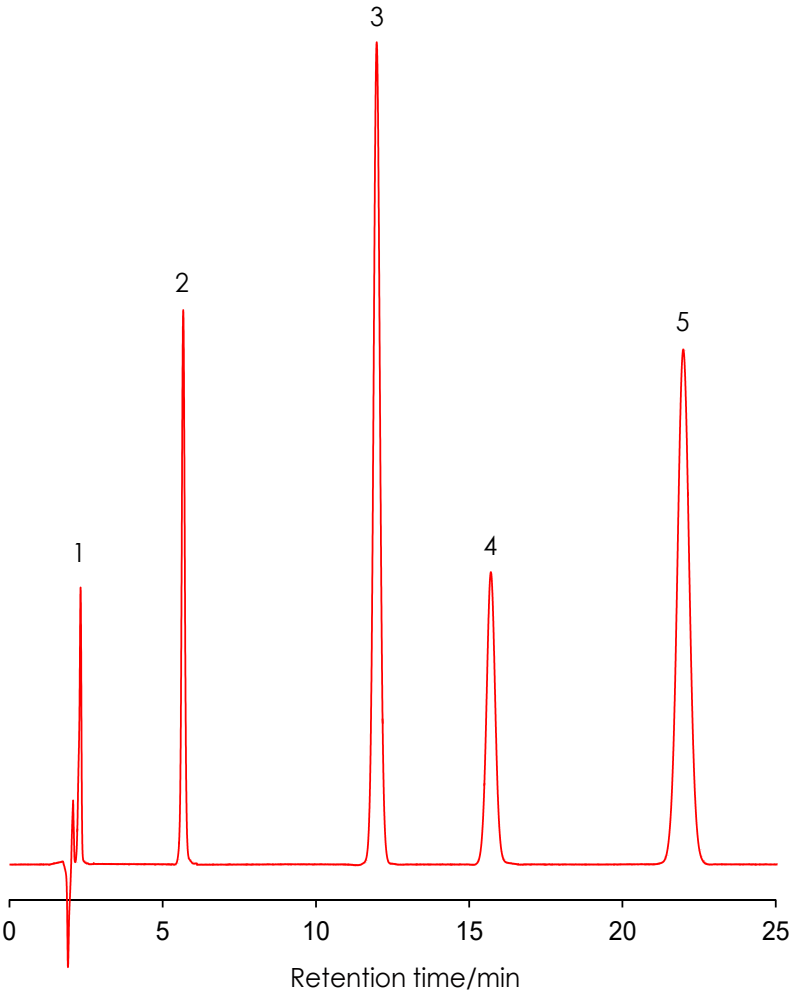


Column: Sunniest C18 5 µm, 150 x 4.6 mm
Mobile phase:
A) Methanol:20 mM phosphate buffer (pH 2.5) = 75:25
B) Methanol:0.1% formic acid = 75:25
Flow rate: 1.0 mL/min
Temperature: 40 °C
Detection: UV@250nm
Sample: 1 = Alizalin, 2 = Chrysazin, 3 = Anthrarufin

抗高脂血症剤の分離 (2)

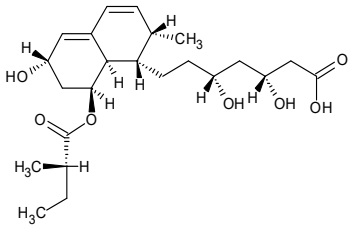
Stantins (2)

Sunniest C18 5 µm, 150 x 4.6 mm i.d.

