

Antibiotics are widely used in food-producing animals to prevent disease or promote growth. The use of antibiotics may result in drug residues in the animal derived food. The analysis of antibiotics residues in animal derived food is important worldwide to ensure foods safety. Excellent High Performance Liquid Chromatography (HPLC) analyses of these substances can be achieved by using COSMOSIL columns.



## (1) Fluoroquinolones

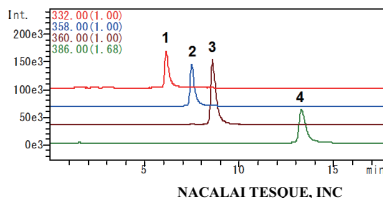
### • LC/MS analysis by COSMOSIL 3C<sub>18</sub>-EB Columns

#### COSMOSIL Application Data

Column: 3C<sub>18</sub>-EB  
 Column size: 2.0mm I.D.-150mm  
 Mobile phase: 0.1% Formic Acid-Acetonitrile/ H<sub>2</sub>O = 15/85  
 Flow rate: 0.2 ml/min  
 Temperature: 40°C  
 Detection: ESI-MS, Positive, SIM

Sample:

1; Ciprofloxacin (21mg/L)  
 2; Danofloxacin (25mg/L)  
 3; Enrofloxacin (25mg/L)  
 4; Sarafloxacin (25mg/L)  
 Inj.Vol.: 1.0 μl

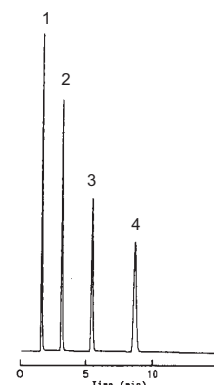


### • HPLC Analysis by COSMOSIL 5C<sub>18</sub>-MS-II

#### COSMOSIL Application Data

Column: 5C<sub>18</sub>-MS-II  
 Column size: 4.6mm I.D.-150mm  
 Mobile phase: Methanol/ 20mmol/l Phosphate buffer(pH3) = 55/45  
 Flow rate: 1.0 ml/min  
 Temperature: 30°C  
 Detection: UV270nm, 0.16AUFS

Sample: 1; Ofloxacin (0.39 μg)  
 2; Oxolinic Acid (0.08 μg)  
 3; Flumequine (1.08 μg)  
 4; Piromidic Acid (0.08 μg)



## (2) Aminoglycosides

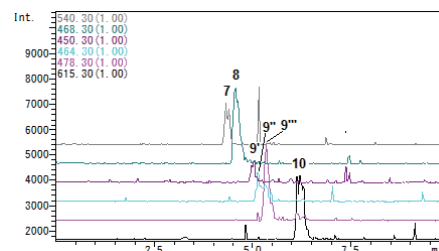
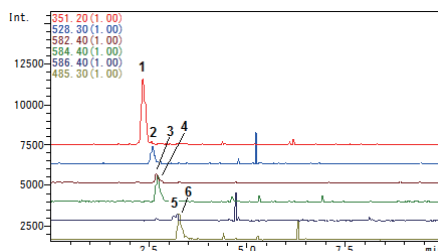
### • Simultaneous LC/MS analysis by COSMOSIL 3C<sub>18</sub>-EB

#### COSMOSIL Application Data

Column: 3C<sub>18</sub>-EB  
 Column size: 2.0mm I.D.-150mm  
 Mobile phase: 0.1% Heptafluoro-n-butyric Acid -Acetonitrile/ H<sub>2</sub>O = 30/70

Flow rate: 0.2 ml/min  
 Temperature: 40°C  
 Detection: ESI-MS, Positive, SIM

Sample: 1; Spectinomycin  
 2; Hygromycin B  
 3; Streptomycin  
 4; Dihydrostreptomycin  
 5; Amikacin  
 6; Kanamycin  
 7; Apramycin  
 8; Tobramycin  
 9; Gentamicin  
 10; Neomycin  
 Inj.Vol.: 1.0 μl



