

# ***Splitless Nano HPLC System***

***Applications in nano analysis***

# ***DiNa***

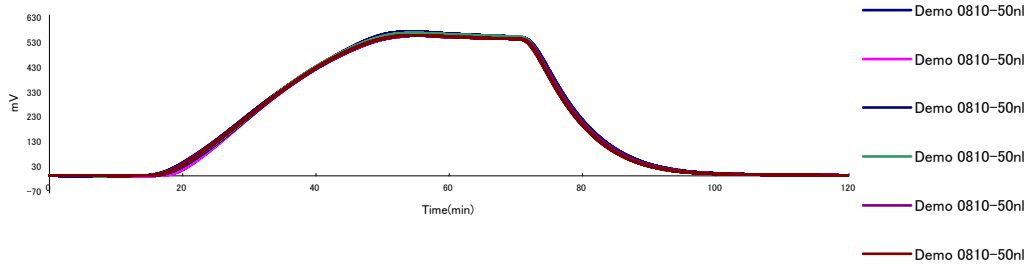
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**For Proteomics Analysis,  
Metabolomics, Microanalysis,  
Microreactor, Microchip,  
Pharmacokinetics and Drug Metabolism**

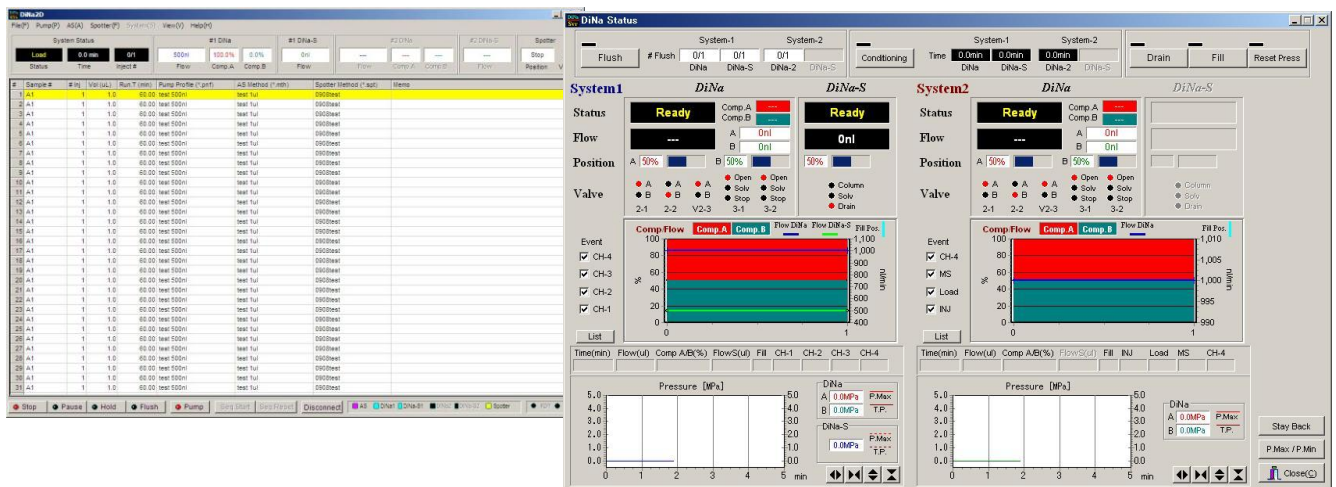
# Direct flow generates micro and nano solvent delivery

- Our unique direct flow delivery system enables the DiNa to generate gradients from 50nL/min with very minimal change of flow rate (caused by change of the columns) and to generate excellent reproducibility. Troublesome adjustment of the splitting ratio is not required because the DiNa employs a direct flow delivery system without using a splitter.

