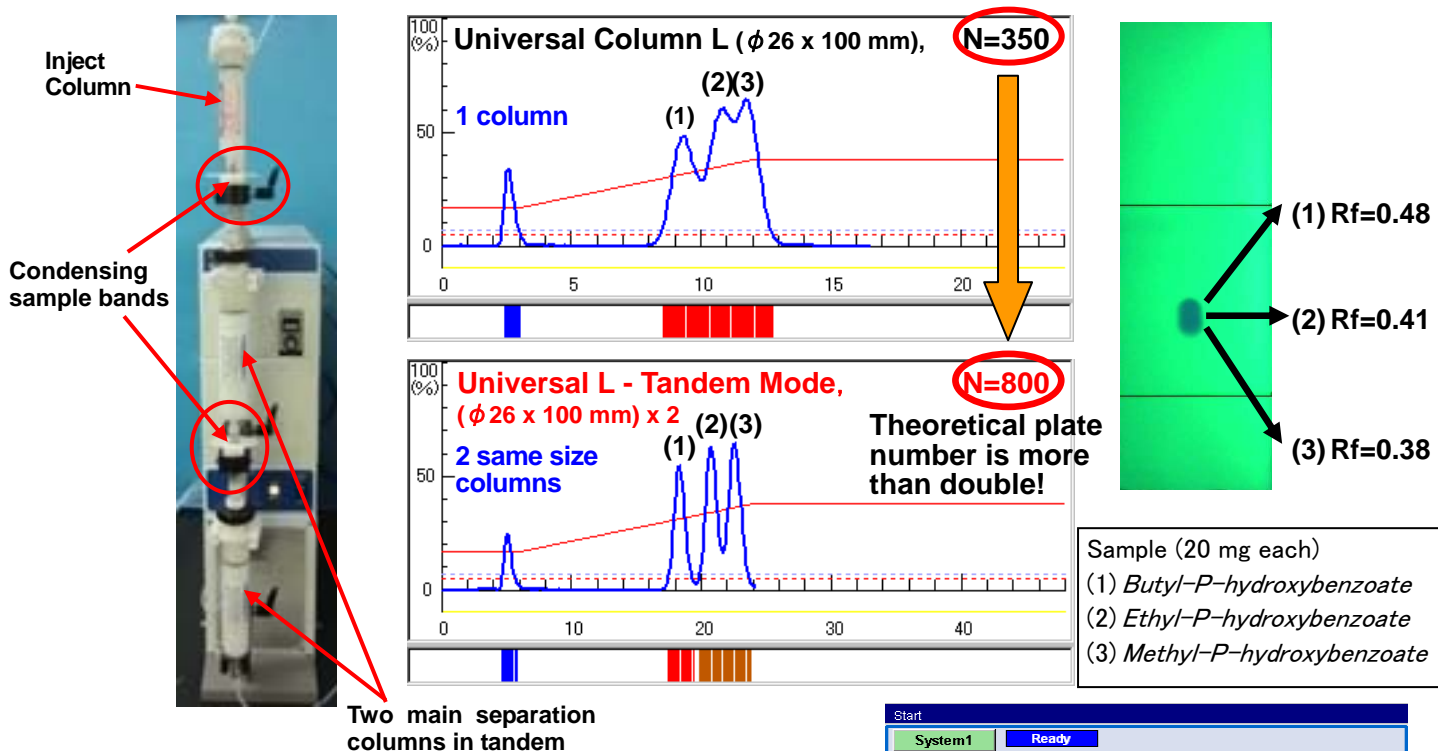# Tandem Mode (An Inject Column and 2 Separation Columns in Tandem)
- Solution For Difficult-To-Separate Sample -

To successfully separate the difficult-to-separate sample, with the target compound and the nearest impurity that are very close to each other, it would require a high performance column with a high theoretical plate number. A long column should give the high theoretical plate number, however, it could cause deformation of the sample band and/or the broad sample band if it is not of good quality, which will result in a poor separation.The picture below shows the tandem mode (one Inject Column for sample loading plus 2 same size separation columns in tandem) condenses the sample bands twice. The tandem mode is free from the deformation of the sample bands and broad sample bands. Two columns in tandem will also add up to the theoretical plate number. Thus it is a perfect solution for separating the difficult-to-separate sample.   This new function is available with software version XY5_110830a and after. Methods for the tandem mode will be automatically developed upon clicking its button on display.

Inject Column

Condensing sample bands

Two main separation columns in tandem

Universal Column L (ϕ26 x 100 mm),   **N=350**

1 column

(1) (2)(3)

Universal L - Tandem Mode,
(ϕ26 x 100 mm) x 2   **N=800**

2 same size columns

(1)(2)(3)

Theoretical plate number is more than double!

(1) Rf=0.48

(2) Rf=0.41

(3) Rf=0.38

Sample (20 mg each)
(1) Butyl-P-hydroxybenzoate
(2) Ethyl-P-hydroxybenzoate
(3) Methyl-P-hydroxybenzoate

⟨Automatic Set-up⟩

Column

Universal L is selected.

Universal Column

Tandem mode

SS 1.5x9.4
S 1.8x11.4
M 2.3x12.3
L 3.0x17
2L 3.0x20
3L 5.0x19

Click

Column

Universal L is selected.

Universal Column Tandem

SS 1.5x18.8
S 1.8x22.8
M 2.3x24.6
L 3.0x34.0
2L 3.0x40.0
3L 5.0x38.0

Tandem mode

Clicking on the Tandem Mode when choosing a column will automatically develop the method for tandem mode. If the initial choice was for one separation column, and then the tandem mode is chosen afterwards, the tandem mode will over-ride the choice for the one column mode.

Start

System1   Ready
User Name
Parallel YFLC
Column

EQUILIBRATION START

Equilibration Method   Solvents
Flow rate 30 ml/min   Time 20 min
A:Hexane : B:Ethyl acetat = 100 : 0

METHOD SETTING

CHROMATO. START

System setting has been set as default.

Method setting   System Setting

AUTOMATIC METHOD SETTING   Void time   To 7 min

	Eluent	Eluent	Ratio(%)	Time(min)
Initial	A:Hexane	B:Ethyl acetate	10	7
Grad.1				21
Max.1	A:Hexane	B:Ethyl acetate	50	14
Grad.2				0
Max.2	A:Hexane	B:Ethyl acetate	50	14
Grad.3				0
Max.3	A:Hexane	B:Ethyl acetate	0	0

Solvent level sensor   Total run time 56 min

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