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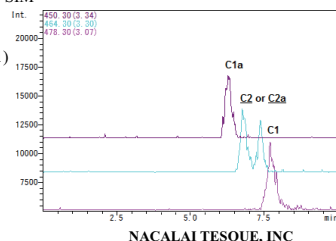
## (2) Aminoglycosides

### • LC/MS analysis of Gentamicin by COSMOSIL PBr

#### COSMOSIL Application Data

Column: PBr  
 Column size: 2.0mmI.D.-150mm  
 Mobile phase: 0.1% Pentafluoropropionic Acid  
 -Acetonitrile/ H<sub>2</sub>O = 10/90  
 Flow rate: 0.2 ml/min  
 Temperature: 40°C  
 Detection: ESI-MS, Positive, SIM

Sample: Gentamicin  
 (C1a, C2, C2a, C1)  
 Inj. Vol.: 1.0 μl



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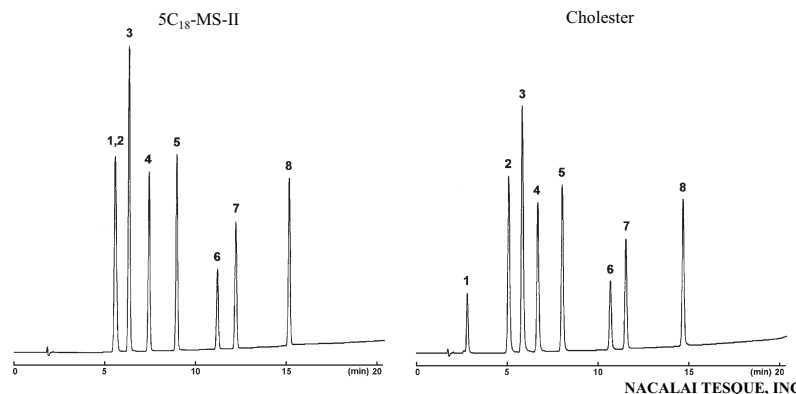
## (3) Sulfonamides

### • HPLC Analysis (COSMOSIL 5C<sub>18</sub>-MS-II vs. COSMOSIL Cholester)

#### COSMOSIL Application Data

Column: 4.6mmI.D.-150mm  
 Mobile phase: A; 0.1% Formic Acid-H<sub>2</sub>O  
 B; 0.1% Formic Acid-Acetonitrile  
 B conc. 10→50% 20min Linear gradient  
 Flow rate: 1.0 ml/min  
 Temperature: 40°C  
 Detection: UV254nm

Sample: 1; Trimethoprim (0.1mg/ml)  
 2; Sulfadiazine (0.1mg/ml)  
 3; Sulfathiazole (0.1mg/ml)  
 4; Sulfamerazine (0.1mg/ml)  
 5; Sulfamethazine (0.1mg/ml)  
 6; Sulfachloropyridazine (0.1mg/ml)  
 7; Sulfamethoxazole (0.1mg/ml)  
 8; Sulfadimethoxine (0.1mg/ml)  
 Inj. Vol.: 1.0 μl



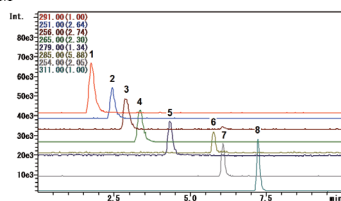
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### • LC/MS Analysis by COSMOSIL 2.5Cholester

#### COSMOSIL Application Data

Column: 2.5Cholester  
 Column size: 2.0mmI.D.-50mm  
 Mobile phase: A; 0.1% Formic Acid-H<sub>2</sub>O  
 B; 0.1% Formic Acid-Acetonitrile  
 B conc. 10→50% 5min Linear gradient  
 Flow rate: 0.2 ml/min  
 Temperature: 40°C  
 Detection: ESI-MS, Positive, SIM

Sample:  
 1; Trimethoprim (10mg/L)  
 2; Sulfadiazine (10mg/L)  
 3; Sulfathiazole (10mg/L)  
 4; Sulfamerazine (10mg/L)  
 5; Sulfamethazine (10mg/L)  
 6; Sulfachloropyridazine (10mg/L)  
 7; Sulfamethoxazole (10mg/L)  
 8; Sulfadimethoxine (10mg/L)  
 Inj. Vol.: 5.0 μl



