Lesion with quartz_platinum / tungsten microelectrodes

Chun-I Yeh, Dajun Xing, Patrick E. Williams, Robert M. Shapley
Center for Neuroscience, New York University, New York, 10003

We have successfully applied a dc signal to make lesions with quartz_platinum / tungsten microelectrodes (Thomas Recording, Marburg, Germany) in macaque primary visual cortex. The lesion maker is a stimulus generator from ALA Scientific Instruments (Westbury, New York; model number: STG-1001), and the parameters for lesions are 3μA dc current for 2 seconds. Figure 1 shows a 50-μm thick cytochrome-oxidase-stained brain section in which 7 lesions were made with 2 quartz_platinum / tungsten microelectrodes. We made a number of lesions at different cortical depths along each electrode track. Importantly, electrodes remain relatively intact after multiple lesions and can be used again for recordings (Figure 2).

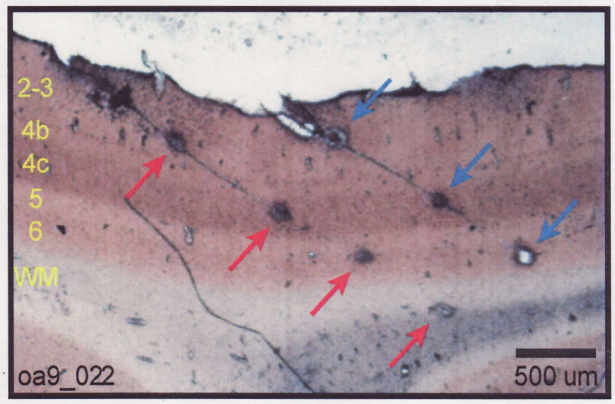

Figure 1: Multiple lesions made with 2 quartz_platinum / tungsten microelectrodes electrodes. All lesions were produced with a 3 μA dc current for 2 seconds. Red arrows points to 4 lesion sites made with one electrode and blue arrows 3 lesion sites made with the other.

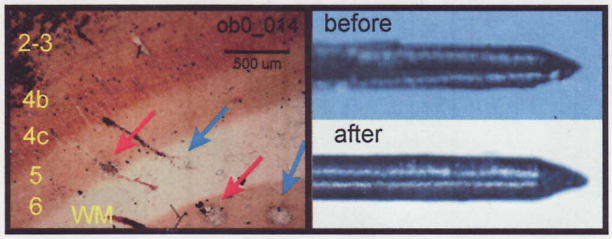

Figure 2: An example (right) of the same quartz_platinum / tungsten electrode before (top) and after (bottom) dc lesion (left, two lesions made with this electrode are pointed by red arrows). Note that the tip of the electrode remains relatively intact.