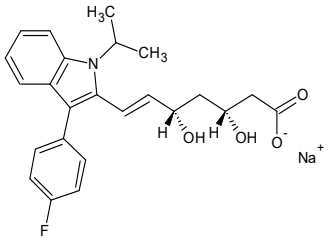


Column: Sunniest C18 5 µm, 150 x 4.6 mm
Mobile phase: Acetonitrile:0.1 % formic acid = 60:40
Flow rate: 0.8 mL/min
Temperature: 40 °C
Detection: UV@240 nm
Sample: 1 = Pravastatin, 2 = Fluvastatin, 3 = Mevastatin, 4 = Lovastatin, 5 = Simvastatin

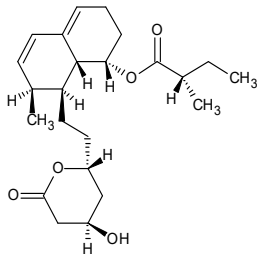
1. Pravastatin



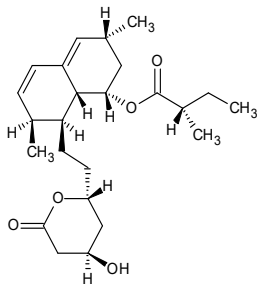
2. Fluvastatin



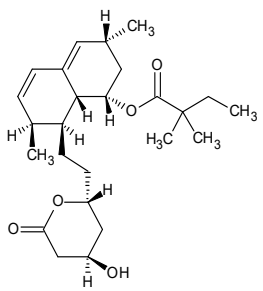
3. Mevastatin



4. Lovastatin



5. Simvastatin

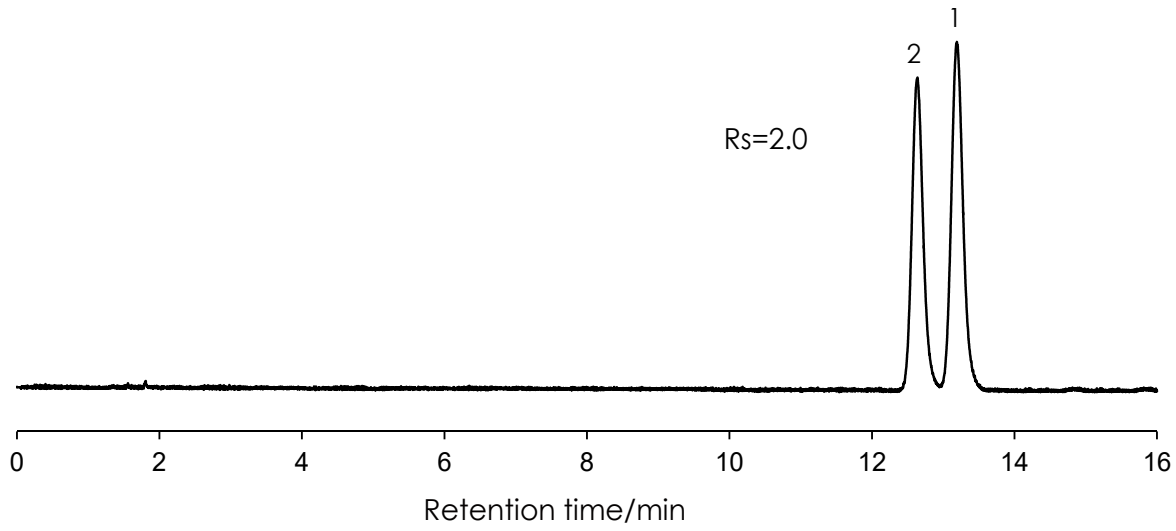


cis,trans -スチルベンの分離

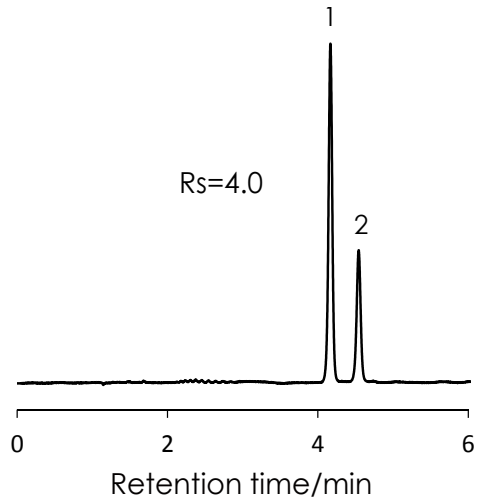
Stilbene

SunShell PFP 2.6 µm, 150 x 4.6 mm i.d.
SunShell C18 2.6 µm, 150 x 4.6 mm i.d.