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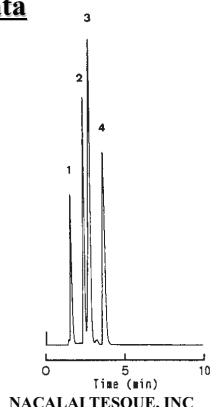
## (4) Beta-Lactams (Penicillins)

### • HPLC analysis by COSMOSIL 5C<sub>18</sub>-MS-II

#### **COSMOSIL Application Data**

Column: 5C<sub>18</sub>-MS-II  
Column size: 4.6mm I.D.-150mm  
Mobile phase: Methanol/ 20mmol/l Phosphate  
buffer(pH7) = 50/50  
Flow rate: 1.0 ml/min  
Temperature: 30°C  
Detection: UV235nm, 0.2AUFS

Sample: 1; Carbenicillin (1.5 µg)  
2; Ampicillin (3.0 µg)  
3; Methicillin (1.5 µg)  
4; Penicillin G (3.0 µg)



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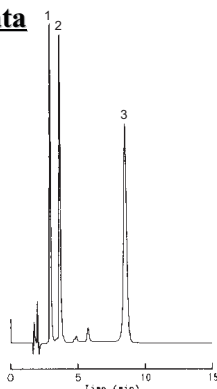
## (5) Tetracyclines

### • HPLC Analysis by COSMOSIL 5C<sub>18</sub>-MS-II

#### **COSMOSIL Application Data**

Column: 5C<sub>18</sub>-MS-II  
Column size: 4.6mm I.D.-150mm  
Mobile phase: Methanol/ 20mmol/l Phosphate  
buffer(pH3) = 20/80  
Flow rate: 1.0 ml/min  
Temperature: 20°C  
Detection: UV254nm

Sample: 1; Oxytetracycline  
2; Tetracycline  
3; Chlortetracycline



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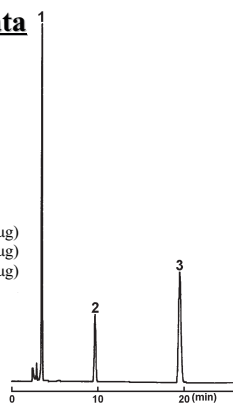
## (6) Lincosamides

### • HPLC Analysis by COSMOSIL 5C<sub>8</sub>-MS

#### **COSMOSIL Application Data**

Column: 5C<sub>8</sub>-MS  
Column size: 4.6mm I.D.-250mm  
Mobile phase: Acetonitrile/ 100mmol/l KH<sub>2</sub>PO<sub>4</sub>  
(pH2.5 with H<sub>3</sub>PO<sub>4</sub>) = 22/78  
Flow rate: 1.0 ml/min  
Temperature: 25°C  
Detection: UV210nm

Sample: 1; Lincomycin (4.0 µg)  
2; Clindamycin Phosphate (4.0 µg)  
3; Methyl p-Hydroxybenzoate (0.3 µg)



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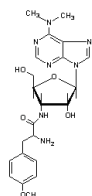
## (7) Antibiotics' Chromatograms

Antibiotics' chromatograms are available on COSMOSIL Application Search. Please visit our website and enter Chromatogram Index No. in Application No. box. For more information, please visit our website at <http://www.nacalai.co.jp/global/cosmosil/data/05.html>

### • Antibiotics' chromatograms list

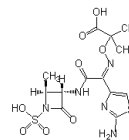
#### Aminonucleosides

Sample :Puromycin  
CAS No. :58-58-2  
Chromatogram Index No. :M-P0210  
Column :COSMOSIL 5C<sub>18</sub>-MS-II



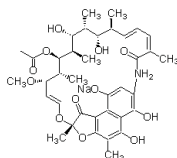
#### Beta-Lactams (Monobactams)

