SU-8/Pyrex Microchips
WITH INTEGRATED ELECTRODES
SU-8/Pyrex Microchips

**SU-8/Pyrex single-channel microchips**

Two crossed microchannels fabricated on EPON SU-8 resin with integrated electrodes on Pyrex cover plate.

Highly resistant hybrid SU-8/Pyrex material for reusable microfluidic chips. Long life (over 1000 runs/injections) at minimal cost*.

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### Channel Geometry and Microchip Dimensions

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Channel Geometry (µm)</th>
<th>Access holes (mm)</th>
<th>Microchip dimensions (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>width</td>
<td>depth</td>
<td>a</td>
</tr>
<tr>
<td>MCE-SU8-xx00XT</td>
<td>50</td>
<td>20</td>
<td>38</td>
</tr>
</tbody>
</table>

*Depending on the experimental conditions and samples.
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Integrated electrodes

The electrochemical detection (ED) system consists of three electrodes at the outlet of the separation channel.

> Electrodes: 50/150 nm titanium/platinum thin-film
> Electrodes: 50/150 nm chromium/gold thin-film

The end-channel electrochemical detector are placed 20 μm from the channel outlet.
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ELECTROCHEMICAL DETECTOR DESIGNS
Electrodes are available in different designs and materials

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Electrode material</th>
<th>Electrochemical detector (µm)</th>
<th>WE</th>
<th>RE</th>
<th>AE</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCE-SU8-Pt001T</td>
<td>Platinum</td>
<td>50 250 250</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MCE-SU8-Pt002T</td>
<td>Platinum</td>
<td>100 100 100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MCE-SU8-Au001T</td>
<td>Gold</td>
<td>50 250 250</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MCE-SU8-Au002T</td>
<td>Gold</td>
<td>100 100 100</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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SU-8/Pyrex single-channel microchips

Separation of neurotransmitters dopamine (DA) and DOPA performed using a SU-8/pyrex microchip in combination with the microchip holder (ref. ENC-SUB-01) and MicruX® HVStat instrument (ref. HVSTAT2010).

:: MCE-SUB-Pt001T

Electropherogram for the separation of 100 μM DA and 500 μM DOPA using a SU-8/pyrex single-channel microchip with platinum-based electrodes. Conditions: Running buffer: 25 mM MES-His pH = 6.0; \( V_{\text{inj}} = +750 \text{ V for 5s} \), \( V_{\text{sep}} = +1000 \text{ V} \), \( E_d = +0.75 \text{ V (vs. Pt)} \)

:: MCE-SUB-Au001T

Electropherogram for the separation of 100 μM DA and 500 μM DOPA using a SU-8/pyrex single-channel microchip with gold-based electrodes. Conditions: Running buffer: 25 mM MES-His pH = 5.9; \( V_{\text{inj}} = +750 \text{ V for 3s} \), \( V_{\text{sep}} = +1000 \text{ V} \), \( E_d = +0.75 \text{ V (vs. Au)} \)
SU-8/Pyrex Microchips

SU-8/Pyrex dual-channel microchips

Two parallel microchannels fabricated on EPON SU-8 resin with integrated electrodes on Pyrex cover plate

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Channel Geometry (µm)</th>
<th>Access holes (mm)</th>
<th>Microchip dimensions (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCE-SU8-P1003TT</td>
<td>width 50</td>
<td>depth 20</td>
<td>a 38, b 13, c 5, d 30, e 5</td>
</tr>
</tbody>
</table>
SU-8/Pyrex Microchips

SU-8/Pyrex dual-channel microchips

Integrated electrodes

The electrochemical detection (ED) system consists of four electrodes at the outlet of the separation channel.

Electrodes: 50/150 nm titanium/platinum thin-film

WE: working electrode
RE: reference electrode
AE: auxiliary electrode

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Electrode material</th>
<th>Electrochemical detector [μm]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>WE1/WE2 RE AE</td>
<td>100 100 100</td>
</tr>
<tr>
<td>MCE-SU8-Pt003TT</td>
<td>Platinum</td>
<td>100 100 100</td>
</tr>
</tbody>
</table>

The end-channel electrochemical detector are placed 20 μm from the channel outlet.
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