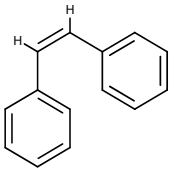
SunShell C18 2.6 µm, 150 x 4.6 mm i.d.



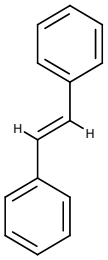
SunShell PFP 2.6 µm, 150 x 4.6 mm i.d.



1. cis-Stilbene



2. trans-Stilbene



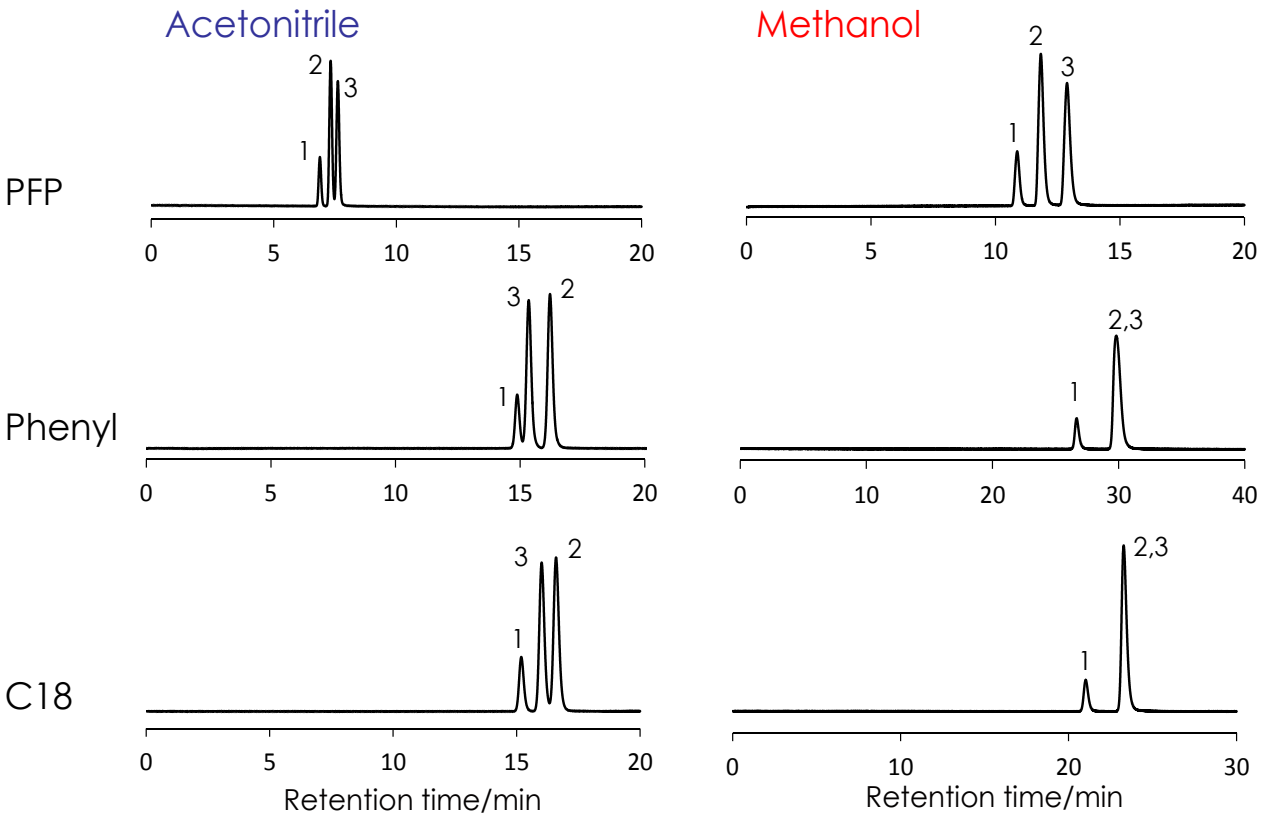
Column: SunShell PFP 2.6 µm, 150 x 4.6 mm
SunShell C18 2.6 µm, 150 x 4.6 mm
Mobile phase: Acetonitrile:Water = 40:60
Flow rate: 1.0 mL/min
Temperature: 25 °C
Detection: UV@230nm
Sample: 1= cis-Stilbene, 2 = trans-Stilbene

