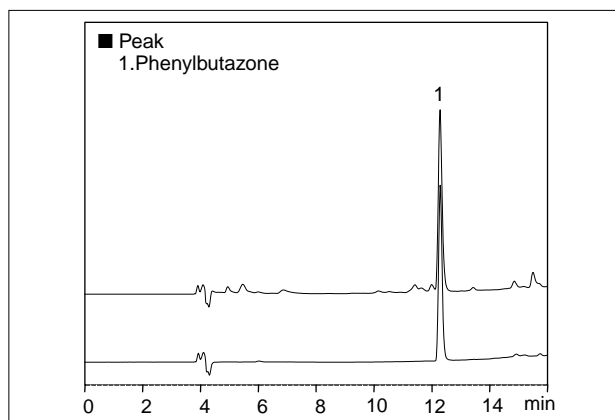


## Direct Injection of Blood Plasma for the Determination of Drugs using "Co-Sense for BA" (Part 4)

The "Co-Sense for BA" is a biosample analysis system capable of directly injecting biosamples such as blood plasma and blood serum. The "Co-Sense for BA" system removes proteins contained in the sample from the pretreatment flow path. The target components are extracted in the pretreatment column, eluted into the analysis flow path, separated from matrix components, and detected.

The principle and application examples of the Co-Sense for BA were already introduced in Application News L285, L286, and L293. This Application News introduces analysis examples using mobile phases with neutral pH. The analyses were carried out injecting control human blood plasma that was filtered through a 0.45 $\mu$ m membrane filter and spiked with drugs.

### ■ Determination of Phenylbutazone in Blood Plasma

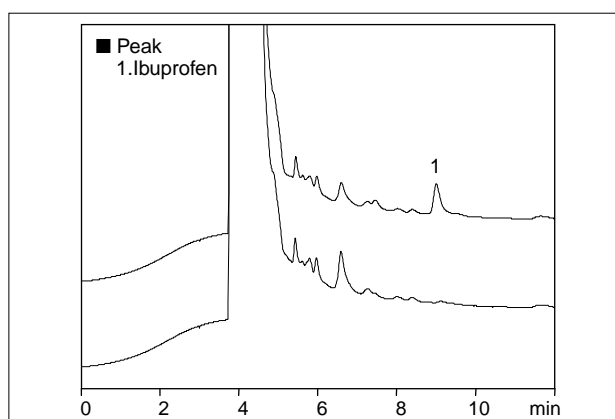


**Fig.1 Chromatogram of Phenylbutazone in Blood Plasma**  
(upper:spiked 4 $\mu$ g/mL, 50 $\mu$ L injected;  
lower:4 $\mu$ g/mL standard, 50 $\mu$ L injected)

**Table 1 Analytical Conditions**

For Sample Injection	
Column	: Shim-pack MAYI-ODS(10mmL. $\times$ 4.6mmI.D.)
Mobile Phase	: A: 100mM Acetate (Na) buffer (pH4.7) B: Acetonitrile A / B = 95 / 5 (v/v)
Flow Rate	: 2.0mL/min
Dilution Factor	: 8
For Separation	
Column	: Shim-pack FC-ODS (75mmL. $\times$ 4.6mmI.D.)
Mobile Phase	: A: 20mM Phosphate (Na) buffer (pH=6.9) 100mM Sodium perchlorate B: Methanol Linear gradient B 30% $\rightarrow$ 80% (4min $\rightarrow$ 12min)
Flow Rate	: 1.0mL/min
Temperature	: 40°C
Detection	: SPD-M10A $v_p$ at 265nm

### ■ Determination of Ibuprofen in Blood Plasma

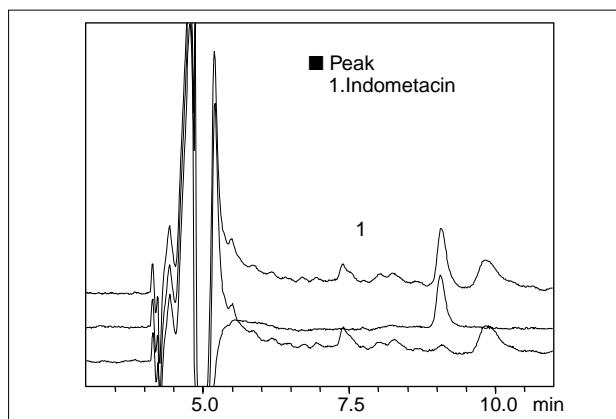


**Fig.2 Chromatogram of Ibuprofen in Blood Plasma**  
(upper:spiked 1 $\mu$ g/mL, 50 $\mu$ L injected;  
lower:unspiked, 50 $\mu$ L injected)

**Table 2 Analytical Conditions**

For Sample Injection	
Column	: Shim-pack MAYI-ODS(10mmL. $\times$ 4.6mmI.D.)
Mobile Phase	: A: 100mM Acetate (Na) buffer (pH4.7) B: Acetonitrile A / B = 90 / 10 (v/v)
Flow Rate	: 2.0mL/min
Dilution Factor	: 8
For Separation	
Column	: Shim-pack FC-ODS (75mmL. $\times$ 4.6mmI.D.)
Mobile Phase	: A: 20mM Phosphate (Na) buffer (pH=6.9) B: Methanol A / B = 45 / 55 (v/v)
Flow Rate	: 1.0mL/min
Temperature	: 40°C
Detection	: SPD-M10A $v_p$ at 210nm