Sample :Aztreonam  
CAS No. :78110-38-0  
Chromatogram Index No. :J-00112  
Column :COSMOSIL 5C<sub>18</sub>-MS-II



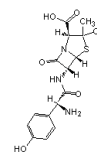
#### Ansamycins

Sample :Rifamycin SV  
CAS No. :14897-39-3  
Chromatogram Index No. :M-R0013  
Column :COSMOSIL 5C<sub>18</sub>-MS-II

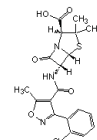


#### Beta-Lactams (Penicillins)

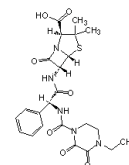
Sample :Amoxicillin  
CAS No. :26787-78-0  
Chromatogram Index No. :J-00085  
Column :COSMOSIL 5C<sub>18</sub>-PAQ



Sample :Cloxacillin  
CAS No. :61-72-3  
Chromatogram Index No. :J-00048  
Column :COSMOSIL 5C<sub>18</sub>-AR-II

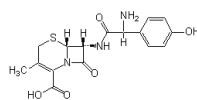


Sample :Piperacillin  
CAS No. :61477-96-1  
Chromatogram Index No. :J-00093  
Column :COSMOSIL 5C<sub>18</sub>-AR-II

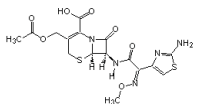


#### Beta-Lactams (Cephems)

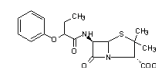
Sample :Cefadroxil  
CAS No. :50370-12-2  
Chromatogram Index No. :J-00102  
Column :COSMOSIL 5C<sub>18</sub>-PAQ



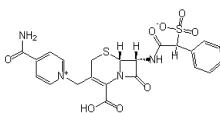
Sample :Cefotaxime  
CAS No. :63527-52-6  
Chromatogram Index No. :J-00161  
Column :COSMOSIL 5C<sub>18</sub>-MS-II



Sample :Propicillin  
CAS No. :1245-44-9  
Chromatogram Index No. :M-P0173  
Column :COSMOSIL 5C<sub>18</sub>-MS-II

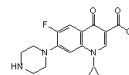


Sample :Cefsulodin  
CAS No. :52152-93-9  
Chromatogram Index No. :J-00103  
Column :COSMOSIL 5C<sub>18</sub>-PAQ

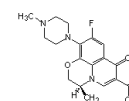


#### Fluoroquinolones

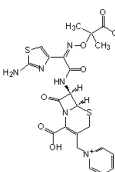
Sample :Ciprofloxacin  
CAS No. :85721-33-1  
Chromatogram Index No. :J-00147  
Column :COSMOSIL 5C<sub>18</sub>-MS-II



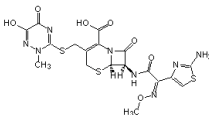
Sample :Levofloxacin  
CAS No. :100986-85-4  
Chromatogram Index No. :J-00154  
Column :COSMOSIL 5C<sub>18</sub>-MS-II



Sample :Ceftazidime  
CAS No. :72558-82-8  
Chromatogram Index No. :J-00104  
Column :COSMOSIL 5C<sub>18</sub>-PAQ

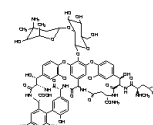


Sample :Ceftriaxone  
CAS No. :73384-59-5  
Chromatogram Index No. :J-00116  
Column :COSMOSIL 5C<sub>18</sub>-AR-II

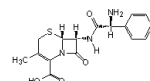


#### Glycopeptides

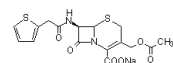
Sample :Vancomycin  
CAS No. :1404-93-9  
Chromatogram Index No. :M-V0008  
Column :COSMOSIL 5C<sub>18</sub>-MS-II



Sample :Cephalexin  
CAS No. :15686-71-2  
Chromatogram Index No. :J-00166  
Column :COSMOSIL 5C<sub>18</sub>-MS-II

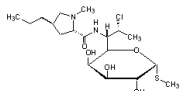


Sample :Cephalothin sodium  
CAS No. :58-71-9  
Chromatogram Index No. :M-C0046  
Column :COSMOSIL 5C<sub>18</sub>-MS-II