Instrulment	
Hitachi Chromaster®	
Detector:	5410
Oven:	5310
AutoSampler:	5260
Pump:	5160

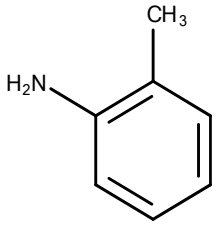
o, m, p-トルイジンの分離

o, m, p-Toluidine

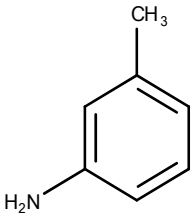
SunShell PFP 2.6 µm, 150 x 4.6 mm i.d.
SunShell Phenyl 2.6 µm, 150 x 4.6 mm i.d.
SunShell C18 2.6 µm, 150 x 4.6 mm i.d.



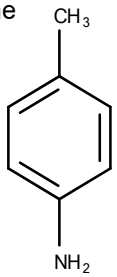
1. o-Toluidine



2. m-Toluidine



3. p-Toluidine



Mobile phase:
Methanol:10 mM Ammonium acetate (pH 6.8) = 10:90
Acetonitrile:10 mM Ammonium acetate (pH 6.8) = 10:90
Flow rate: 1.5 mL/min
Temperature: 25 °C
Detection: UV@250nm
Sample: 1= o-Toluidine, 2 = p-Toluidine, 3 = m-Toluidine