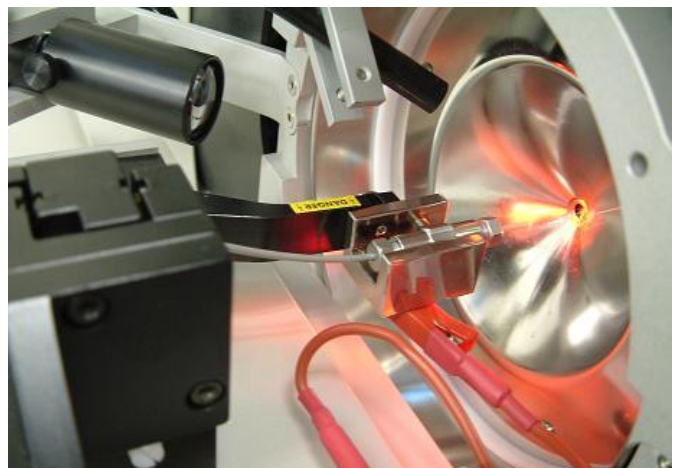
Flow Rate: 50nL/min  
 Mobile Phase: A ; H<sub>2</sub>O B ; 1% Aceton in 80%MeCN  
 Gradient ; A-B (30min)  
 Detection : UV 270nm (cell Volume 250nL)



- The DiNa is controlled using software designed to make the set-up and operation of the system simple and intuitive. Features such as auto-fill, auto-drain, auto-equilibrate can be programmed during a sequence without losing valuable analysis time and without the mass spectrometer losing 'spray'



## Coupling with any MS system



# DiNa series

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**DiNa**

Gradient pump



**DiNa ASM**

Auto sampler



**DiNa AI**

Auto sampler



**DiNa MaP**

MALDI spotter

Nano & micro fraction collector



**DiNa MR**

MALDI dispenser



**DiNa MaL**

MALDI spotter including function of  
desalting and enrichment



**DiNa SS**

Single Nano pump



**DiNa SK**

Stand alone single pump



**DiNa L**

5mL single micro pump



**DiNa LW**

5mL single micro pump(double)

# DiNa system

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## DiNa-M

The DiNa-M is a manual sample injection system. A trap column enables enrichment and desalting of the sample.

**System configuration:** One DiNa, one nano injection valve with an actuator, one DiNa control software, one KYA analysis column, one KYA trap column.



## DiNa-A

The DiNa-A is an automatic system. The sample is automatically injected and desalted and run under the gradient mode.

**System configuration:** One DiNa, one DiNa ASM, one valve for a trap column, one DiNa control software, one KYA analysis column, one KYA trap column.

## DiNa-AP

The DiNa-AP is a direct injection system which has been developed to enable a high sensitive measurement of phosphorylated peptides

**System configuration:** One DiNa, one DiNa ASM, one valve for a trap column, one DiNa control software, one KYA analysis column, one KYA trap column.



## DiNa-2A

The DiNa-2A is an on-line 2D auto injector system which performs the first dimension ion exchange in a step-wise mode and then perform the second dimensions separation in gradient mode. Switching the system from the 2D to 1D analysis mode can be easily done by simply changing the parameters in the software.

**System configuration:** One DiNa, one DiNa ASM, one valve for a trap column, one valve for ion exchange, one DiNa control software, one KYA ion exchange column, one KYA trap column.

## DiNa-MD

The DiNa-MD is an on-line system which is enabled to create gradients for the 1D as well as 2D. Switching the system from the 2D to 1D analysis can be easily done by only changing the parameters in the software.

**System configuration:** Two DiNa, one DiNa ASM, one valve for a trap column, one valve for ion exchange, one DiNa control software, one KYA ion exchange column, one KYA trap column.

## Auto Nano System (Automatical infusion system)

Auto nano system is an interface which enables infusion measurement automatically.

**System configuration:** Main device, PC.



## DiNa-MaP

Direct nano LC/MALDI Spotter system coupling with DiNa Nano LC system enables stable spotting at nL level.