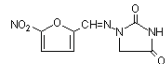
## Lincosamides

**Sample** :Clindamycin  
**CAS No.** :18323-44-9  
**Chromatogram Index No.** :J-00036  
**Column** :COSMOSIL 5C<sub>18</sub>-AR-II



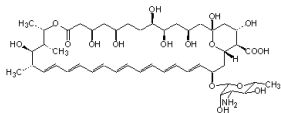
## Nitrofurans

**Sample** :Nitrofurantoin  
**CAS No.** :67-20-9  
**Chromatogram Index No.** :M-N0093  
**Column** :COSMOSIL 5C<sub>18</sub>-MS-II

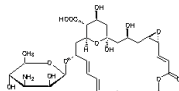


## Polyenes

**Sample** :Amphotericin B  
**CAS No.** :1397-89-3  
**Chromatogram Index No.** :H-00123  
**Column** :COSMOSIL HILIC

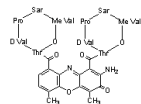


**Sample** :Pimaricin  
**CAS No.** :7681-93-8  
**Chromatogram Index No.** :J-00034  
**Column** :COSMOSIL 5C<sub>18</sub>-AR-II

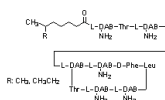


## Polypeptides

**Sample** :Actinomycin D  
**CAS No.** :50-76-0  
**Chromatogram Index No.** :M-A0049  
**Column** :COSMOSIL 5C<sub>18</sub>-MS-II

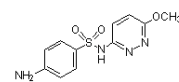


**Sample** :Polymyxin B Sulfate  
**CAS No.** :1405-20-5  
**Chromatogram Index No.** :W-00074  
**Column** :COSMOSIL 5C<sub>18</sub> AR-300

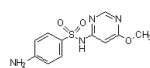


## Sulfonamides

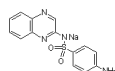
**Sample** :Sulfamethoxypyridazine  
**CAS No.** :80-35-3  
**Chromatogram Index No.** :M-S0056  
**Column** :COSMOSIL 5C<sub>18</sub>-MS-II



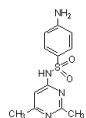
**Sample** :Sulfamonomethoxine  
**CAS No.** :1220-83-3  
**Chromatogram Index No.** :M-S0057  
**Column** :COSMOSIL 5C<sub>18</sub>-MS-II



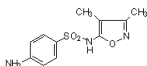
**Sample** :Sulfaquinoxaline  
**CAS No.** :59-40-5  
**Chromatogram Index No.** :M-S0058  
**Column** :COSMOSIL 5C<sub>18</sub>-MS-II



**Sample** :Sulfisomidine  
**CAS No.** :515-64-0  
**Chromatogram Index No.** :M-S0061  
**Column** :COSMOSIL 5C<sub>18</sub>-MS-II

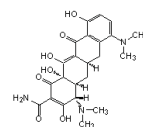


**Sample** :Sulfisoxazole  
**CAS No.** :127-69-5  
**Chromatogram Index No.** :M-S0062  
**Column** :COSMOSIL 5C<sub>18</sub>-MS-II



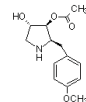
## Tetracyclines

**Sample** :Minocycline  
**CAS No.** :10118-90-8  
**Chromatogram Index No.** :J-00091  
**Column** :COSMOSIL 5C<sub>18</sub>-AR-II

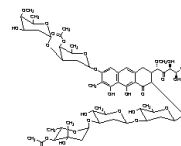


## Ohters

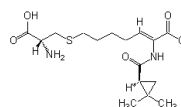
**Sample** :Anisomycin  
**CAS No.** :22862-76-6  
**Chromatogram Index No.** :M-A0125  
**Column** :COSMOSIL 5C<sub>18</sub>-MS-II



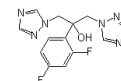
**Sample** :Chromomycin A3  
**CAS No.** :7059-24-7  
**Chromatogram Index No.** :M-C0163  
**Column** :COSMOSIL 5C<sub>18</sub>-MS-II