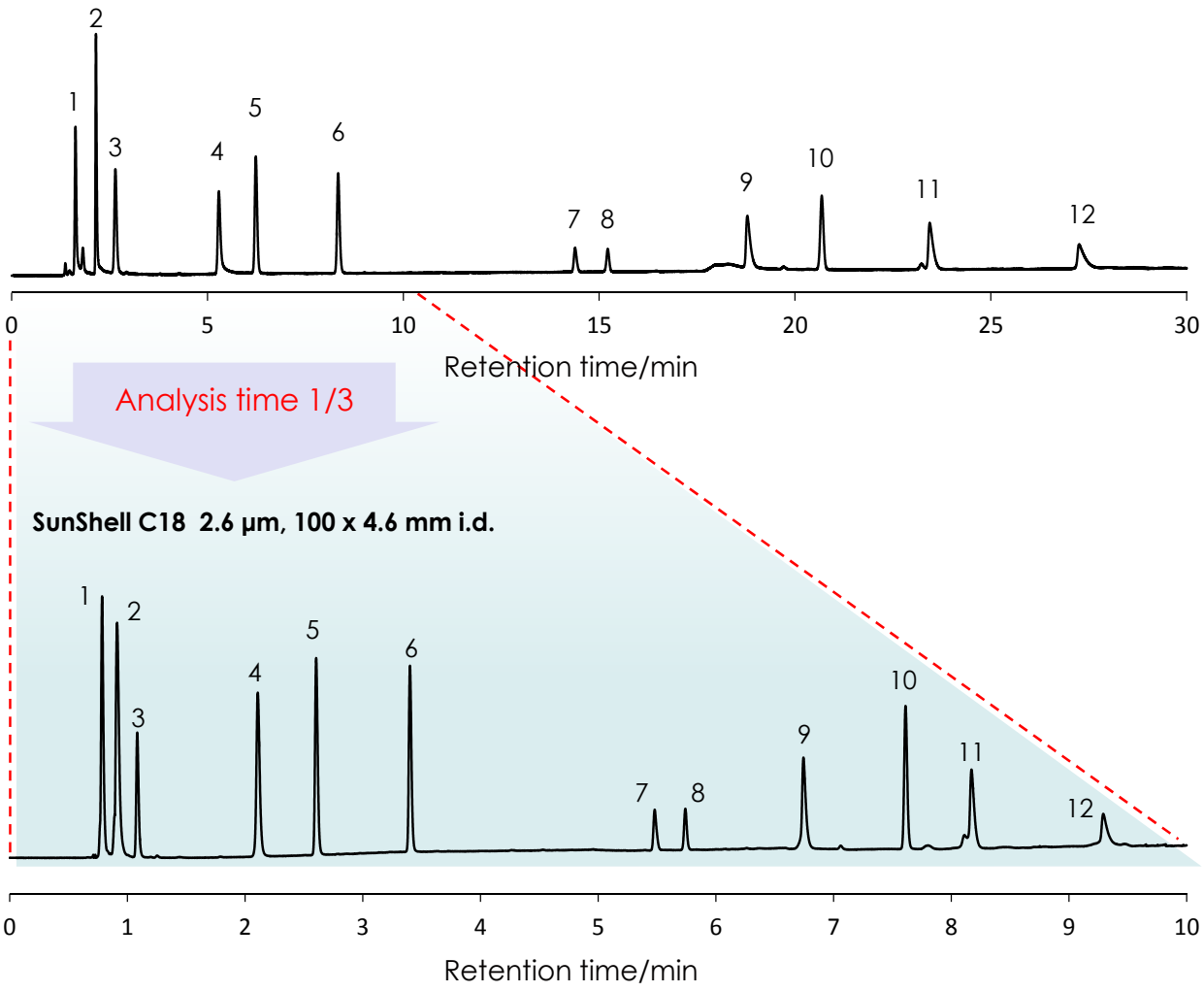
Instrument	
Hitachi	Chromaster®
Detector:	5410
Oven:	5310
AutoSampler:	5260
Pump:	5160

タール色素の分離

Tar pigment

SunShell C18 2.6 µm, 150 x 4.6 mm i.d.

Sunniest C18 5 µm, 150 x 4.6 mm i.d.



Column: SunShell C18 2.6 µm, 150 x 4.6 mm i.d.

Mobile phase: A) 10 mM Ammonium acetate (pH 6.8)

B) Acetonitrile

Gradient program:

Time (min)	0	10
% B	10	50

Flow rate: 1.0 mL/min

Temperature: 40 °C

Detection: UV@250nm

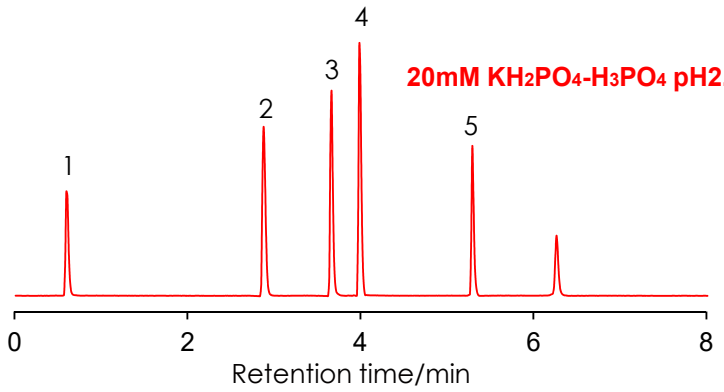
Instrulment	
Hitachi Chromaster®	
Detector:	5410
Oven:	5310
AutoSampler:	5260
Pump:	5160