### ■ Determination of Indometacin in Blood Plasma

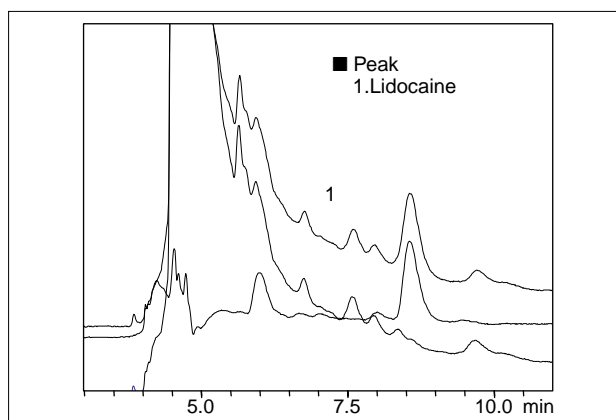


**Fig.3 Chromatogram of Indometacin in Blood Plasma**  
(upper:spiked 100ng/mL, 50µL injected;  
middle:100ng/mL standard, 50µL injected;  
lower:unspiked, 50µL injected)

**Table 3 Analytical Conditions**

For Sample Injection	
Column	: Shim-pack MAYI-ODS(10mmL.×4.6mmI.D.)
Mobile Phase	: A: 100mM Ammonium acetate B: Acetonitrile A / B = 90 / 10 (v/v)
Flow Rate	: 4.0mL/min
Dilution Factor	: 8
For Separation	
Column	: Shim-pack VP-ODS (150mmL.×4.6mmI.D.)
Mobile Phase	: A: 20mM Phosphate (Na) buffer (pH=6.9) B: Acetonitrile Linear gradient B 30%→35% (4min→6min)
Flow Rate	: 1.2mL/min
Temperature	: 40°C
Detection	: SPD-M10A <sub>VP</sub> at 270nm

### ■ Determination of Lidocaine in Blood Plasma

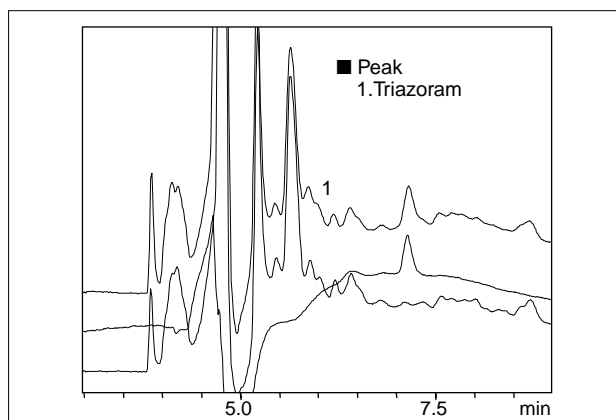


**Fig.4 Chromatogram of Lidocaine in Blood Plasma**  
(upper:spiked 1µg/mL, 50µL injected;  
middle:1µg/mL standard, 50µL injected;  
lower:unspiked, 50µL injected)

**Table 4 Analytical Conditions**

For Sample Injection	
Column	: Shim-pack MAYI-ODS(10mmL.×4.6mmI.D.)
Mobile Phase	: A: 50mM Phosphate (Na) buffer (pH=6.9) B: Acetonitrile A / B = 90 / 10 (v/v)
Flow Rate	: 4.0mL/min
Dilution Factor	: 8
For Separation	
Column	: Shim-pack VP-ODS (150mmL.×4.6mmI.D.)
Mobile Phase	: A: 20mM Phosphate (Na) buffer (pH=6.9) B: Acetonitrile A / B = 45 / 55 (v/v)
Flow Rate	: 1.2mL/min
Temperature	: 40°C
Detection	: SPD-M10A <sub>VP</sub> at 220nm

### ■ Determination of Triazolam in Blood Plasma



**Fig.5 Chromatogram of Triazolam in Blood Plasma**  
(upper:spiked 20ng/mL, 200µL injected;  
middle:20ng/mL standard, 200µL injected;  
lower:unspiked, 200µL injected)

**Table 5 Analytical Conditions**

For Sample Injection	
Column	: Shim-pack MAYI-ODS(10mmL.×4.6mmI.D.)
Mobile Phase	: A: 20mM Ammonium acetate B: Acetonitrile A / B = 90 / 10 (v/v)
Flow Rate	: 4.0mL/min
Dilution Factor	: 8
For Separation	
Column	: Shim-pack VP-ODS (150mmL.×4.6mmI.D.)
Mobile Phase	: A: 10mM Ammonium acetate B: Acetonitrile Linear gradient B 45%→50% (4min→6min)
Flow Rate	: 1.2mL/min
Temperature	: 40°C
Detection	: SPD-M10A <sub>VP</sub> at 250nm

\*Data presented here was not acquired using instruments approved under the Japanese Pharmaceutical Affairs Law



SHIMADZU CORPORATION, International Marketing Division

3, Kanda-Nishikicho 1-chome, Chiyoda-ku, Tokyo 101-8448, Japan Phone: 81(3)3219-5641 Fax: 81(3)3219-5710  
Cable Add.:SHIMADZU TOKYO

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