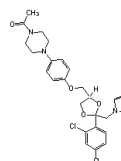
**Sample** :Cilastatin  
**CAS No.** :82009-34-5  
**Chromatogram Index No.** :J-00073  
**Column** :COSMOSIL 5C<sub>18</sub>-AR-II



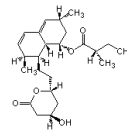
**Sample** :Fluconazole  
**CAS No.** :86386-73-4  
**Chromatogram Index No.** :J-00152  
**Column** :COSMOSIL 5C<sub>18</sub>-MS-II



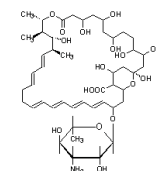
**Sample** :Ketoconazole  
**CAS No.** :65277-42-1  
**Chromatogram Index No.** :J-00168  
**Column** :COSMOSIL 5C<sub>18</sub>-MS-II



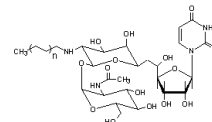
**Sample** :Lovastatin  
**CAS No.** :75330-75-5  
**Chromatogram Index No.** :J-00150  
**Column** :COSMOSIL 5C<sub>18</sub>-MS-II



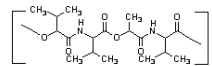
**Sample** :Mycostatin  
**CAS No.** :1400-61-9  
**Chromatogram Index No.** :M-M0214  
**Column** :COSMOSIL 5C<sub>18</sub>-MS-II



**Sample** :Tunicamycin  
**CAS No.** :11089-65-9  
**Chromatogram Index No.** :M-T0196  
**Column** :COSMOSIL 5C<sub>18</sub>-MS-II



**Sample** :Valinomycin  
**CAS No.** :2001-95-8  
**Chromatogram Index No.** :S-00117  
**Column** :COSMOSIL 5SL-II



Please see next page to see how to search at COSMOSIL Application Search.

# How to Search at COSMOSIL Application Search

Visit COSMOSIL Application Search page at <http://www.nacalai.co.jp/global/cosmosil/data/05.html>



Click

Applications are searched by

1. Sample Category
2. Column Name
3. Sample Name
4. CAS No.,
5. Application No.
6. Particle Size

Category

- No Appointment
- Amino acids & derivatives
- Peptides & Proteins
- Nucleic acids & relative compounds
- Drugs & related compounds
- Antibiotics
- Vitamins

Column name

- No Appointment
- C18-EB
- C18-MS-II
- C18-AR-II
- C18-PAQ
- Cholester
- PFP

Sample Name:  contains (Keyword search) ▼

CAS number:  (ex:498-02-2)

Application No.:  (ex:AP-1206)

Particle Size: ALL ▼

Result/Page: 20 ▼

## Search Result

Click

COSMOSIL Application

Search condition:[Application No=J-00073]

[TOP]

Results 1 (1-1)

Data No.	Data Name	Sample	Particle Size (µm)	Column	CAS No.
J-00073	Index	Cilastatin	5	C18-AR-II	82009-34-5

Results 1 (1-1) ▲ Page Top

Click

## COSMOSIL Application

**COSMOSIL Chromatogram Index**

Sample: Cilastatin

CAS No.: [82009-34-5]

Molecular formula:  $C_{12}H_{20}N_2O_5$

Column: C<sub>18</sub>-AR-II

Column size: 4.6mmID-150mm

Mobile phase: Methanol/ 20mmol/l Phosphate buffer(pH2.5)=30/70

Flow rate: 1.0 ml/min

Temperature: 30°C

Detection: UV210 nm

Attenuation: 0.128 auFS

Sample conc.: 0.29mg/ml

Injection volume: 1.0 µl

Retention time: 7.81min

Capacity factor: 3.41

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## Ordering Information

### COSMOSIL 5C<sub>18</sub>-MS-II Packed Column

Column Size I.D. x Length (mm)	Product Number
1.0 x 50	02824-31
1.0 x 150	02896-01
2.0 x 30	05876-71
2.0 x 50	04355-21
2.0 x 100	05597-31
2.0 x 150	38025-91
2.0 x 250	05761-61
3.0 x 100	05458-51
3.0 x 150	34245-31
3.0 x 250	34254-11
4.6 x 30	34341-61
4.6 x 50	38017-01

