

**TABLE 3. Looking for a microarrayer?**

Company (for contact details see Supplier Index on Lab-on-a-Chip.com)	Product	Printing technologies and pin types	Maximum number of pins	Slide capacity	Plate capacity	Smallest delivery volume / nl	Smallest spot diameter / $\mu\text{m}$	Maximum number of spots/slide	X, Y, Z resolution / $\mu\text{m}$	Maximum print rate (spot/second/pin) +	Environment control (1)	Pin washing	Literature reference	User reference	Other options
<b>Affymetrix Inc.#</b>	Affymetrix 417 arrayer	Contact; Solid pins with proprietary pin-and-ring technologies	4	42	3 x 96/384 well plate	*	125	*	10	~1	*	fluid stream with suction drying	*	*	*
<b>Arrayit.com</b>	SpotBot Personal Microarrayer	Contact; Stealth pins	4	14 (2 for preprint)	1 x 384 well plate	0.5	75	82,000	10	~0.56	B (passive)	Wash fountain with a forced air drying system	*	1. Motorola 2. Wayne State University 3. NASA Aimes Research Center	*
<b>Biorobotics</b>	MicroGrid II (TAS and Pro)  MicroGrid II Compact	Contact; Solid and quill pins	64 for 384 well plates; 256 for 1536 well plates	108	24 x 384/1536 well plate  4 x 384/1536 well plate	1	140	50,000	10	~1	A, B, C	2 recirculating wash baths and 1 vacuum wash/dry station	*	1. Clontech 2. Sanger Centre, UK 3. National Cancer Institute, Amsterdam, Netherlands	MicroGrid II can perform replicating and rearraying function and produce macroarray
<b>Cartesian Technologies</b>	MicroSys 5100  PixSys 5500  PixSys 5500XL  ProSys 5510A  ProSys 5510TL  ProSys 5510XL	Contact and Inkjet (microsolenoid); Stealth and quill pins	48 pins or 8 inkjets	11 50 50 100 100 100	1 3 20 3 20 50	0.3	75	80,000	1.3	*	B, D	Combination vacuum wash station	1. "More compounds tested with less automation" Drug Discovery and Development 2. " Ultra high throughput screen of two million member combinatorial compound collection in a miniaturized 1536 well assay format	1. Whitehead Institute 2. Operon Technologies 3. Harvard University	Vision systems; barcode readers
<b>GeneMachines</b>	OmniGrid  OmniGrid Accent	Contact; compatible with all commercial pins	48	100 50	74 x 96/384 well plate 3 x 96/384 well plate	*	100	100,000+	2.5 on X & Y; 1.25 on Z	~1.64 ~1.16	A, B A, optional B	Combination of sonication, water/fluid wash with peristaltic pump, and vacuum dry	*	*	*
<b>GenPak#</b>	genpakARRAY 21	Contact; *	48	100	120	0.5	75	120,000	*	~0.69	B, C	Wash by ultrasonic water bath	*	*	*
<b>Genetix</b>	QArray  QArray Lite  QArray Mini	Contact; Genetix 150 $\mu\text{m}$ solid pins and most commercially available pins	24 24 16	84 90 54	5 x 96/384 well plate	0.5 (stealth) 1 (solid)	75 (stealth) 200 (solid)	16,384 or 12,288	1 1 10 on X & Y; 50 on Z	~1.25 ~1.25 *	A, B Optional A & B Optional A & B	Uses up to 3 different washing reagents at high pressure and compressed air drying	*	*	*
<b>Genomic Solutions</b>	GeneTAC G <sup>3</sup>	Contact; *	*	*	*	>1	*	*	*	*	*	*	*	*	*
<b>GeSiM mbH#</b>	Nano-Plotter	Inkjet (Piezoelectric technology)	8	30	1 for 30 slide configuration; 3 for 20 slide configuration	0.1	*	*	*	*	*	wash/dry-by flushing both inner and outer sides of the nozzles	*	*	*
<b>Intelligent Bio-instruments#</b>	High Throughput Microarrayer	*	48	100	108 x 96/384 well plate	*	120	20,000	*	~2.89	*	*	*	*	*
<b>MiraiBio Inc</b>	SPBIO Microarray spotter	Contact; Solid pins	32	48	14 x 96/384 well plate	2	200	20,000	10 on X & Y; 20 on Z	*	No	Cascading ultrasonic water bath washing and air blow-drying	1. Yoshikawa T. et al. Biochem. Biophys. Res. Comm. 275: 532-537 2. Sakai K. et al. Anal Biochem. 287: 32-87	*	*
<b>Packard Bioscience</b>	SpotArray 24  SpotArray Enterprise  BioChip Arrayer	Contact; Stealth pins  Inkjet (Piezoelectric technology) Inkjet (Piezoelectric technology)	48 8 4	24 (4 for pre-print) 108 25	4 x 96/384 well plate 50 x 96/384 well plate 5 x 96/384 well plate	0.6 0.325 0.325	100 150 150	82,944 20,000 20,000	10 on X & Y; 250 on Z 0.1 on X & Y; 1 on Z 1 on X & Y; 10 on Z	~0.98 ~19.2 ~2	A, B No Optional A	(pin system) By a powerful 4 pressure jets from 4 directions and vacuum dried;  (inkjet system) Ultrasonic cleaning flush inside and outside with 2 optional cleaning reagent wash for difficult samples	*  1. Moody MD. et al. Biotechniques 31: 186-194	1. Arrayit.com  *  1. GenProbe 2. Oxford GlycoSciences 3. GeneLogic	(pin system) Pin lifer function to selectively lift subsets to pin to increase printing density. (inkjet system) video monitoring; dispense verification; dispense error correction run; used sample returned to source plate
<b>Robodesign#</b>	RoboArrayer	Contact; *	64	100	*	1	*	*	2.5	*	Optional A, B, D	Sonic wash and vacuum dry	*	*	Video inspection
<b>Virtek Vision International Inc.</b>	ChipWriter Pro  ChipWriter Compact	Contact; Stealth pins	48 48	126 24	18 x 96/384 well plate 1 x 96/384 well plate	0.6	90	81,920	1.25 on X & Y; 0.25 on Z *	~1	A, B *	Sonication and vacuum dry	1. Diehl F. et al. Nucleic Acids Res. 29: e38	1. Arrayit.com 2. Center of Functional genomics, University of Rochester 3. Yale University	Replicating and rearraying; make macroarray

# information not supplied but available on their website

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+ The actual rate may be different for different array, plate and pin format. The given value is calculated from the parameters provided

(1) Environmental control – A: HEPA filter; B: Humidifier; C: Temperature; D: Source plate cooling