Different manufacturers MALDI plates or microplates can be used at the same time. Simultaneous Matrix spotting.



Stage layout



The above photo shows 1504 spots have been made on the plates



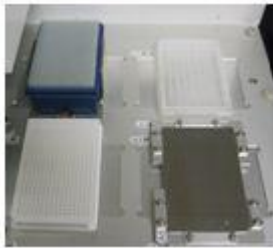
DiNa-MaP

## DiNa-MR

DiNa-MR enables to mix sample with matrix, and spot with sufficient accuracy at high speed.

Desalting is possible on the plate if necessary.

Different manufacturers MALDI plates or microplates can be used.



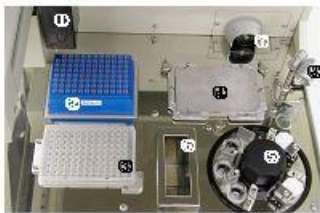
Stage layout



## DiNa-MaL

Automatic sample concentration, purification and spotting to MALDI targetplate using Zip Tip™

Different manufacturers MALDI plates or microplates can be used.



Stage layout

- ① 1Channel Fraction Head
- ② Tip Rack
- ③ Sample Plate
- ④ Target Plate
- ⑤ Turntable for reagent and washing solution
- ⑥ Tip Disposal Hole
- ⑦ CCD camera



## TM-Sprayer

TM-Sprayer is a Matrix spraying system for MALDI imaging.



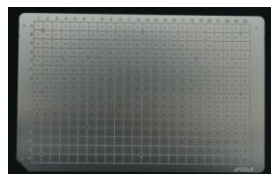


## μ Focus MALDI

Hydrophobic/hydrophilic coated MALDI target plate.

High reproducibility.

Non coated plate also available



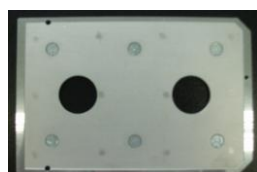
384



1536 well



12\*16 well



HMFP-BD

μFocus MALDI plate				Quant.
Support model	Parts No.	well	Spot size	
Applied Biosystems	PFA0107	(8*8 well)	700μm	10 ea/pk
	PFA0110	(8*8 well)	1000μm	10 ea/pk
	PFA0207	(12*12 well)	700μm	10 ea/pk
	PFA0210	(12*12 well)	1000μm	10 ea/pk
	PFA0307	(12*16 well)	700μm	10 ea/pk
	PFA0310	(12*16 well)	1000μm	10 ea/pk
	PFA0406	(24*24 well)	600μm	10 ea/pk
ABI 4800	PFA2106	(384 well)	600μm	5 ea/pk
	PFA2110	(384 well)	1000μm	5 ea/pk
	PFA2206	(1536 well)	600μm	5 ea/pk
Bruker & Shimadzu	PFS2106	(384well)	600μm	10 ea/pk
	PFS2110	(384well)	1000μm	10 ea/pk
	PFS2206	(1536 well)	600μm	10 ea/pk

Magnetic Holder				Quant.
Support model	Parts No.			
Applied Biosystems	HMA0101			1 ea
Bruker Daltonics	HMB0101			1 ea
Shimadzu	HMS0101			1 ea

## Grid cutter

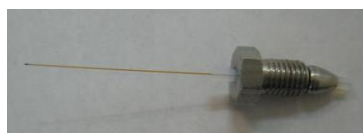
Enable to cut several bands at once.

Suitable for protein iTRAQ.



