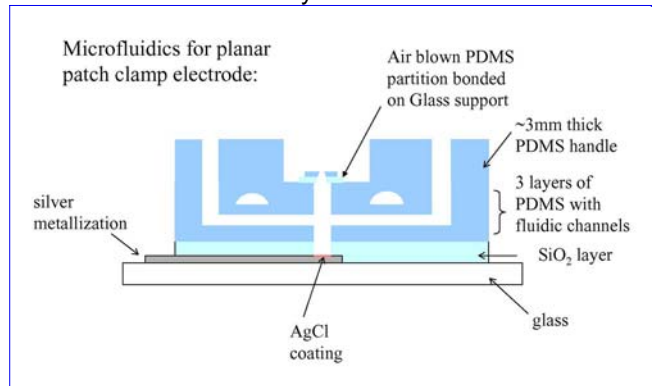


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Session Title: Micro-and Nanotechnology, Nanopores
Presentation Number: 1448-Pos
Abstract Title: Microfluidic System for Planar PDMS Patch Clamp Electrode Arrays
Location: Halls A/B/C/D
Topic: 9G Biotechnology & Bioengineering
Author Block: **Xiaohui Li, MS**, Kathryn G. Klemic, James F. Klemic, Mark A. Reed, Fred J. Sigworth. Yale University, New Haven, CT, USA.

Air-molding is an easy way to fabricate PDMS partitions for planar patch-clamp electrode measurements (Klemic et al., Eur. J. Physiology. 449:564 2005). Here we present a microfluidic system integrated with these planar PDMS patch-clamp electrodes. A disposable electrode is made by bonding an air-blown PDMS partition to a small glass washer. It is placed onto the fluidic system having fluid exchange channels with isolation valves and Ag/AgCl electrodes. Fluid channels are molded from PDMS using microlithographically defined molds. Ag/AgCl electrodes are fabricated with standard microfabrication techniques. Gigaseal patch recordings from RBL-1 cells are obtained with a 24% success rate. Our system allows simultaneous recordings from valve-isolated electrodes.



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