### COSMOSIL 5C<sub>18</sub>-MS-II Guard Column

Column Size I.D. x Length (mm)	Product Number
4.6 x 100	38018-91
4.6 x 150	38019-81
4.6 x 150 3 lots set	09397-73
4.6 x 250	38020-41
6.0 x 150	38021-31
6.0 x 250	38022-21
10 x 50	05789-21
10 x 150	34355-91
10 x 250	38023-11
20 x 150	05091-41
20 x 250	38024-01
28 x 250	05760-71

Column Size I.D. x Length (mm)	Product Number
4.6 x 10	38014-31
4.6 x 10 Cartridge*	38015-89
10 x 20	38016-11
20 x 20	05790-81
20 x 50	34371-71
28 x 50	34347-01

\* 3 cartridges included, needs a holder

### COSMOSIL 3C<sub>18</sub>-EB Column

Column Size I.D. x Length (mm)	Product Number
2.0 x 50	09794-21
2.0 x 75	09795-11
2.0 x 100	09796-01
2.0 x 150	09797-91
2.0 x 250	09798-81
3.0 x 50	09799-71
3.0 x 75	09800-21
3.0 x 100	09811-81

### COSMOSIL 3C<sub>18</sub>-EB Guard Column

Column Size I.D. x Length (mm)	Product Number
3.0 x 150	09814-51
3.0 x 250	09827-91
4.6 x 50	09840-01
4.6 x 75	09841-91
4.6 x 100	09842-81
4.6 x 150	09843-71
4.6 x 250	09844-61

Column Size I.D. x Length (mm)	Product Number
4.6 x 10	09839-41

### COSMOSIL Cholester Packed Column

Column Size I.D. x Length (mm)	Product Number
1.0 x 150	05968-71
1.0 x 250	05969-61
2.0 x 30	08565-51
2.0 x 50	06352-91
2.0 x 100	06948-01
2.0 x 150	05971-11
2.0 x 250	05972-01
3.0 x 150	05973-91
3.0 x 250	05974-81

### COSMOSIL Cholester Guard Column

Column Size I.D. x Length (mm)	Product Number
4.6 x 150	05976-61
4.6 x 150 3 lots set	07970-03
4.6 x 250	05977-51
10 x 150	08011-91
10 x 250	05979-31
20 x 150	06088-71
20 x 250	05982-71
28 x 250	05985-41

Column Size I.D. x Length (mm)	Product Number
4.6 x 10	05975-71
10 x 20	05978-41
20 x 20	05980-91
20 x 50	05981-81
28 x 50	05983-61

### COSMOSIL 2.5Cholester Packed Column

Column Size I.D. x Length (mm)	Product Number
2.0 x 50	09000-01
2.0 x 75	09047-11
2.0 x 100	09048-01
3.0 x 50	09049-91
3.0 x 75	09050-51
3.0 x 100	09051-41

### COSMOSIL 5PBr Column

Column Size I.D. x Length (mm)	Product Number
2.0 x 150	12392-81
4.6 x 150	12394-61
4.6 x 250	12395-51

### COSMOSIL 5PBr Guard Column

Column Size I.D. x Length (mm)	Product Number
10 x 250	12397-31
20 x 250	12398-21

Column Size I.D. x Length (mm)	Product Number
4.6 x 10	12444-14
10 x 20	12396-41

For research use only, not intended for diagnostic or drug use.



**NACALAI TESQUE, INC.**

Nijo Karasuma, Nakagyo-ku, Kyoto 604-0855 JAPAN

TEL : +81-(0)75-251-1730

FAX : +81-(0)75-251-1763

Website : [www.nacalai.com](http://www.nacalai.com)

E-mail : [info.intl@nacalai.com](mailto:info.intl@nacalai.com)