

Title (en)  
SURFACE MICROMACHINED MICRONEEDLES

Title (de)  
MIKRONADEL MIT MIKROMECHANISCH BEARBEITETER OBERFLÄCHE

Title (fr)  
MICRO-AIGUILLES MICRO-USINEES SUR UNE SURFACE

Publication  
**EP 1113832 A4 20020417 (EN)**

Application  
**EP 99948307 A 19990917**

Priority  
• US 9921509 W 19990917  
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Abstract (en)  
[origin: WO0016833A1] Surface micro-machined micro-needles (32) are formed as single needles (32) or in two-dimensional or three-dimensional micro-needle arrays (30). The micro-needles (32) are fabricated on a substrate (12) which can remain attached to the micro-needles (32) or can be subsequently removed. The two-dimensional or three-dimensional micro-needle arrays (30) can have cross-coupling flow channels (36) which allow for pressure equalization, and balance of fluid flow within the micro-needle arrays (30). Each of the micro-needles (32) has a micro-channel (36) therethrough that provides communication between at least one input port (37) at a proximal end of the micro-needles (32), and at least one output port (39) at an opposite distal end.

IPC 1-7  
**A61M 5/32; A61M 37/00**

IPC 8 full level  
**G03F 7/20** (2006.01); **A61M 5/32** (2006.01); **A61M 37/00** (2006.01); **B81B 1/00** (2006.01); **B81C 1/00** (2006.01); **B81C 3/00** (2006.01); **B81C 99/00** (2010.01); **C12M 3/00** (2006.01)

CPC (source: EP)  
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Citation (search report)  
• [XY] WO 9617648 A1 19960613 - CIBA GEIGY AG [CH], et al  
• [X] WO 9703718 A1 19970206 - BOEHRINGER INGELHEIM KG [DE], et al  
• [X] GB 2221394 A 19900207 - EILERTSEN EILERT  
• [Y] WO 9833032 A1 19980730 - UNIV UTAH RES FOUND [US]  
• [Y] PAPAUTSKY I E ET AL: "MICROMACHINED PIPETTE ARRAYS (MPA)", PROCEEDINGS OF THE 19TH ANNUAL INTERNATIONAL CONFERENCE OF THE IEEE ENGINEERING IN MEDICINE AND BIOLOGY SOCIETY. CHICAGO, IL, OCT. 30 - NOV. 2, 1997, ANNUAL INTERNATIONAL CONFERENCE OF THE IEEE ENGINEERING IN MEDICINE AND BIOLOGY SOCIETY, NEW YORK, N, vol. 6, 1997, pages 2281 - 2284, XP000912061, ISBN: 0-7803-4263-1  
• See references of WO 0016833A1

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