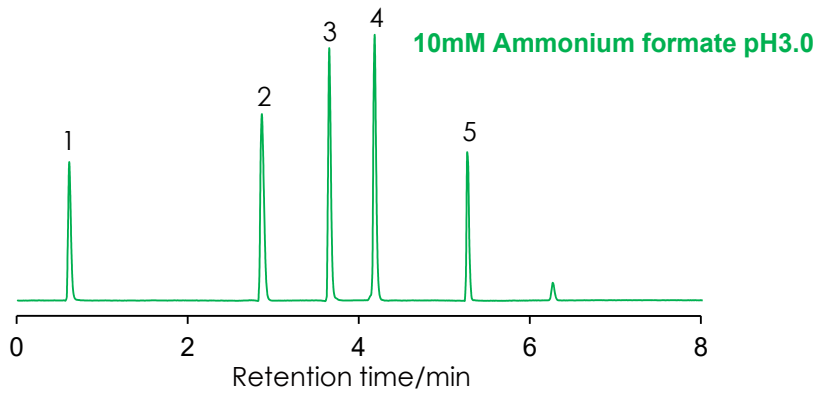
Sample: 1= Tartrazine, 2 = Amaranth, 3 = Indigo carmine,
4 = New Coccine, 5 = Sunset Yellow FCF, 6 = Allura Red AC, 7 = Fast Green FCF,
8 = Brilliant Blue FCF, 9 = Erythrosine B, 10 = Furoxan, 11 = Acid Red 52, 12 = Rose bengal

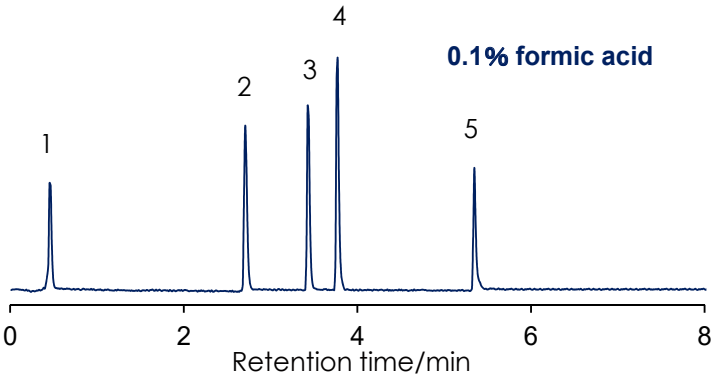
点眼剤成分の分離

Ingredients in an eye drop

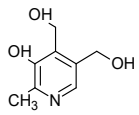
SunShell C18 2.6 µm, 50 x 2.1 mm i.d.



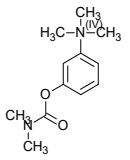




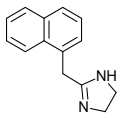
1 Pyridoxine HCl
Vitamin B_6



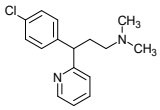
2 Neostigmine methylsulfate



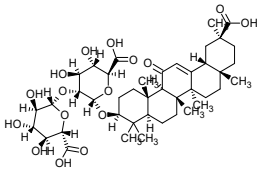
3 Naphazoline HCl



4 Chlorpheniramine



5 Glycyrrhizin



Column: SunShell C18 2.6 µm, 50 x 2.1 mm

Mobile phase: A) 20mM KH_2PO_4-H_3PO_4 pH2.5, 10mM Ammonium formate pH3.0 or 0.1% formic acid

B) Acetonitrile

Time (min)	0	5	7.5
%B	0	60	60

Flow rate: 0.4 mL/min

Temperature: 37 °C

Detection: UV@265 nm

Sample: 1 = Pyridoxine HCl, 2 = Neostigmine methylsulfate, 3 = Naphazoline HCl, 4 = Chlorpheniramine, 5 = Glycyrrhizin

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