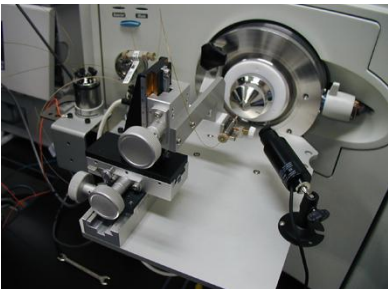
Parts No.	Product	detail
MEE-1x10	Grid cutter	10unit, 1mmx10mm lanes, 26row, 1column
MEE-1x3.5	Grid cutter	10Unit, 1mmx3.5mm lanes, 26row, 1column
MEE-1x5	Grid cutter	10unit, 1mmx5mm lanes, 40row, 1column
MEE-2x7	Grid cutter	10unit, 2mmx7mm lanes, 25row, 1column
MEF-1.5	mount	Mount for grid cutter
MEF-11	mount	Mount for grid cutter
MEF-3.5	mount	Mount for grid cutter
MEE-1x10& MEF-11	Grid cutter/mount set	Set with MEE-1x10 and MEF-11
MEE-1x3.5& MEF-3.5	Grid cutter/mount set	Set with MEE-1x3.5 and MEF-3.5
MEE-1x5& MEF-1.5	Grid cutter/mount set	Set with MEE-1x5 and MEF-1.5
MEE-2x7& MEF-1.5	Grid cutter/mount set	Set with MEE-2x7 and MEF-1.5

## Spray tip



Parts No.	detail
SP-3	Spray tip(3ea/pk with conector)
TI-30-150	Spray tip (5ea/pk only tips)
TI-50-375	Spray tip (5ea/pk only tips)
<b>Other size available. Please call us.</b>	

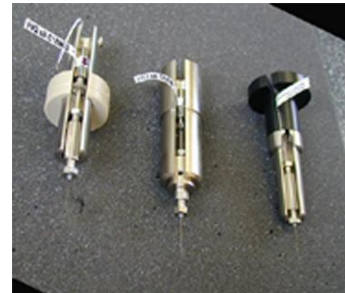
# DiNa Nano stage and nano spray holder



Nano stage



Nano stage



Holders for the nano spraystage

## Various columns



## Proteome Standard

developed by RIKEN

(The Institute of Physical and Chemical Research)

- Tryptic digests of Bovine serum albumin (tBSA)
  - Complete carboxymethylation
  - Complete digestion
  - High coverage rate in MS analysis
  - Accurate concentration
  - Ready for use !
- Human serum albumin (tHSA)
- Hen egg albumin (tOA)

Packing materials, nano LC trap column, nano LC capillary columns, semi micro, conventional, preparative columns.

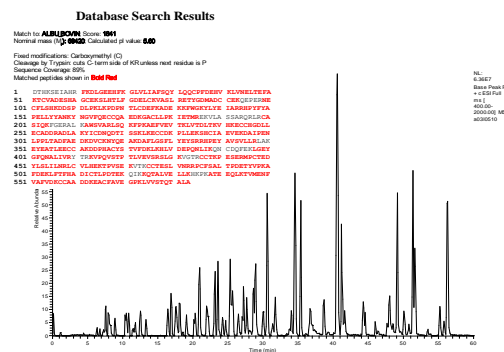


Fig 3 LC-MS Chromatogram and search results of the digest

<b>Nano LC capillary columns</b>	
<u>P/N with column size</u>	
2-*	0.2mmL.D x * mmL
1.5-*	0.15mmL.D x * mmL
1-*	0.1mmL.D x * mmL
0.75-*	0.75mmL.D x * mmL
<b>Nano LC trap columns</b>	
0.5-1	0.5mmL.D x 1mmL
0.8-3	0.8mmL.D x 3mmL
* Please specify length of the columns	

<b>Proteome standard</b>	
<u>P/N</u>	<u>Description</u>
BSA-04	tBSA 4 Vials /set
HSA-04	tHSA Vials /set
OA-04	tOA 4 Vials /set

## Specifications

<b>Nano Gradient Pump(DiNa W)</b>		Event	event for external program start, pressure output(2ch), RS-232
Delivery system	high pressure double syringe system: 1 set,	Operation	AC 100V - 240V, max.200VA
Syringe volume	200μL	Dimensions	W300 x H210 x D500mm
Communication	RS-232	Weight	21Kg
Flow rate range	1nL to 200,000nL/min, 1nL step ( gradient: 50nL/min to 1000nL/min )		
<b>Nano Gradient Pump(DiNa T)</b>		Event	event for external program start, pressure output(3ch), RS-232
Nano gradient pump	high pressure double syringe system	Operation	AC 100V - 240V, max.150VA
Delivery system	high pressure double syringe system	Dimensions	W140 x H160 x D320mm
Syringe volume	200μL	weight	25Kg
Communication	RS-232		
Flow rate range	1nL/min to 100,000nL/min, 1nL step		
Matrix pump	high pressure single syringe system		
Delivery system	high pressure single syringe system		
Syringe volume	200uL		
Flow rate range	1nL/min to 100,000nL/min, 1nL step		
<b>Autoinjector(DiNa ASM)</b>		Communication	RS-232
Sample injection	Direct injection to trap column	Temperature control	min. 4°C ( room temperature - 16 °C )
Sample volume	0.1 - 50uL	Operation	100 - 250AC( 50/60Hz ), max.250VA
Sample rack	48 vials, 96 well plate ( Low, High ), 384 ( Low )	Dimensions	W300 x H385 x D500mm
Injection precision	RSD ≤ 1.0% (>5uL)	weight	24Kg
<b>Autoinjector (DiNa AI)</b>		Communication	RS-232
Sample injection	full loop, partial loop, micro pick-up	Temperature control	min. 4°C ( room temperature - 16 °C )
Sample volume	0.1 - 100uL	Operation	AC 115 - AC 230V ( 50/60Hz ), max.250VA
Sample rack	48 vials, 96 well plate ( Low, High ), 384 ( Low )	Dimensions	W280 x H400 x D440mm
Injection precision	full loop: RSD ≤ 0.3% partial loop: RSD ≤ 0.5% ( >5μL ) micro pick-up: RSD ≤ 1.0% ( >5μL )	weight	26Kg
			Note : The DiNa AI micro is optionally available.
<b>Spotter and NanoLC fraction collector (DiNa MaP)</b>		Fraction flow rate range	100nL ~
Compatibility MALDI Plate	max. 8 or 4 plates ( depending on the type of the plate )	Matrix flow rate rage	100nL ~
Microplate	96 well plate ( Low, High ), 384 well plate ( Low )	Spotting mode	continuous spotting ( at constant intervals ), continuous spotting via external pulse signal
Spotting method	contact or non contact, simultaneous matrix and sample mixing spotting in non contact mode	Needle washing	automatic rinse with washing solvent, waste port available
		Spotting pattern	straight, Zig Zag
		Operation	AC 100 - 200V
		Dimensions	W500 x H300 x D490mm
		Weight	approx. 39kg
<b>MALDI Dispenser (DiNa MR)</b>		Communication	USB
Dispensing method	24ch independent syringe method (1ch,12ch is optionally available.)	Operation	AC100V
Dispenser head composition	24ch head(enable to use as 16ch) 12ch head(enable to use as 8ch)	Dimensions	W520 x H600 x D520
Stage no.	4 stage(enable to change direction)		
Dispence volume	0.5 - 30uL		
<b>Desalting and Sample Concentration (DiNa MaL)</b>		Reagent bath	5ch
Fraction head	1ch tip automatic change	Dimensions	W500x H360 x D490mm
Fraction volume	0.5 - 30μL	Operations	AC 100 - 200V
Tip Washing	1ch overflow washing bath	Weight	approx. 40kg
System control	PC		

\*Product specifications and external appearance are subject to change without prior notice. Products colors in this brochure are not necessarily the same as those of the actual products due to the differences in shading in photograph and printing ink.

\*\*KYA Technologies is working to develop its worldwide sales network. If you are interested in distributing our products, please contact us at KYA Technologies.  
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